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MARCH 2020

Ground Support WORLDWIDE

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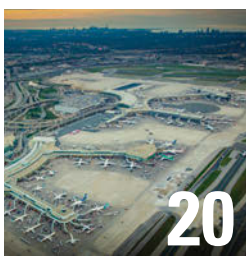

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MARCH 2020

ONLINE EXCLUSIVES

Why Did You Buy a Private Jet?

By Kyle Patel

Cryptocurrency-centered private jet provider BitLux explains why purchasing an aircraft is not for everyone; unless you want to lose money.

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VIDEOS

MLB Air Traffic Control Tower Demolition

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BLOGS

Flight Shaming Hits Business Aviation and Other Predictions for 2020

By Brian Foley

For private aviation there are developments that would suggest that 2020 will shape up much differently than 2019. Here are some thoughts, trends and predictions for the year.

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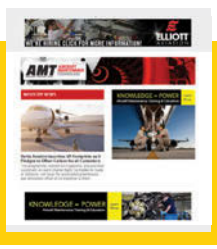

FEATURES

Digital Overhaul: How Airports Can Navigate New Baggage-Tracking Regulations with Ease

By Michael Irons

With RFID as the technology enabler, airports are able to significantly increase the number of read locations throughout the terminal.

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Coronavirus Puts a New Focus on the Spread of Illness in Airports

By Tony Abate

The coronavirus epidemic has not only focused new attention to international travel, but the dangers that result when traveling through airports around the world.

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Improve Your Retail Experience and Airport Operations with These Fresh Eyes

By Justin Bean

Digital innovation is updating airport marketing methods to improve retail and facility operations.

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▶ TOP NEWS

WFS Gains IATA CEIV Certification for New Pharma Center at Paris CDG

Worldwide Flight Services (WFS) has been awarded IATA CEIV Pharma certification for its new €10 million pharma center at Paris Charles de Gaulle Airport, for the handling of temperature-controlled healthcare and life science products.

Opened in September last year, the center is the only dedicated facility at the airport – the second largest air cargo gateway in Europe – with a team of dedicated and trained experts, temperature-controlled warehousing, and a transport fleet specifically adapted to guarantee pharmaceutical shipments integrity. Nearly 30 airlines and freight forwarders are already using the pharma center, which is forecast to handle over 8,000 tons of products in 2020.

"Investing in the pharma center supports WFS' strategy to broaden our product offering by supporting the needs of both our airline and forwarding customers as well as their customers, which, in this case, are major pharmaceutical companies that demand the highest standards of compliance to protect the integrity of their products," said Hugo Rodrigues, vice president cargo, France at WFS. "Gaining IATA CEIV Pharma certification so soon after opening the center recognizes our intention to meet the highest industry standards. It also adds to Paris CDG's reputation as one of the world's leading air cargo gateways."

dnata Becomes a Full Member of Cargo iQ

Global air services provider dnata has joined Cargo iQ as a full member to benefit from the extensive knowledge and expertise that membership brings. The Dubai-headquartered ground handler's stations in the UK and the

Netherlands were previously members on an individual basis.

"The dnata network has grown up fast over last few years," said Guillaume Crozier, divisional vice president of operations and product development, dnata. "As we extend our network, we strive to maintain a high level of performance in all aspects, making sure all our stations match with global quality and performance standards."

"It is great to have the whole organization of dnata onboard as a full member, as they are a true global ground handling player and this will add a lot of value and further enhance Cargo iQ," said Ariaen Zimmerman, executive director, Cargo iQ. "We look forward to dnata's increased contributions to our initiatives that we run to help improve the movement of air cargo across the supply chain."

Nairobi Becomes Ninth IATA CEIV Certified Swissport Pharma Center

IATA's Center of Excellence for Independent Validators in Pharmaceutical Logistics (CEIV Pharma) has certified Swissport's upgraded cargo warehouse at Nairobi's Jomo Kenyatta International Airport (NBO). Swissport is the first globally active air cargo handler to receive the certification for a facility in Africa.

"We are very pleased to officially open our latest CEIV certified facility for our customers. The certification by IATA reflects our strategic commitment to superior air cargo handling," said Jeroen de Clercq, vice president, Sub Sahara Africa and Israel, and chief executive officer of Swissport Kenya Limited. "The CEIV Pharma standard guarantees air

▶ Upcoming Events

April 14-17
Petro Expo 2020
Alexandria, VA

April 24-29
International Aviation Snow Symposium
Buffalo, NY

April 28-30
MRO Americas
Dallas, TX

May 5-7
NBAA Maintenance Conference
Hartford, CT

May 10-13
AAAE Annual Conference
Denver, CO

May 17-20
IATA Ground Handling Conference
Mexico City, Mexico

May 26-28
NBAA-EBACE
Geneva, Switzerland

June 10-12
IATA Aviation Data Symposium
San Francisco, CA

June 22-23
IATA Annual General Meeting
Amsterdam, Netherlands

July 20-26
EAA AirVenture
Oshkosh, WI

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freight customers the highest quality for the transport of sensitive pharmaceutical products."

Since the initial opening of the Nairobi logistics center in 2010, Swissport has continuously expanded its on-site offering and now has further invested in a state-of-the-art temperature-controlled area with 208 rack positions and a capacity of 250 tons of pharmaceutical shipments. The new Swissport Pharma Center Nairobi is the first of its kind at the airport of the Kenyan capital.

Universal Aviation Expands with Cayman Islands Location

Universal Aviation, the FBO ground services division of Universal Weather and Aviation, Inc., announced it has partnered with Cayman Dispatch Service (CDS) to join its growing global network as a Universal Aviation Certified location – Universal Aviation Cayman Islands.

CDS is based at Owen Roberts International Airport (MWCR) in Grand Cayman and is a leading ground handling company in Cayman, providing both over and under-wing services to the main airlines, for more than 25 years, with a team of more than 120 people and a wide range of equipment.

"The Cayman Islands is experiencing record growth in travelers, via both airlines and business jets," said Adolfo Aragon, senior vice president, Universal Aviation. "The addition of a new location in the Cayman Islands with a partner with a great track record in the country like CDS enhances our ability to provide our clients with a consistent level of service that meets the growing demand."

Leipzig/Halle Airport Receives IATA CEIV Pharma Certification

Leipzig/Halle Airport, Europe's fifth-largest airfreight hub, has received CEIV Pharma certification, enabling it to process time-critical, temperature-sensitive pharmaceutical shipments around the clock. Following a one-year process, IATA has certified PortGround GmbH. The company belongs to Mitteldeutsche Flughafen AG and is a ground handling and cargo specialist.

"Thanks to the CEIV Pharma accreditation, we are expanding our business area and now have a fully certified process for sensitive pharmaceuticals. That means we can provide a full range of handling services at Leipzig/Halle Airport from a single source – from receiving deliveries, preparing and storing freight to loading it on the aircraft," said Alexander König, managing director of PortGround GmbH.

CEIV classification requires appropriate quality management and regular training for all those involved in the process, along with a suitable infrastructure. Leipzig/Halle Airport laid the foundations for this back in 2017 with a new cold storage facility in the World Cargo Center.

PEOPLE

WFS Strengthens Leadership Team in North America

Worldwide Flight Services (WFS) has announced key appointments to its leadership team in North America to support its air cargo and ground handling growth ambitions in 2020 and beyond.

Paul Walton joins the company as senior vice president, express, responsible for all aspects of WFS' express business. As senior vice president, ground, Terry Trainor now has responsibility for WFS' North America Ground Business. Victor Chin has been appointed senior vice president, center of excellence (SVP COE), and will call upon his extensive experience in senior leadership roles with US Airways, United Airlines, Jet Blue and PwC Consulting to drive WFS' continuous improvement projects. Jeffrey Bounds has been promoted, taking the post of senior vice president, project management office. Mark Berner joins the company as senior vice president, safety and security compliance, replacing Chin in his previous role.

All five appointments took effect at the beginning of this year. Walton, Trainor, Chin, Bounds and Berner report directly to Mike Simpson, WFS Executive Vice President, the Americas.

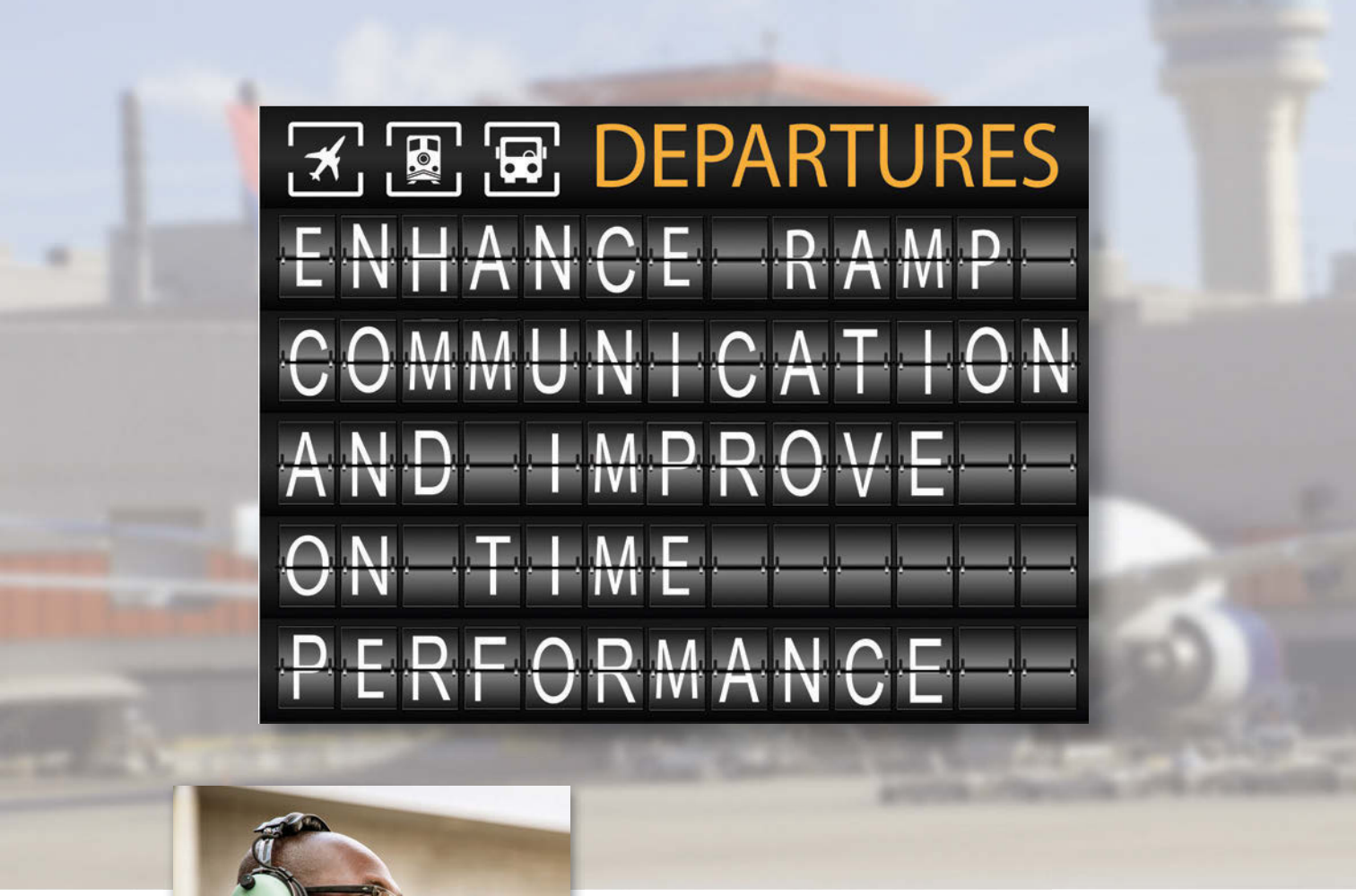
"These key appointments bring highly-experienced, invaluable new blood into our North America business and also allow us to reward existing members of our senior management team, who are making such a significant contribution to our growth. The caliber of our leadership team reflects WFS' ambition to build our business in North America based on the key pillars of safety, security and customer service," Simpson said.

Menzies Aviation Welcomes New Leadership Team to US Business

Menzies Aviation announced two new appointments to its US business: Edward Pim joins as chief operating officer and Raul Barrera as senior vice president, sales and operations. Both Pim and Barrera will be based in Dallas-Forth Worth and report to John Redmond, executive vice president, Americas.

Pim joins Menzies Aviation from United Service Companies, where he was president and COO. Barrera joins from Swissport where, as regional vice president, commercial, he was responsible for commercial strategy across 10 countries, encompassing some 80 stations in the LATAM region.

"I am delighted to welcome both Edward and Raul to the business at this exciting time, as we continue to invest in



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and grow our business in the Americas Region," Redmond said. "We currently have operations at 115 airports in seven countries and have plans to continue to grow our footprint in this region."

Stertil-Koni Names Boyer Shop Equipment Specialist

Stertil-Koni announced that Carl Boyer has been named shop equipment specialist, focused on partnering with the company's network of exclusive distributors to provide high quality shop equipment to heavy duty repair facilities, fleets and US military customers across North America.

"This position is key to our customers – and here's why. As the established leader in heavy duty vehicle lifting systems, Stertil-Koni has expanded its capabilities in the delivery of world-class shop equipment. Importantly, this equipment is specifically engineered to be used in conjunction with our lifting systems to help the busy technician on the shop floor work in an environment that is more efficient, ergonomically sound and safe," Stertil-Koni President, Dr. Jean DellAmore, noted.

"I am excited to return to Stertil-Koni and help advance the company's mission to expand its growing role in the delivery of superior shop equipment to vehicle maintenance facilities – all within the context of providing exceptional customer care," Boyer added.

NEW DEALS

Avia Solutions Group Acquires Aviator

Avia Solutions Group (ASG), a global multipurpose aviation services company, signed an agreement to acquire Aviator, a full-range aviation services provider for the Nordic region, from the investment fund Accent Equity 2008 L.P.

Offering flexible and cost-effective solutions that meet the demand for high-quality support services of a wide range of airlines, Aviator is a valuable addition to Avia Solution Group's portfolio.

"As the newest member of the ASG family, Aviator will further strengthen our presence in the European markets and expand the network of Avia Solution Group's ground handling stations. This acquisition adds further scale and value to ASG's aggregated ground handling business, now consisting of Aviator and Baltic Ground Services (BGS)," said Gediminas Ziemelis, chairman of the board of Avia Solutions Group.

"We are very pleased that Aviator is now a member of Avia Solutions Group and we look forward to strengthening our position together with such a strong industry player. Aviator will undoubtedly gain advantage both from the experienced group's management and subsidiary companies," said Jo Alex Tanem, CEO of Aviator.

Menzies Aviation Renews United Airlines Contract at London Heathrow Airport

Menzies Aviation announced the renewal of its contract with United Airlines at London Heathrow airport. The contract will see Menzies handle United's aircraft cabin cleaning for the next five years. It is its largest cabin services contract in the UK, currently servicing up to 18 United Airlines aircraft per day.

COMPANY SPOTLIGHT

CARTWRIGHT GSE

The Cartwright Group has manufactured trailers, drive boxes and refrigerated equipment for more than 60 years. The company is now applying their experience to the world of ground support equipment (GSE), lending its scissor-lift vehicles to aviation applications like catering, cleaning and loading vehicles for passengers with reduced mobility (PRM).

Cartwright GSE officially entered the aviation market when it acquired Emtek Services in 2017. Company officials say their production capacity and quality standards combined with Emtek's experience in the GSE market positions them favorably to supply this equipment.

Company officials exhibiting at inter airport Europe last fall in Munich, Germany, explained Cartwright GSE can provide two sizes of vehicle to cover several aircraft ranges and multiple sill heights.

Cartwright GSE, which has a dedicated manufacturing facility in Manchester, England, also provides conversion services. The ability to modify vehicles to be fit-for-purpose facilitated the company's transition into the GSE market.

"We are delighted to renew our long-standing partnership with Menzies Aviation at London Heathrow," Arvind Garcha, United Airlines' regional director of airport operations, UK, said. "Cabin appearance is an important factor in our customer satisfaction measurement and the Menzies team goes above and beyond to consistently deliver good results. I'm pleased to see our partnership continuing."

"We have worked with United Airlines for more than twenty years, and I am very happy to secure this relationship for another five years," John Henderson, Menzies Aviation SVP UK and Ireland added. "Our team on the ground at Heathrow is diligent about cabin services, and this renewal is down to their hard work."

dnata Commences Catering Operations in Canada at Vancouver Facility

dnata commenced operations in Canada by opening a new, 48,000 ft² facility at Vancouver International Airport (YVR). dnata's latest expansion represents a multi-million dollar investment and is expected to create 80 new, direct jobs with the company over the next 18 months.

dnata's newest facility is equipped with the latest technologies and has a capacity of up to 8,000 meals a day. The company commenced serving its first commercial airline customer, British Airways, in Vancouver on Feb. 1. dnata will also serve VIP and charter aircraft operators from its new facility.

"We are delighted to announce this further expansion of our operations in North America, a strategic market with high growth potential for dnata," Robin Padgett, divisional senior vice president, dnata, said. "Our investment in a new facility in Vancouver underscores our long-term commitment to Canada, and we are confident that with our global expertise, innovative approach and dedicated team of local culinary professionals we can make a difference and add significant value to our customers' onboard offering in the country. We look forward to delivering best-in-class services and products from our newest facility."

Etihad Cargo Renews WFS Global Handling Framework

Etihad Cargo renewed its global cargo handling agreements with Worldwide Flight Services (WFS) with Frankfurt and Madrid joining six existing gateways in Europe, Asia and the United States. The three-year framework extension will see WFS continue to provide Etihad Cargo with warehouse and cargo handling services at New York's John F. Kennedy International Airport (JFK) and Washington DC's Dulles International Airport (IAD) in the United States, Bangkok's Suvarnabhumi Airport (BKK), as well as key European gateways at London Heathrow (LHR), Paris-Charles De Gaulle (CDG) and Brussels Airport (BRU). The six airports handle in excess of 120,000 tonnes of Etihad Cargo air cargo annually.

"In-line with our commitment to provide service-level excellence and best practices across all stations, the addition of Frankfurt and Madrid to our existing framework WFS further evidences our growing and mutually beneficial collaboration," said Andre Blech, head of operations and service delivery at Etihad Cargo.

"Etihad Cargo not only expects the highest quality of handling services for its customers, it also wants these to be delivered consistently at every major airport across its network. To achieve this requires a strong partnership approach," Barry Nassberg, group chief commercial officer of WFS, added. "Our global handling framework with Etihad Cargo means WFS is fully engaged with the airline at a corporate level and able to proactively support its drive for the very best cargo and ground handling services. It also demonstrates we have a fully committed, long-term partner which values our handling expertise and is looking to us for innovative and efficient ways to help their business grow."

In addition to cargo, WFS provides Etihad Airways with passenger ground handling "above the wing" services at JFK, Chicago O'Hare International Airport (ORD) and Suvarnabhumi (BKK), which have also been extended under the framework agreement.

SATS Acquires Monty's Bakehouse

SATS Ltd. (SATS) and UK-based aviation food solutions company, Monty's Bakehouse UK Limited (Monty's Bakehouse) announced that the latter has become a wholly-owned subsidiary of SATS Investments Pte Ltd (SIPL) for a purchase consideration of approximately S$48.4 million following the acquisition on Feb. 29, 2020.

"Joining a multi-billion dollar market leader like SATS presents an exciting opportunity to accelerate the growth of Monty's Bakehouse as well as support the growth of SATS in Asia," said Matt Crane, chief executive officer of Monty's Bakehouse.

"Monty's Bakehouse is a progressive innovator in aviation catering," Alex Hungate, president and chief executive officer of SATS said. "With this transaction, SATS will now bring Monty's product and packaging capabilities to airlines across Asia."

The 4 T's of Aircraft Fueling

From technology to talent, training to tools, these best practices keep fueling operations cost-effective, safe and productive.

By Stan Livingston

Great ground crews know that a speedy turnaround takes more than an eye on the clock and a can-do attitude. Safely and accurately fueling aircraft within a given window takes good planning and the right tools. But the most important element is the crew that handles both.

Let's look at four best practices that keep operations on target and on time.

TALENT:
Attract and Retain the Best

If time is money, that can't only be true of labor costs. It's also true of the results. Aircraft fuelers are in a unique position to understand the cost of delay.

According to Airlines for America (A4A), the average cost of a minute of aircraft block time is $74.40 per minute. Fuel is a large part of that calculation, at $27.01, but not all of it. From that perspective, the time is worth more than the fuel. An engaged employee that will anticipate and prepare for the aircraft's arrival in order to minimize the turn time (while remaining focused on safety) is a worthy investment.

Attracting and retaining the best talent also takes great management. An informed staffing model is a key best practice. In this case,

Photo courtesy of ABM

"informed" means tracking all the variables that will impact refueling. That includes set up and break down time, as well as the actual flow rates for each aircraft. Without all those details, quickly developing staff schedules to meet flight schedules as they update is impossible. That can lead to frustration on the job and pressure to make up time, and that's when mistakes can happen.

Considering the average cost of aircraft incident cited in an Alliance Group report is more than $50,000, avoiding mistakes is key, and retaining experienced supervising employees helps you do that. Look at the difference between a ground crew member with one year of experience, and one with less than one year. For ground crew members with less than a year of experience, there are 5.6 more safety violations per 1,000, according to Airport Workers United. That means keeping experienced employees around helps avoid safety issues.

Informed staffing also helps eliminate unnecessary labor hours, keeping the operation efficient while keeping your team engaged.

TRAINING:
Set your Crew up for Success

We've already seen that a good employee is worth investing in. A training program should be comprehensive and continuous. Compliance and safety needs are paramount, and continuous training is key to a safety-first culture. Fuelers need to be well-versed in specific technology, specific aircraft types and the airline's standard fueling process and procedures. Additionally, having a top-tier aviation role to grow into within an organization provides a career path for high-caliber employees to pursue, thus reducing turnover.

There are two important benefits to keep in mind for training best practices. One is that employee training records show due diligence on the company's part in the unfortunate case of an incident. Another is that training and opportunity (career progression, employee development) improves employee retention, by keeping employees engaged with learning new skills.

One way to balance the labor costs of training is to use computer-based training. Another way to avoid the start-up costs of a quality training program is to consider a specialized partner with established online training. An experienced solutions provider can help you start with a strong foundation of compliance and safety from the very beginning, protecting both employees and customers.

TECHNOLOGY:
Stay on the Cutting Edge

Don't hamper your team with technology that's behind the times. The wrong tools could be slowing your team down, bloating your labor costs and risking delay.

Density hydrometers give your crew the actual fuel density at planeside. Since fuel density varies by temperature, calculating gallons per flight depends on an accurate measure of fuel density at the time and location of fueling. That keeps your team on target and reduces the danger of fuel venting on the tarmac. Fuel venting incidents occur mostly when the fueler attempts to load more fuel than the aircraft tank can physically hold. Providing the fueler with the current fuel density is another tool the fueler can use to ensure aircraft tanks are loaded properly without venting.

Upgrading to handheld fueling data technology also has numerous benefits. It eliminates the need to fetch paper fueling slips from the gate or dispatch, and speeds communications with automatic notices to fuelers. Handheld technology centralizes information for your team, providing required fuel loads and calculating gallons for them, based on density measurements they input at the point of need. The same technology speeds reports to the cockpit, and everyone from accounting to the tank farm, with one push of a button, sending gate changes, aircraft swaps and fuel load modifications directly to the refueler.

Real-time notifications of operational changes and assistance calculating volumes keeps everyone better informed, and that translates to improved safety.

TOOLS:
Uniformity Fosters Excellence

Stationary fuel carts improve reliability by simplifying processes and improving safety. A stationary refueling cart already has a home on the apron, eliminating the need to compete with other ground support equipment trying to service the same aircraft. That reduces or eliminates potential damage to the aircraft, lowering your maintenance costs. Less equipment in motion around the aircraft also improves safety by reducing traffic on the tarmac.

Fuel stands set to preset heights allow teams to quickly and safely reach fueling panels. Some models incorporate a cradle that holds the fueling coupler safely during connection and disconnection. Bright orange paint keeps stands highly visible, and the wide platforms keep fuelers comfortable and safe while on the stand. Multiple locking mechanisms ensure the stand does not move during refueling, and the cradle automatically raises the refueling couple to the fueling panel, eliminating the need for fuelers to carry couples up the stairs.

The Right Team Has All Four T's

Fueling teams face the same challenges across the industry, but how they overcome those challenges makes all the difference. A team that embraces best practices in attracting and retaining talent, establishes a great training program, and employs superior tools and technology fuels more than aircraft. That team fuels operational excellence. **GSW**

▶ ABOUT THE AUTHOR:

Stan Livingston, vice president of aviation for ABM, specializes in providing into-plane fueling services and ground support equipment (GSE) refueling services as well as the maintenance and operation of on and off airport fuel storage and distribution systems at commercial airports globally. For more information, visit www.abm.com/aviation.

WHAT'S THE PLAN FOR YOUR PM?

How telemetry and software platforms help ground handlers perform preventative maintenance while avoiding unnecessary costs and unwanted risks.

By Josh Smith

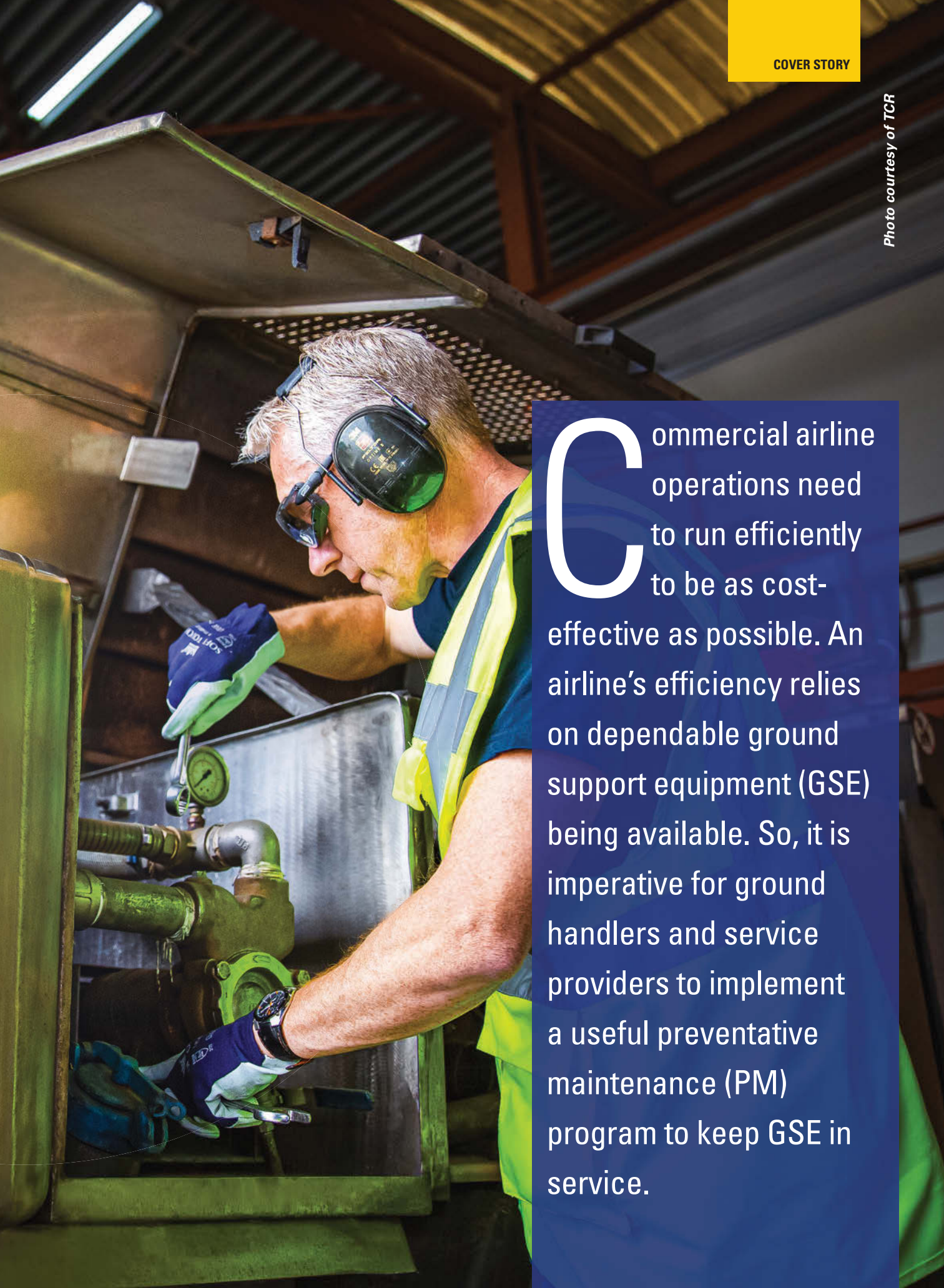

Photo courtesy of TCR

Commercial airline operations need to run efficiently to be as cost-effective as possible. An airline's efficiency relies on dependable ground support equipment (GSE) being available. So, it is imperative for ground handlers and service providers to implement a useful preventative maintenance (PM) program to keep GSE in service.

Utilizing technology, resources and planning tools to improve PM programs can keep maintenance-related overhead and expenses low.

When creating a PM schedule, Craig Ward, operations director at TCR, explains the starting point is hours of use.

"From here, we derive all points of maintenance planning, frequency, service types and so on," he explains.

"A good GSE preventative maintenance program should track several items. The most important thing is tracking the interval between PM services," adds Tom Kor, national manager at Global Aviation Services LLC. "This can be tracking by hours or days, but it should be consistent with the OEM recommendations for PM cycles."

Officials at Global Aviation Services LLC, which was recently acquired by aviation services provider PrimeFlight Aviation Services, note PM intervals should be followed closely to ensure OEM warranties are valid and to extend the useful life of the equipment.

It is imperative to use the correct PM checklist to track maintenance, especially considering each piece of GSE will have specific PM requirements and safety standards.

"It is important to follow that PM checklist," Kor advises. "This has a direct impact on the lifespan of the equipment. It is vital to follow a checklist and ensure each item is checked, changed and /or adjusted, as required, so that piece of equipment returns to service and remains in service.

"Most breakdowns can be prevented by doing a quality PM check."

Ward notes checklist requirements are dependent on the individual GSE use. These are always bound to legal obligations, influenced by industry recommendations, such

Photo courtesy of Avro GSE

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as IATA's Ground Operations Manual (IGOM), and will be adapted case by case.

However, in general terms, safety-related items and fluid checks tend to be required more frequently, and Kor explains many OEMs suggest monthly operational checks for their proprietary safety-systems installed on the equipment.

Although, each type of equipment is subject to the same maintenance requirements across a fleet, it does not mean each unit is being used equally.

This uneven use can lead to one of two outcomes, explains Wayne Cockburn, general manager at Avro GSE. On one hand, under-used equipment can come into the shop and undergo a PM task that isn't yet needed. And on the other hand, a unit that gets used more could be past it's PM schedule, which could lead to compliance issues.

"You've got that side which incurs an unnecessary risk to a handler, and you've got the other side, which incurs an unnecessary cost," Cockburn says. "The way to fix this is to connect the data from that machine to the maintenance software."

Technology

The importance placed on efficient PM programs has led GSE maintenance personnel to incorporate the latest technology, including telemetry and maintenance software, to streamline maintenance tasks and parts procurement.

"Similar to the automotive industry, GSE is becoming smarter in the use of technology," says TCR's Ward. "Via CAN bus systems and diagnostic tools, we gain a better view on potential issues and prevent them to avoid unnecessary costs."

"With equipment maintenance, you've got two tools to carry it out," adds Cockburn

> They can check all sorts of data **when it's in the shop.** But if it doesn't need to be in the shop, **that's waste.**
>
> *- Wayne Cockburn, president, Avro GSE*

of Avro GSE. "You've got the equipment maintenance software, which is basically your equipment maintenance records. Then you've got the data out of the machine, which handles when the machine is serviced and how it's serviced.

"They need to connect."

Telematics, or telemetry, offer a real-time

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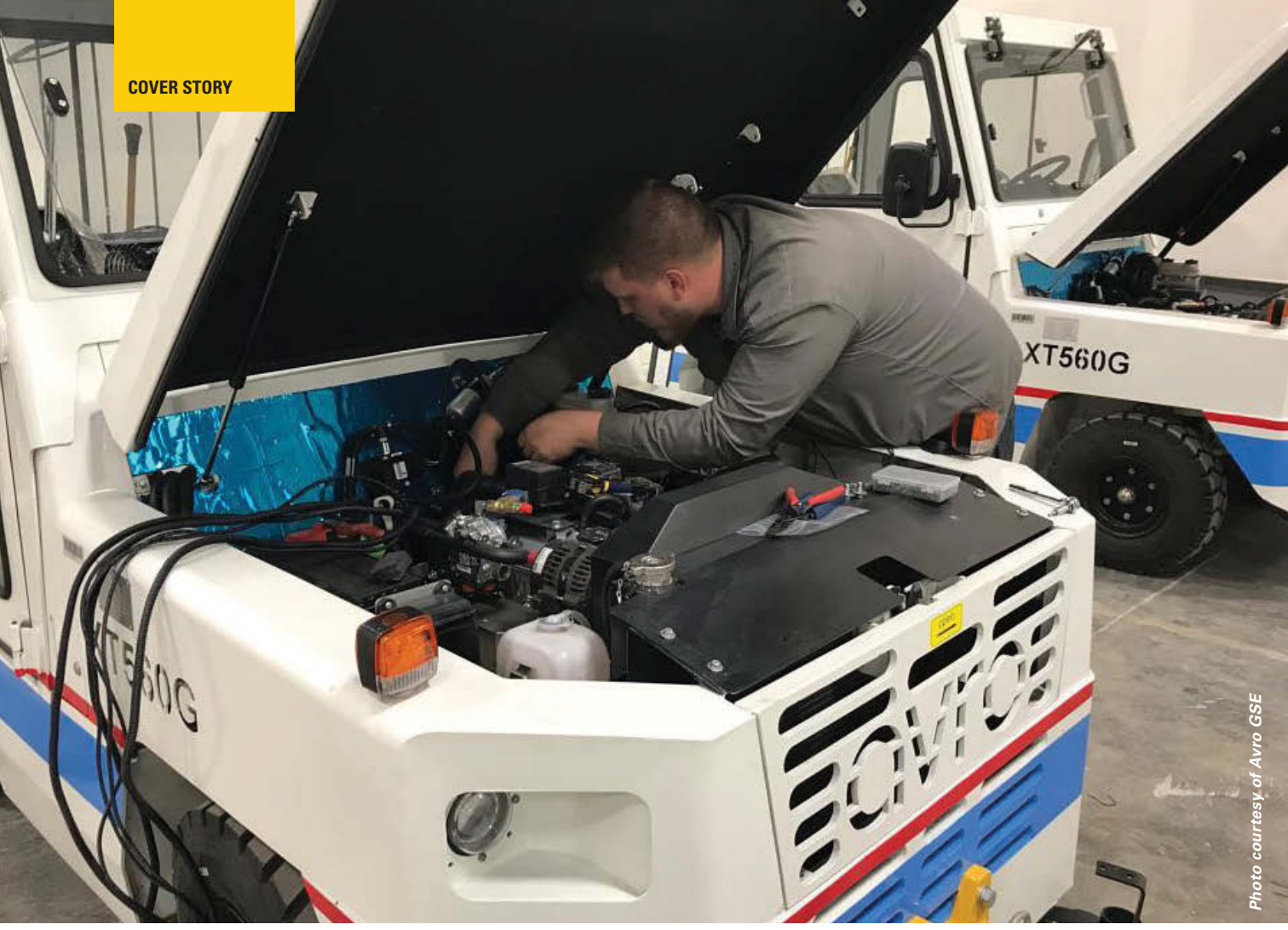

Photo courtesy of Avro GSE

view on a unit's usage. Installed on both motorized and non-motorized equipment, telemetry can be used to identify possible mechanical issues, help control damage and reduce poor operating methods, explains Ward, noting TCR partners with Targa Telematics for motorized GSE and with Sensolus for non-motorized units.

Officials at Avro GSE, which produces the Avro Tracker telematics system, note historical maintenance records, idle run-time and other equipment details are valuable to track, too.

"You have real-time data on the hours of your machine. You can feed that into your equipment maintenance program, so your program is pulling the machines in when they need to come in," Cockburn says. "That's the bigger challenge. Because they can check all sorts of data when it's in the shop. But if it doesn't need to be in the shop, that's waste."

Once data is harvested from the telemetry units, the information can be utilized by maintenance software.

"Using a system to track preventative maintenance schedules and completion performance is critical to a successful maintenance program as it ensures accurate tracking of all maintenance performed. This data can also be accessed to review trends and performance," says Kor of Global, a PrimeFlight company, noting there are many Computerized Maintenance Management Software (CMMS) systems on the market today for the GSE industry.

Tronair is preparing to launch EBIS 5.0, in April. The latest update to the company's GSE-specific software platform will be available for web browsers, iOS and Android, and incorporates more than 100,000 assets in over 600 airports for its 3,000-plus users.

In addition to assisting best practices, EBIS 5.0 integrates supply chain and uses telemetry data along with de-identified industry data to perform predictive analytics.

"Our typical return on investment just by having a world-class maintenance program is a pretty phenomenal," explains Rick Agnor, director of business development at EBIS by Tronair. "You're designing out your failures, maximizing your equipment and reducing your cost.

"You can schedule your maintenance based on real-time info," Agnor continues. "What we found with telemetry, it's so much more accurate than doing some sort of calendar-based maintenance, where you really don't know the exact mileage or hours on that engine.

"This is a lot more focused."

Agnor says GSE maintenance providers can also use other data, such as conveyor run-time on a belt-loader, to trigger maintenance events – offering more flexibility to track PM requirements.

Maintenance software can also assist with parts procurement. EBIS 5.0, for example has integrated the supply chain with NAPA and Sage Parts allowing for real time parts information and ordering.

"That's pretty much an arm of your purchasing. They handle procurement, stocking all the parts and you pay for the parts at the point-of-sale. It gets you out of the inventory business," Agnor explains, adding required parts are usually on site or nearby, and suppliers can utilize commercial aircraft to get products to their destination quickly.

"The better we plan our maintenance, the better we can manage our parts and availability," adds TCR's Ward. "The data retrieved on our fleet helps us to predict the usage of parts."

EBIS 5.0 also seeks to enhance supply chain integration. In addition to a service provider's own custom catalogue for a piece of equipment, EBIS offers their own industry catalogues and the Sage catalogue is accessible using the eSage platform.

According to Agnor, EBIS also wanted to give information on specific components and show the top-rated components within the industry. Then, with this information, maintenance personnel can schedule a PM task ahead of an expected failure.

"You're designing out failures by selecting better components. We're also showing you if they're past their useful life," Agnor says. "They can see the top failures. They can see the component issues. And then, as they're working through the parts side of it, they can see some of the top-performing alternatives."

Technicians

The proper PM tools also help personnel performing the maintenance. Providing key information to stay on top of maintenance needs is important but following through on those tasks are paramount.

"The best way to perform preventative maintenance with the lowest impact on out of service time is to have technicians that are dedicated to PM work. A skilled PM technician will have the parts, tools and equipment needed to perform a good PM check prepared beforehand," says Kor of Global, a PrimeFlight company. "When that unit arrives in the shop, the PM can be immediately started and completed in as little time as possible while still ensuring all PM checklist items are accomplished.

"You can also complete PM work while the equipment is not in use. Depending on operational needs, that may not be feasible without running overnight maintenance, which comes with its own set of challenges."

Maintenance software can help ensure technicians are performing work correctly and efficiently.

EBIS 5.0 developers chose React JavaScript – the same technology platform used by Facebook – to provide its users with a clean interface. The platform supports videos and can integrate technical service bulletins and their patent pending "tech tips," which assists with technician training.

"The industry is really seeing a turnover in employees, and as a lot of leadership groups and technicians are aging out, some of the new technicians don't have a full set of skills," Agnor says. "We see video

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as a huge enhancement, both on training and tech tips and ways to improve the new technicians."

The tech tip function is a collaborative feature. If a technician is having trouble with a piece of equipment and finds a favorable solution, that tech can publish instructions for other maintenance personnel to fix similar issues. Agnor notes tech tips can be shared privately within an organization or made public to all EBIS users to benefit the industry, as a whole.

Maintenance software can also track productivity of technicians, too.

"Part of this is really understanding your operation at a real granular level. It's really big on technician cost and overall productivity – getting them the right part at the right time," Agnor says. "We also want to give them feedback on how well they're performing maintenance."

Both telemetry and maintenance software can assist shop efficiency because of the real-time data and predictive capabilities provided.

"If you know you've got 10 pieces of equipment that are 10 hours away from that PM, then that affects your whole supply chain and your labor for doing that PM," Avro GSE's Cockburn notes.

"You get a view of what's coming," he continues, noting constraints in the shop can be avoided. "Everything is pre-prioritized."

Agnor agrees, adding the key is to set up your equipment in a software system to have full knowledge of where assets are and other data like in-service dates, warranty info and maintenance needs.

"If the average meantime to failure is 41 days, and you have your maintenance check set at 60, you're never going to design out that failure. You need to put your preventative maintenance ahead of that failure," Agnor advises. "You can make some data-driven decisions."

Continuous Improvement

PM programs should be reviewed regularly and adjusted as necessary.

TCR's Ward says understanding the demands on the GSE unit and working out a workable plan between ground operations and maintenance is the key. This can be reviewed annually, although it is not something that needs to be changed every year unless the parameters of an operation changes dramatically.

"Understanding your usage and operational demand is essential for better planning and an optimal maintenance program," Ward points out. "Limited downtime while increasing reliability through better maintenance practices is the outcome you want to achieve."

Cockburn of Avro GSE also recommends an annual review of maintenance programs.

"Often stuff gets put into that program and it just rolls. In the meantime, things

Photo courtesy of Global, a PrimeFlight company

MAINTAINING eGSE

Requirements for electric ground support equipment may vary from its diesel counterparts, but proper maintenance must be performed correctly to remain efficient.

By Josh Smith

There will always be differences between types of ground support equipment (GSE) and specific maintenance requirements.

For example, notes Craig Ward, operations director at TCR, GSE maintenance personnel may carry out a load test on a GPU during periodic maintenance checks, but they would not carry out these same tests on a diesel-powered belt-loader.

"Maintenance of GSE fleets requires trainings and in-house experts," he says.

Similarly, electric GSE has its own set of requirements. But nevertheless, eGSE must undergo a regular preventative maintenance (PM) routine to operate at peak efficiency.

"There is no engine on electric GSE, but the battery still requires periodic maintenance and checks," says Tom Kor, national manager at Global Aviation Services, which will be integrated into the service network of its parent company, PrimeFlight Aviation Services, this year. "The rest of the PM program can often be the same or similar to that of a motorized asset."

"Electric GSE is not just changing when we maintain or how we maintain, that's a whole different way of maintaining," adds Wayne Cockburn, general manager at Avro GSE. "The principle is still the same though. You've got to have your records, and you've got to have your real-time connection to the equipment."

All GSE, regardless of power source or drivetrain, require ongoing maintenance. The requirements around electric vary in comparison as they do not require the same level of maintenance. So regular training is advised.

"TCR's GSE technicians receive continuous trainings to new technologies for different brands and different GSE class," says Ward. "Today, about 70 percent of TCR's total tractor fleet is electric."

move on and manufacturers specify different points," Cockburn says. "The biggest thing in there is having the ability to be flexible to tailor your maintenance to what's actually required on that piece of equipment – being flexible to adapt and update as equipment evolves."

GSE maintenance personnel can use advanced analytics provided by maintenance software to assist with PM reviews.

Agnor notes the EBIS solution offers snapshots of assets over specified periods of time. If a review is done annually, maintenance managers can assess how the equipment is performing.

"It will churn through a year's worth of data, mine this information, put it out in a graph and say 'these two assets, here, represent 50 percent of your spend,'" he offers as an example, adding technicians can then focus on key components or repairs and perform head-to-head comparisons.

"As you design out these failures, you can continually improve the process and develop those world-class maintenance programs and actually see if you're making the right decision," Agnor says.

As the GSE in a fleet ages, reviewing and updating PM frequencies can become more crucial. "The age of the assets, the run-time per day and climate could all be considered when building a successful preventative maintenance program," advises Kor of Global, a PrimeFlight company. "The importance of tracking PM intervals, and the need to complete maintenance on-time based on those intervals, has become more and more important with the changes and improvements in OEM designs and GSE specific upbuilds.

"Additionally, the way a tech completes a PM has evolved in more recent times. Techs have found efficiencies in completing PMs in an order that minimizes the number of times they need to leave the vehicle to get a tool or part," he adds. "For example, a quality PM program will list all tools and parts required and lays out a specific flow around the vehicle to maximize efficiency, reducing the vehicle's out of service time."

Investing in maintenance technology may seem overwhelming, but Cockburn encourages ground service providers to consider it an investment versus the cost of outsourcing maintenance.

"There's always the question of do you go third-party or do you have your own shop?" Cockburn says. "Unless you're real small and in one base, typically your own maintenance works out considerably more cost effective.

"If you can integrate these tools and you do have your own maintenance location on site, every dollar you're investing into your equipment maintenance software or your telemetry is coming back to you." GSW

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Photo courtesy of GTAA

The Who, What, Where and When of Airport Operations

As airports bring more airlines and ground handlers into a limited space, the civil community of the airport can turn into a wild west scenario, with accountability giving way to chaos. Mitigating that possibility are airport operating licenses.

By Walker Jaroch

It's often been said airports are like miniature cities, with airlines, ground support crews and other third parties coexisting under the borough of the airport. Each unit operates independently, with standards of their own, to meet the goal of providing quick and satisfactory service to the flying public who pass through these little cities each day by the thousands.

But just like their full-size counterparts, no one entity at an airport can be completely autonomous in the city, living solely by their own rules. Anarchical airlines don't fly.

Helping to set the standards and expectations of both the airport and those operating as a part of it are airport operating licenses (AOLs), which Stuart Matheson, director of UK-based Aviation Support Group (ASG), likens to the rules of a local municipality. ASG works in collaboration with the International Air Transport Association (IATA), which represents all major airlines around the world, and publishes the international standards in Civil Aviation.

"You know the rules that you have when you live in your town? Things like when you put your bins out and how fast you can drive around schools – the kind of community rules that we all live by in our usual day to day lives – they're essentially what an airport operating license is. It's where all the stakeholders around an airport have an expectation of behaviors as to how you all work together at an airport," Matheson describes.

Matheson says that AOLs have been prevalent

in Europe for decades, but the nature of them has changed as the aviation industry and airports have evolved recently.

"In the old days, we used to have a fairly straightforward relationship where an airport used to have airlines and generally speaking, the airlines did some self-handling. Now they're realizing that they can get it done cheaper by getting a third party to do it," Matheson says.

"What that means is that where it used to be a relationship between airline and airport, you've now got this group of people in the middle that are delivering services. And of course, in big airports, it's not just as easy as just one extra party coming in. It might be four or five or six new parties coming in," he continues. "So, it goes from this very binary relationship to one where all of a sudden we have quite a community of stakeholders. So, I go back to the analogy where we're in a street or where we're in a town, where all of a sudden, the airport has gone from being a binary relationship to being a community."

And that's where the AOL comes in and helps lay out the airport's community guidelines, which are, in this case, less laws and more standards that an airport expects out of the parties operating in it, and in turn, what those parties can expect out of the airport.

These guidelines are becoming increasingly important to layout as airports continue to grow, change and welcome in more airlines and operators while, often, being unbale to physically expand into the land or area they find themselves in.

An example Matheson uses of how an AOL can be utilized to meet common airport goals is through environmental targets.

"An airport can't just say, 'we're going to reduce our carbon footprint by X amount within the next 20 years,' if the airport isn't responsible, for example, for the ground service equipment. They have to include the community in some of those more strategic decisions. That's normally done by an AOL and within there will be certain service level agreements (SLA) around aiming for electrification or the types of equipment that you can use." says Matheson.

"If you want to electrify an airport, you have to put in electric baggage tugs, etc., then you've got to think about things like, where do you charge them? Where do you put the electric supplies?" he adds. "Now, what you don't want to do is replace lots of equipment with lots of chargers. So, what you're looking to do is kind of have a common agreement as to what the type of charger is, where does it go, etc., and more importantly, when you actually have a shared asset, whether it be pooled ground service equipment, whether it be chargers, whether it just be shared parking areas, you need to have behaviors around that. You need to have people who know that if you want to use this piece of equipment, these are the standards."

Seeing the benefit of adopting an AOL, the Greater Toronto Airports Authority (GTAA) recently collaborated with Matheson and ASG to help improve the existing agreement for ground handling operations at Toronto Pearson International Airport.

"The GTAA has established a new Ground Service Provider (GSP) License to Operate (LTO) as a type of AOL. The GTAA determined the number of LTOs that we would issue and received applications from GSPs as part of an RFA process. To be successful, GSPs need to pass a rigorous analysis of their performance, as well as their plans to meet and maintain the expectations of the LTO here at Toronto Pearson. The LTO lays out a standard for operating at Pearson, including the local procedures, management accountability, environmental awareness, ground service equipment (GSE) age limitations, training programs and turnover rates, which all GSPs must be able to meet and maintain," says Larry Shack, Associate Director, Ground Operations at the GTAA.

Providing a more seamless and satisfying passenger experience was key to GTAA's adoption of their LTO. Shack says that

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Photo courtesy of GTAA

challenges with their GSP performance in 2016 and 2017 led to interruptions to airport operations causing a detrimental effect on the airport's passengers.

"It was determined that a level set would enhance safety and improve performance while creating a world class ramp operation in support of Toronto Pearson's journey to become the world's best airport," says Shack. "Passengers and airport partners deserve a positive ground handling experience, which the airport authority can provide by raising the standards for service by independent ground handling providers and for airlines that handle themselves. The GSP LTO at Toronto Pearson ensures a consistent SLS across the airport and reinforces a common commitment to new world class standards."

Matheson says that many times when ASG is asked to help develop an AOL it's coming off the back of issues like the ones that led to GTAA's adopting LTO.

"A lot of the time, the first call is 'we have had an increase in accidents' or 'we have had an increase in airlines complaining about foreign object debris,'" says Matheson. "Generally speaking, what you find is that a lot of the issues are because you have lots of different stakeholders, who don't really know the rules. Therefore, they kind of do what they think they're meant to do, and yeah, there's an airside operation manual, but nobody's held accountable for it. So, generally speaking, it's a deterioration of service or safety issues which prompt an airport to go, 'I think we've got a problem, can we get something sorted out?'"

However, Matheson stresses that an AOL isn't something an airport can use to overarchingly inflict their will on airlines, ground handlers and other service providers, forcing them to solve every issue on their own and to the airport's liking.

"This is about behaviors and responsibilities and corporate and individual accountability," says Matheson. "Sometimes airports have tried to inflict operational standards onto airlines and their ground handlers, which have been commercially unsuccessful. That's not the purpose of the AOL. It's a community agreement – good accountability and clear lines of responsibility, and I don't mean that just from the ground handler, I also mean that there'll be some

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Photo courtesy of GTAA

airport responsibilities. It should reflect the direction of travel and the strategic pace at which you can hit targets and do that as a community."

This collaborative approach to standardization is the path that GTAA took when crafting their LTO, with Shack echoing Matheson's community-minded sentiments.

"Ultimately, the airport authority has the responsibility for the safe and efficient operation of the airport, as well as determining how service level standards should be set and maintained. However, as mentioned earlier, airports are complex, with multiple players. All parties should have a hand in shaping the working environment on the ramp, because this collaborative approach keeps the airport community aligned and committed to common operating procedures, " Shack says.

"A well-run airport is a delicate ecosystem, so each component needs to complement the others," he adds. "Toronto Pearson's LTO makes it possible for each player to clearly understand the others' roles and accountabilities in the system and what service excellence can contribute to the system. Every party in the process should be bringing commitment and buy-in to the table, as well as a realistic and measurable approach to setting SLAs."

And while the thought of adding another piece of regulatory text into the library of legislature of each airport and service provider can seem daunting, Matheson says the AOL isn't something to be frightened of. A good AOL won't impact any commercial agreements or intrude on existing agreements between airlines, ground handlers and other service providers at the airport.

"Historically, when you mentioned airport operating licenses to ground handlers, they go, 'oh my god, I've already got an agreement.' It's not something to be frightened of. They will increasingly become important because as we see a reduction in space around airports. We're going to have to start sharing space. We're going to have to start sharing equipment more," Matheson says. "We have to therefore get the right behaviors in, so everybody knows how to behave when they use the same equipment, because what you can't have is somebody use it, doesn't care, gets it smashed up, and nobody's responsible.

"Vehicles account for 84 percent of ground damage to aircraft. What we can't have is add more vehicles to an already busy airport," he continues. "We have to find a way of alleviating that risk. That is probably going to happen through pooling and at the back of pooling, you have to have a level of behavior, level of accountability which only the AOL can supply."

For GTAA, Shack says the benefits of their AOL have been clearly seen.

"Our goals were to enhance safety, operational performance and customer service. In a little over a year we have seen promising progress as a result of the new GSP LTO, including a rapidly growing safety culture. The licensed GSPs meet regularly with the airport authority to work collaboratively on common challenges," says Shack. "These meetings continue to reinforce a level playing field and a team-oriented approach to realizing Toronto Pearson's vision of becoming the best airport in the world." **GSW**

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Alternative Energy's Emergence in Europe

A number of incentives are prompting ground handlers to turn toward electric- and hydrogen-powered GSE.

By Mario Pierobon

As the world increasingly transitions to electric vehicles in order to combat climate change, ground support vehicles powered by renewable energy play a key part, due to their use in the 24/7 transportation of people and goods. Indeed, in recent years there has been a marked increase in the aircraft ground handling industry as to the potential of renewable energy powered ground support equipment (GSE).

Environmental Conscience

"Many ground support providers have embarked on strategies to use electrically powered GSE (eGSE) instead of conventional fossil fuel powered ones as an important part of their environmental sustainability responsibilities," says David Burgess, vice president of global fleet management at Swissport. "We are a leader in this respect with a declared fleet strategy to have at least 50 percent of our motorized fleet powered by eGSE by 2025."

Pure battery electric vehicles and fuel cells offer key benefits over diesel–powered vehicles in terms of environmental impact. According to Joe Blanchard, vice president of service at Plug Power, fuel cell vehicles (FCEV) – like those that were put into field trials at Hamburg Airport in Germany in 2019 – specifically offer greater range and simpler infrastructure scalability over pure battery electric vehicles.

"Currently, we are at the nascent end of the ramp to the electrification of the entire logistics ecosystem. The electricity and hydrogen infra–

Photo courtesy of Plug Power

structure systems are the fuels for these electric vehicles and must evolve at the same rate to support the growth of electric vehicles," he says.

"The development of hydrogen-powered GSE, and indeed biofuels, is still in its infancy with products in the conceptual stage of product development. We are always alert to new technologies and we are watching the development of hydrogen powered GSE with close interest," says Burgess.

Fuel cell ground support vehicles are stock electric tractors made by various equipment manufacturers, except that their batteries have been replaced with zero-emission fuel cell engines like ProGen built by Plug Power.

"They tow up to 50,000 pounds in all weather for thousands of hours with zero emissions and show that hydrogen-powered vehicles and their fueling stations are safe to operate in an airport environment," says Blanchard. "Refueling is accomplished in 3–4 minutes, similarly to diesel fills, and at stations like gas stations that can be located in convenient spots around the airport. Original equipment manufacturers of ground support equipment are introducing more electric platforms every day."

Operational Benefits

In addition to the well-known environmental benefits of eGSE, there are cost and operational benefits, too, that must be accounted for. According to Burgess, the main proven benefit is reduced maintenance and repair costs.

"There are less things to check during preventive maintenance inspections (PMI), meaning a faster turnaround for PMIs compared with fossil fuelled equipment. There are far less components to fail so the cost of spare parts is reduced quite substantially," he says.

In addition, charging stations can be located closer to operational activity on the ramp than fuel stations.

"This means that there is less distance to travel for refueling/recharging interventions and thus more working hours available for operators to carry out their core operational business," says Burgess. "An additional benefit is that the latest eGSE using CAN bus technology and electronic control units not only reduces the amount of copper wiring but is also better for efficient fault diagnostics and technology upgrades."

Photo courtesy of Swissport

Among the reasons whereby airports benefit from using FCEVs instead of diesel-powered units is the fact that the energy efficiency of a FCEV is 45 percent compared

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to high 20s for diesel-powered equipment, observes Blanchard.

"This includes energy recovery during regenerative braking. FCEVs have decreased maintenance costs due to the elimination of oil changes and starter replacements. Because there are very few moving parts, FCEV reliability and availability is greater," he says. "There is also the elimination of environmental concerns using zero emission FCEVs. Operators of FCEV at airports report improved performance and user experience even aside from the lower noise and lack of diesel emissions with these solutions."

Limitations

Currently, some limitations have prevented universal adoption of eGSE.

"There may be some applications requiring too much power or energy to be most effective with electric or fuel cells," says Blanchard.

For Swissport, the main constraint preventing the company from ordering even more eGSE than it currently does is the lack of charging infrastructure at airports.

"While some airports are very helpful in providing charging infrastructure to support their own environmental strategies, there are many that do not. They cite various reasons such as lack of adequate space to create charging stations in already congested airports, while some state they are operating right at the limit of the airport's power supply; meaning that requirements for additional power have to be very carefully managed," says Burgess.

"Wider adoption would be achieved if airports were fully supportive and readily provided charging stations at various points around the airport. For example, why not utilize the power source already available for passenger boarding bridges as a dual source by also providing a charging station for opportune charging when the boarding bridge is not in use?" he continues. "Conceptually, it would be great if airports had multiple charging points around the airport as close as possible to operational activities. Certainly, for new airports or new terminals the provision of charging points should be a design feature of the master plan. Government grants would

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also encourage ground support providers to ramp up the procurement of eGSE."

Overall, as evidenced in the proliferation of electric GSE models over the last few years, the investments are now being made more than in the past to electrify airports.

"The technology is currently available to transition every airport to electric vehicles, whether battery or fuel cell–powered. An ever–growing numbers of airports, as well as companies that operate at airports, are investing in design and infrastructure projects to make this change a reality. Governments, GSE OEMs and airport operators are all moving the adoption forward and removing barriers. In some airports, they are already investing in green energy and can even produce their own hydrogen, providing true zero emissions," says Blanchard.

More Extended Adoption

Exposure, visibility, support from companies and governments, where appropriate, and cost–effective hydrogen are the main requirements for a wider adoption eGSE, observes Blanchard.

"Hydrogen is a critical enabler to the electrification of airport GSE with the range needed to perform efficiently during the constant busy–ness of larger airports," he says. "As more hydrogen fuel is amortized over the capital expenditure, the all–in price drops. As ports expand, requiring more hydrogen, little is needed to expand the site to accommodate these greater fuel demands." **GSW**

▶ ABOUT THE AUTHOR:

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Securing a Diverse and Skilled Workforce Amid Labor-Related Headwinds

Reaching a diverse and new audience of future pilots, aviation technicians and other aviation professionals requires a collaborative effort.

By Curt Castagna

The U.S. aviation industry has a severe shortage of aviation technicians and pilots, and a coalition of industry groups is now working with federal lawmakers to address the crisis. If this trend continues, the efficiency of the national aviation system and growth of one of the most important sectors of our economy could be undermined.

The "2019 Boeing Pilot & Technician Outlook" – an annual industry forecast of personnel demand – projects that 804,000 new civil aviation pilots and 769,000 new maintenance technicians will be

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needed to fly and maintain the global aircraft fleet over the next 20 years. The forecast is inclusive of the commercial aviation, business aviation and civil helicopter industries. This demand will stem from a mix of fleet growth, retirements and attrition.

In simple terms, this means that approximately 10,000 new pilots must enter the workforce each year to keep pace with demand and retirements. However, according to Federal Aviation Administration (FAA) data, less than 5,500 Airline Transport Certificates were issued during the first 11 months of 2018. Failure to produce more pilots will ultimately imperil small communities, which are most vulnerable to the loss of air service.

The consulting firm Oliver Wyman forecasts that demand for aviation maintenance technicians will outstrip supply by 2022. According to the Aeronautical Repair Station Association (ARSA), more than two-thirds of U.S. companies responding to a 2019 member survey reported vacant technician positions. This not only drives up overtime and training costs, but prevents new business development. ARSA projects the technician shortage is costing the U.S. aviation maintenance industry $118.416 million per month in lost revenue.

In addition, both aviation and business experts conclude that the pilot scarcity is disrupting both commercial airlines and business jet operators, causing labor costs to soar and profitability to decline. With workforce demand outpacing supply, the aviation industry faces serious financial headwinds from rising pilot costs and labor-related growth constraints.

Last September, the Senate Appropriations Committee recommended $5 million in funding for aviation technician and pilot education grant programs. This is half the amount approved in the FAA reauthorization law of 2018, which requires funding through the annual appropriation process. While the House Appropriations Committee voted to recommend a full $10 million in funding last June, Congress must approve a final version of the Transportation Housing and Urban Development bill before it can be signed into law by the president.

A coordinated effort across the global aviation industry is needed to create effective workforce development programs and direct pathways to a wide range of professional and technical careers. Workforce diversity is not only a business trend, but attracts top talent and offers companies a competitive advantage. As several hundred thousand pilots and technicians reach retirement age over the next decade, innovative solutions are needed to inspire and recruit the next generation of aviation professionals.

Many air carriers, and even airborne law enforcement agencies such as U.S. Customs and Border Protection, have forged successful partnerships with top universities to train and recruit future pilots. The business aviation industry must adopt a similar model to coach, mentor and empower students interested in full-time aviation careers.

To date, more than 40 leading aviation organizations have endorsed full funding of the two workforce development grant

Photo courtesy of NATA

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programs backed by the House and Senate. To meet growing demand for aviation employees, these initiatives call for developing high school aviation science, technology, engineering and math curriculum, as well as supporting aviation maintenance technician training.

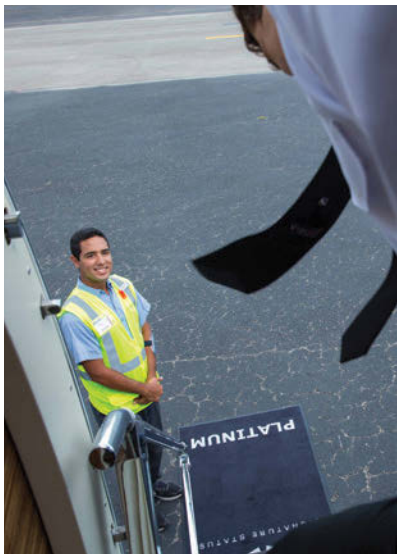

Photo courtesy of Signature Flight Support

For example, the program for technicians supports a wide range of recruitment and training activities. Intended to incentivize collaboration between key stakeholders, grant applications must be jointly submitted by a business, union, school or state/local governmental entity. According to ARSA, grants may be used to:

- Establish new educational programs that teach technical skills used in aviation maintenance, including purchasing equipment, or to improve existing such programs.
- Establish scholarships or apprenticeships for individuals pursuing employment in the aviation maintenance industry.
- Support outreach about careers in the aviation maintenance industry to primary, secondary and post-secondary school students; or to communities underrepresented in the industry.
- Support educational opportunities related to aviation maintenance in economically disadvantaged geographic areas.
- Support transition to careers in aviation maintenance, including for members of the Armed Forces.
- Enhance aviation maintenance technical education or the aviation maintenance industry workforce.

Photo courtesy of NATA

The grant program for pilots also supports the creation and delivery of curriculum designed to provide high school students with aviation education that prepares them to become aircraft pilots, aerospace engineers or unmanned aircraft systems operators. Additionally, it provides for the professional development of teachers using the curriculum.

While authorization of these grant program marks a significant step forward, Congress must take action for the funding to be disbursed. As a launching pad, airport businesses should initiate dialogue with other community stakeholders regarding the joint grant program application and how to creatively use federal money. This process involves private sector companies, labor and pilot organizations, schools and governmental entities working together to address the challenge.

Finally, the growing diversity of aviation personnel will also require airport businesses to have cross-cultural, cross-generational and multilingual skills to engage

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Photo courtesy of Signature Flight Support

future pilots and technicians. There is also significant opportunity to attract more female candidates to address the looming labor shortage.

For example, women currently make up just over 2 percent of the approximately 286,000 certificated airframe and power plant mechanics in the U.S. In addition, of the approximately 609,300 pilots in the nation, only 7.01 percent are women. Organizations such as the non-profit Women in Aviation International are dedicated to the encouragement and advancement of women in all aviation career fields and interests.

To address the workforce shortage, airport businesses must take a leadership role in advocating for federal funding, establishing scholarships and mentoring programs, providing training and apprenticeship opportunities, and attracting and retaining a diverse workforce. Reaching a diverse and new audience of future pilots, aviation technicians and other aviation professionals requires a collaborative effort among schools, local government entities, businesses, trade associations and labor organizations.

Ultimately, these efforts must happen to secure America's global leadership in the aviation and aerospace sectors, fuel the national economy and maintain the efficiency of the U.S. airspace system. **GSW**

▶ ABOUT THE AUTHOR:

Curt Castagna, president and CEO of Aeroplex/Aerolease Group, is a member of the Los Angeles County Airport Commission, president of the Van Nuys and Long Beach Airport Associations, and board chair of the National Air Transportation Association. A certified private and instrument-rated pilot, he has instructed courses in aviation administration at Cal State Los Angeles for over two decades.

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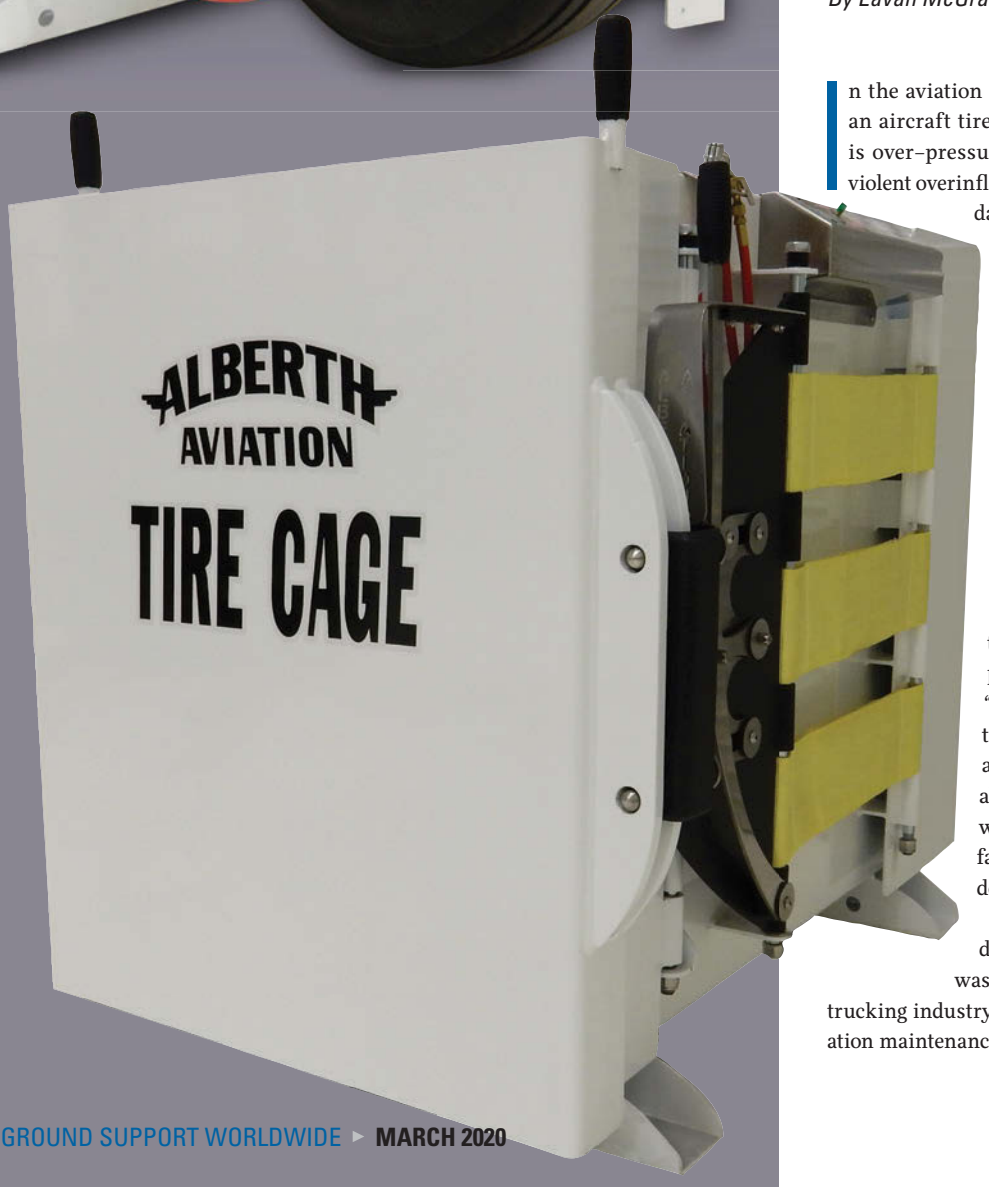

All photos courtesy of Alberth Aviation

Safe Inflation that Won't Fall Flat

Alberth Aviation's Tire Inflation Cage is designed to protect against overinflation failure.

By Eavan McGrath

In the aviation industry, the task of inflating an aircraft tire can be hazardous. If the tire is over-pressurized while being serviced, a violent overinflation failure can occur, causing damage to surrounding property and injuries to the technician – or even death.

Alberth Aviation's Tire Inflation Cage was specifically developed and tested to contain an overinflation failure, a first in the aviation industry.

"In 1999, several customers had concerns about inflating wheel and tire assemblies with the retaining ring and split rim style design from some of the new aircraft models at the time," says Rudy Alberth, president at Alberth Aviation. "After researching overinflation accidents and not finding a proof-tested product available for the aviation market, we designed, tested and manufactured the TC-36 which was delivered in 2004.

"Before our tire cages were developed," he continues, "it was typical that products from the trucking industry were being used by some aviation maintenance personnel."

However, Alberth Aviation's destructive testing found the cages from the trucking industry were not a safe option for aviation wheels. The trucking industry tire cages provided no protection against the shrapnel resulting from a catastrophic overinflation failure.

The dual overlapping door design of the Alberth Aviation Tire Inflation Cage provides easy access, strength and protection. It is made in the USA with laminated steel plate construction. The double over-pressurization safety features are designed to prevent an overinflation from occurring. For ease of use, some key features are hands-free tire inflation, an external gauge panel with nitrogen fill port, and a bank vault style door latch assembly. The Tire Inflation Cage also includes three different quick disconnect fill fittings to fit various wheel fill port designs.

According to Alberth, the Tire Inflation Cage is the only designed and tested tire cage for the aviation industry proven to contain the debris if an overinflation accident should occur.

Two models of the Tire Inflation Cage are available.

"The original model TC-36 accommodates wheel and tire assemblies up to 36 inches in diameter," Alberth says, adding when it was first introduced in 2004, the largest corporate aircraft at the time was the Gulfstream GV.

Alberth Aviation's customers' safety requests led the company to design the larger model TC-42 in 2016 to service wheel and tire assemblies up to 42 inches in diameter for large corporate aircraft such as the Gulfstream G650, Bombardier Global Express models, as well as some regional jets. The size of the wheel and tire assembly being serviced should be considered when determining which model is needed.

"An optional feature for the Tire Inflation Cage is the customer's color choice," Alberth says. "Custom colors have been popular for some of our customers that have signature corporate colors or unique logos that they want to present."

When the Tire Inflation Cage is used inside a hangar or maintenance facility and kept clean, it is relatively maintenance free.

The Alberth Aviation Tire Inflation Cage is currently being used worldwide at hundreds of corporate flight departments, wheel and brake shops, factory service centers, independent maintenance facilities and military locations.

"Our customers have told us that our tire cages are easy to use and that they appreciate the safety features that they provide," Alberth says. "Some companies have required them for their maintenance personnel's safety." **GSW**

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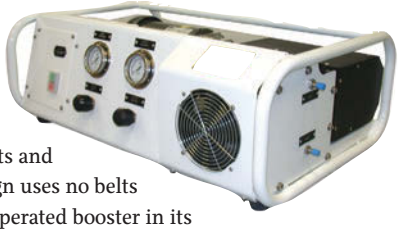

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EZ Rig Crane

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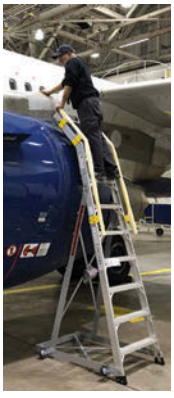

LockNClimb designs and manufactures ergonomic safety ladders for MRO service technicians. Ladders are made one at a time in the USA, and meet or exceed all applicable OSHA and ANSI standards. LockNClimb has ladder packages for most every aircraft made by Boeing, Airbus, MD and others.

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Time to Recognize our Finest

The annual Leaders of the Year award winners will have the spotlight in the May issue as well as at the 2020 International GSE Expo.

This time of year is an enjoyable one. Our staff can begin to thaw after a long Wisconsin winter, and the annual trade show season begins in earnest. What's more, *Ground Support Worldwide* begins the process of selecting its annual Leaders of the Year award winners.

It is a difficult task to choose a single winner among a crowd of deserving nominees in each category. But it serves as a reminder of all the hard-working people that innovate new equipment, manage their crews effectively and dedicate countless hours, days, weeks and years to the industry.

This year, we are taking a different approach to announcing the winners.

Rather than stretching the announcements over the course of three issues, we'll be highlighting the Product Leader of the Year, Team Leader of the Year and Lifetime Achievement winners together in our May edition of the magazine. It will offer an excellent showcase of these worthy people and companies.

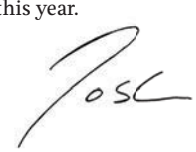
In addition to the May issue, this year's award winners will also be recognized at the 2020 International GSE Expo in Las Vegas. Be sure to join us at the Award Ceremony Oct. 20.

By the way, registration is now open for the 2020 International GSE Expo at www.GSEexpo.com. The biennial event is scheduled for Oct. 20–22.

Hotel accommodations for this year's show are available at both the Rio All Suites Hotel and Casino, the host venue, as well as Caesars Palace.

More information about the event can be found on pages 24 and 25 of this issue. Additional updates will be available at the GSE Expo's website and on the *Ground Support Worldwide* daily e-Newsletter. So stay tuned for more announcements.

We can't wait to see you and our Leaders of the Year in Las Vegas later this year.



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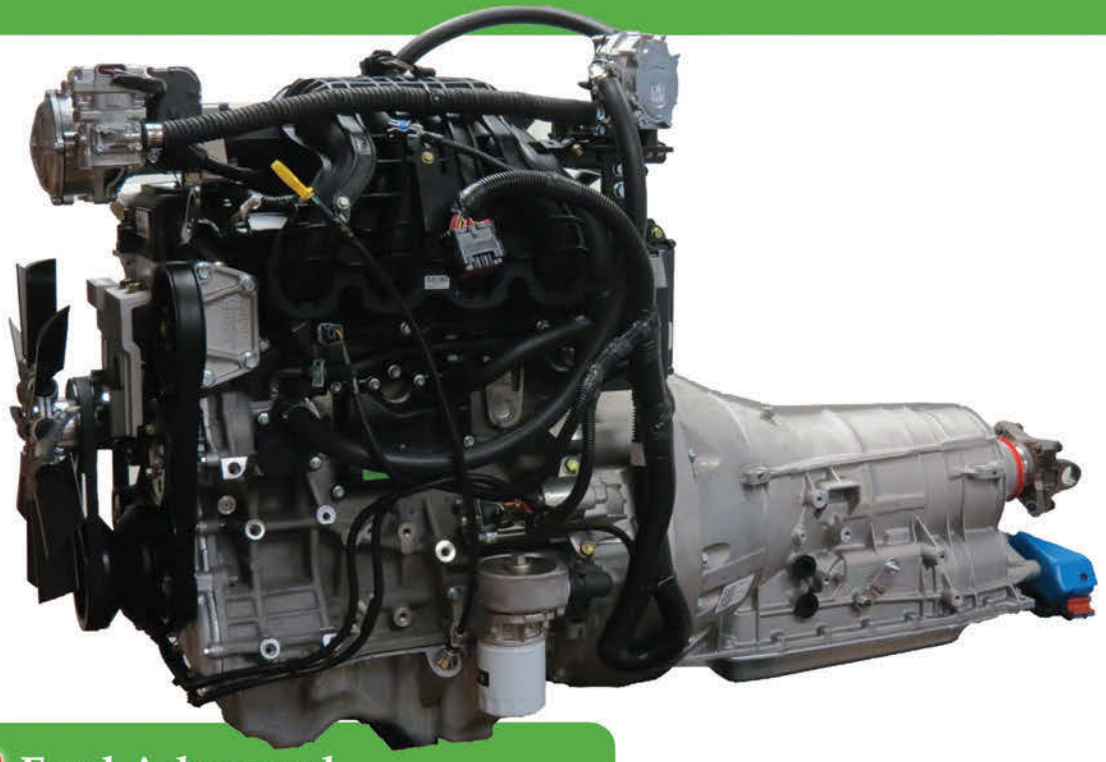

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