CELEBRATING 30 YEARS

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Ground Support WORLDWIDE

SEPTEMBER 2022

EQUIPMENT – SERVICES – HANDLING

SAFETY MANAGEMENT SYSTEMS 101

An SMS actively looks for safety issues in an FBO's operations and services offered, considers safety objectives and identifies safety concerns.

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Deicing / Anti-icing Equipment
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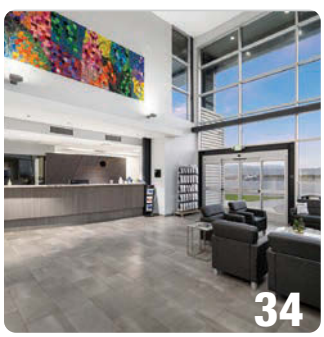

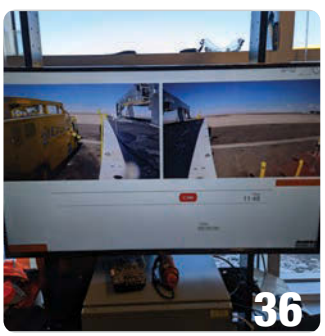

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ONLINE EXCLUSIVES

Regenerative Air Sweeping 101

By Tim Letts

Learn how regenerative air sweepers work and the benefit they bring to the airfield.

AviationPros.com/21276091

ARTICLES

LG Cloi GuideBot Enhances Customer Service at DFW

By Christina Basken

The GuideBot provides wayfinding, displays flight details, shows concession options and more.

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VIDEOS

Cirrus Aircraft

CEO Zean Nielsen talks about the SR22 and the Cirrus IQ mobile app.

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PODCASTS

Li-ion Batteries' Role in Improving Safety and Reducing Emissions

Robin Schneider, director of marketing at Green Cubes Technology, joins Ground Support Worldwide editor Josh Smith to discuss Lithium-ion battery technology and its use in ground support equipment.

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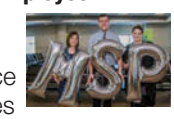
MSP Builds a Proactive Approach to Employee Recognition



By Joe Petrie

The MSP Nice program gives incentives to employees across the terminal to enhance the passenger experience with top-quality customer service.

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PRODUCTS

Solar-Powered Battery Operated Barriers

Battery Operated Barrier

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Why Improved Language Support is Needed Now More than Ever

By Joe Miller

Technology can help attract foreign talent and overcome recruitment challenges in aviation.

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Editor's Note

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Support for SAF

The Inflation Reduction Act includes tax credits targeting sustainable aviation fuel and encouraging further adoption of the renewable fuel.

Among its objectives, the Inflation Reduction Act that President Joe Biden recently signed into law aims to reduce greenhouse gas emissions produced in the United States. The $430 billion bill, also known as H.R. 5376, intends to promote clean energy and includes five years of dedicated sustainable aviation fuel (SAF) tax provisions intended to encourage the production of the renewable fuel.

This support for SAF production has been applauded by key stakeholders in the aviation community.

The National Air Transportation Association (NATA), for example, released a statement noting that the organization has advocated for creation of a dedicated SAF Blender's Tax Credit to stimulate investment in the nascent industry and provide economic parity with other renewable fuels.

"The sustainability measures included in the Inflation Reduction Act of 2022 represent a critical breakthrough in the business aviation industry's goal to achieve net-zero carbon emissions by the year 2050. The SAF Blender's Tax Credit and Clean Fuel Production Credit that President Biden has signed into law represent a five-year down payment on the policies necessary to scale up SAF production in line with industry demand," Karen Huggard, vice president of government affairs at NATA, said in the statement after the bill's passage.

After the bill was signed into law, the National Business Aviation Association (NBAA) noted in a statement that as of Jan. 1, 2023, a $1.25 per gallon credit will be available for each gallon of SAF sold as part of a qualified fuel mixture with a demonstrated lifecycle greenhouse gas (GHG) reduction of at least 50 percent compared to conventional jet fuel. The standalone SAF tax credit increases by one cent for each percentage point by which the lifecycle GHG emissions reduction of such fuel exceeds 50 percent, up to $1.75 per gallon.

"NBAA has long advocated for this blender's tax credit as a vital step in fulfilling our industry's pledge to achieve net-zero CO2 emissions by 2050 under the Business Aviation Commitment on Climate Change," said Ed Bolen, NBAA president and CEO. "Implementation of this credit marks genuine progress toward increasing SAF production, promoting greater availability at general aviation airports and reducing costs to end users."

The bill also includes an extension on a 50-cents-per-gallon tax credit for alternative fuels and fuel mixtures; a $1-per-gallon tax credit for biodiesel and renewable diesel and an extension of the $1.01-per-gallon income tax credit for second-generation biofuel production through 2024, according to Alder Fuels.

> "Implementation of this credit marks genuine progress toward increasing SAF production, promoting greater availability at general aviation airports and reducing costs to end users."
>
> *— Ed Bolen*
> *NBAA president and CEO*

"Public-private partnership is integral to scaling our renewable energy transition and this legislation represents a significant step forward. Rapid deployment of new biocrude pathways that can scale SAF production is critical to our sustainable future," Alder Fuels CEO Bryan Sherbacow said after the U.S. Senate passed H.R. 5376.

As a drop-in solution, the idea of using SAF to reduce GHG emissions has already gained momentum across the aviation industry. In many cases, SAF is already in use. However, producing enough SAF to make a significant impact has been a challenge.

Over the last several years, the airline industry and renewable fuel producers have been seeking federal policy to promote the increased production of SAF to make it more widely available. The Inflation Reduction Act is a notable success in achieving this government support. **GSW**


Tractor Tales
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TOP NEWS

Agility Completes Acquisition of Menzies Aviation, Will Combine Business with NAS

Agility has finalized its acquisition of UK-based John Menzies PLC and will combine the business with its National Aviation Services (NAS) business to create a world leader in aviation services. Once integrated, the combined company will operate as Menzies Aviation and will be the world's largest aviation services company by number of countries and second largest by number of airports served.

The combined company will provide air cargo services, fuel services and ground services at airports on six continents. Combined revenues of Menzies and NAS exceeded $1.5 billion in 2021. The new company will have approximately 35,000 employees and operations at 254 airports in 58 countries, handling 600,000 aircraft turns, 2 million tonnes of air cargo and 2.5 million fueling turns per year.

"Menzies and NAS will create the world leader in aviation services," said Hassan El-Houry, who becomes chairman of the combined company, having previously held the role of NAS CEO.

"We will have the scale and resources to expand and grow as the industry recovers from the COVID-19 pandemic. Commercial aviation is a key engine of global economic growth, and our customers need partners they can count on as flight volumes return."

"With the combination of Menzies and NAS, our customers will receive world-class service, expanded product offerings, and the industry's best safety practices at airports on six continents," said Menzies Aviation CEO Philipp Joeinig, who will be CEO of the combined company. "Agility's backing gives us the resources to provide innovative solutions for growing and forward-thinking customers, and to develop our talent, technology, and sustainability; critical factors for our future success. It also means we are well-positioned to support our customers in tackling supply chain challenges and labor shortages."

The deal values Menzies at approximately £763 million on an enterprise value basis.

Upcoming Events

Oct. 18-20
2022 NBAA Business Aviation Convention & Exhibition
Orlando, Florida

Nov. 1-3
Abu Dhabi Air Expo 2022
Abu Dhabi, UAE

Nov. 8-10
TIACA Air Cargo Forum
Miami, Florida

Nov. 29-Dec. 1
Annual GHI Conference
Amsterdam, Netherlands

Dec. 6-8
MEBAA Show
Dubai, UAE

Alliance Ground International to Acquire Airport Terminal Services

Alliance Ground International (AGI) is set to acquire Airport Terminal Services (ATS) as part of its ongoing growth strategy across North America and into the passenger operations sector.

ATS has more than 5,500 employees and offers full-range ground handling services, including passenger, ramp and cargo handling, aircraft refueling and deicing, as well as lounge and concierge services.

The acquisition means that AGI will become one of the largest ground handlers in North America.

"As AGI is a cargo handler working with cargo freighter operations, this opportunity with ATS will allow us to build our presence in the airport terminal and passenger side of the business," said Jared Azcuy, chief executive officer, AGI.

"Ultimately, ATS will help AGI maximize customer service, optimize operations, and increase value to all of our customers."

AviationManuals Earns IS-BAH PSA Recognition

AviationManuals has received International Standard for Business Aircraft Handling (IS-BAH) Program Support Affiliate (PSA) recognition. Launched in 2014, developed by the International Business Aviation Council (IBAC) in collaboration with the National Air Transportation Association (NATA), IS-BAH is designed to enhance the safety and efficiency of business and general aviation services on a global level.

"IS-BAH PSA endorsement allows AviationManuals to bring our 26 years of operational procedures and SMS experience to the FBO audience helping to improve operational professionalism and safety," said Kevin Honan, senior operations advisor at AviationManuals. "We can now provide services that assist FBOs in understanding, complying with, and maintaining the standards of the IS-BAH Program."

PJi Celebrates Completion of New Bern Distribution and Service Center Expansion

Pilot John International, formerly Carolina GSE, announces the completion of its aircraft equipment distribution and service center expansion in New Bern, North Carolina.

PJi has doubled its space from 20,000 square feet to 40,000 square feet with the support of the building reuse grant awarded by the North Carolina Department of Commerce's Building Reuse Program. The additional physical space will support PJi's rising demand for aviation equipment with increased inventory and storage capacity, along with increased space and staff for its ground support equipment service center.

"I would like to thank the North Carolina Department of Commerce Building Reuse Program, Craven County, Craven 100 Alliance, the Economic Development Partnership of North Carolina, Tarheel Building Systems and our awesome PJi team for helping make this expansion project a success," said John Werner, president and CEO. "With our expansion complete, we look forward to adding new team members in New Bern."

Avfuel, Neste and Hillsboro Aviation Introduce SAF in Oregon

As Hillsboro Aviation (KHIO) in August accepted its first load of Neste MY Sustainable Aviation Fuel, the FBO — in collaboration with Avfuel Corporation and Neste — secured the first business aviation foothold for SAF in the state of Oregon.

"Oregon has been a trailblazing state for clean air legislative initiatives," said Keith Sawyer, Avfuel's manager of alternative fuels. "Furthermore, the team at Portland's Hillsboro Aviation is passionate about environmental conservation, which made it the perfect first FBO partner to establish SAF supply in the state. We are thankful for its team for leading the SAF initiative in the Pacific Northwest as we work tirelessly with Neste to make SAF an available alternative throughout business aviation."

The first 8,000-gallon truckload delivery of SAF to Hillsboro Aviation is just the beginning of the location's SAF journey. The FBO collaborated with Avfuel and Neste to secure consistent supply of the alternative fuel to better serve its green-minded customers on a regular basis.

WFS Adds Cargo Capacity at Heathrow as Volumes Soar

Worldwide Flight Services (WFS) has increased its facility footprint at London's Heathrow Airport after a 30 percent growth in volumes in the past year.

WFS has signed a five-year lease on Building 578 in the airport's cargo area, boosting its warehouse and office space by a further 27,000 square feet. The additional building, due to commence operations in October, features eight landside doors for cargo deliveries and collections, and a 20-foot truck dock. As well as caster deck storage for loaded pallets and containers, WFS also plans to install a 7,000-square-foot area for ambient shipments and dedicated storage for temperature-controlled cargoes requiring a 2-8 degrees C environment.

Once the new facility opens, WFS will increase its total cargo handling space at the airport to nearly 350,000 square feet. This latest expansion is designed to support existing airline customers – including new contracts gained in the past 12 months with Sri Lankan Airlines, Gulf Air and All Nippon Airways. The additional building will also provide growth capacity.

"After strong growth in our tonnage throughput in 2021, and with cargo volumes expected to increase by a further 25 percent this year, it's important that we are proactive in ensuring we have the capacity and infrastructure our current airline customers need to support their products and services. A key focus for Building 578 is to expand our perishables handling capabilities. This investment also gives us more space to welcome new carriers, which we expect to do by the end of the year," said Paul Carmody, WFS managing director – UK Cargo.

Qatar Aviation Services Joins Environmental Management System

Qatar Aviation Services (QAS), a subsidiary of Qatar Airways Group, announced its partnership with International Air Transport Association (IATA) to become the first ground handler globally to join the new expansion of the IATA Environmental Assessment Programme (IEnvA) for ground service providers.

The IEnvA program for ground service provides a framework for achieving environmental sustainability across all ground operations.

Taking advantage of the knowledge and experience garnered from the airline program, ground service providers can rely on its definitive guidance to reduce their impact on the environment, and improving health and safety for both employees and the community, while maintaining operational efficiency.

"I am proud to lead the efforts to create a sustainable aviation industry. Environmental sustainability awareness across the entire organization is critical to the success of Qatar Airways Group. Through IEnvA, Qatar Aviation Services will be able to demonstrate the value of environmental compliance and ensure sustainability in its operations," Qatar Airways group chief executive Akbar Al Baker said.

"We're delighted to count Qatar Aviation Services as the first ground handler to join the newly extended IATA IEnvA program," IATA director general Willie Walsh said. "Sustainability is a critical challenge for our industry. By taking proactive steps to measure their impacts and address them throughout their operations with IEnvA, QAS and Qatar Airways Group will back their sustainability achievements with the most comprehensive global standard environmental certification available in the industry."

Qatar Aviation Services, managed by senior vice president Mehmet Murat Nursel, is committed to minimizing the environmental impact of its operations, playing an instrumental role in helping Hamad International Airport gain its standing as an environmental leader among airports globally.

Through its participation, it aims to meet and exceed the highest environmental standards while preparing for future expansion strategies.

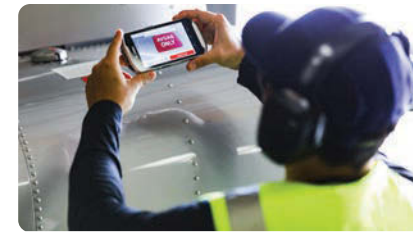
The IEnvA program is an Environmental Management System initially offered to airlines, which demonstrates equivalency to the ISO 14001: 2015 environmental management systems standard. It provides a structured approach to managing the environment, as well as reporting and mitigating environmental impacts. As a result, organizations are able to more formally incorporate sustainability and environmental compliance strategies into their operations.

Qatar Airways, under the Qatar Airways Group, first achieved the highest level of IEnvA accreditation in 2017, becoming the first airline in the Middle East to do so.

The airline has since played a key role in contributing to the successful development of the IEnvA program. The program covers all aspects of Qatar Airways global operations, including flight and ground operations and corporate activities.

Air BP Surpasses 500,000 Overwing Fuelings Using Misfuel Prevention App

Air BP has surpassed a milestone by completing more than 500,000 overwing fuelings using its Airfield Automation misfuel prevention technology through its safe2go app. With misfueling presenting one of the significant risks facing aviation, Air BP's Airfield Automation safe2go technology is



pioneering the provision of an engineering barrier to actively help prevent misfueling. The 500,000th refueling took place at Hamburg Airport (HAM/EDDH) in Germany.

Airfield Automation was first rolled out in 2018 and has now been deployed at more than 490 locations in 44 countries around the world. Since launching, more than 2.8 million fuelings in total have been processed using Airfield Automation.

"We are delighted that more than 500,000 overwing fuelings have benefited from our safe2go app misfuel prevention technology," Olivia Stone, vice president technical services and HSSE, Air BP said. "Not only does Airfield Automation safe2go technology provide an additional technological barrier to help prevent misfueling but it also enhances efficiency and reliability in refueling operations. These combined benefits are attractive to both operators within the bp network and those outside who are looking for this type of technology."

The safe2go app on a handheld device in fueling vehicles consolidates data on airport fueling operations, verifies fueling requirements and captures an acknowledging signature from the pilot or airline representative.

Aside from the enhanced safety barrier, operators benefit from faster, more comprehensive and more accurate fueling as well as data delivery.

In 2021, new services were added to the cloud-based platform, meaning operators can benefit from the opportunity to further enhance efficiency.

These upgrades include real-time, two-way connection between the flight crew and fuel operator during the aircraft turnaround at the airfield. From receiving the preliminary order through to a revised final order and concluding with an electronic ticket sign off, Airfield Automation provides instant visibility and more efficient refueling operations.

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PEOPLE

Million Air Announces New Director of Safety

Million Air has announced a new director of safety for its network of 34 FBOs. Jason Sahl is responsible for leading Million Air's safety across the network of FBOs.

As the director of safety, Sahl is responsible for overseeing the Million Air Preferred Practices Program (MAP3), performing Safety Assist Visit and Evaluation (SAVE) audits at all locations, investigation and review of network mishaps, and maintaining relationships with all levels across the Million Air organization

In addition, Sahl provides communication to the network through content on Million Air's Learning Management System, monthly newsletters and Safety RED TAGs, among others.

Previously, Sahl owned and operated MAX Q LLC, an aviation services company that specialized in providing document development, operational support and on-site fuel quality control training to FBOs. In 2021, he wrote and self-published a guidebook titled "Beyond the Standard: Practical Application Fuel QC for Fixed-Base Operations."

Sahl has worked in FBO operations since 2003, ascending the line service ranks at several airports and FBOs in the Kansas City and South Florida metro areas.

Sahl

NATA Announces New Leadership, Recognizes Obitts' Service to Members

The Board of the National Air Transportation Association (NATA) announced Timothy Obitts stepped down as president and CEO on Sept. 1. Obitts will continue to advance the cause of sustainability as the chief legal officer for Alder Fuels. The Board of NATA appointed Curt Castagna (president and CEO, Aeroplex Group Partners, Long Beach, California) to serve as NATA's 11th president and CEO.

Castagna

For nearly the past three years as NATA's president and CEO, Obitts was instrumental in advocating for its members during the COVID pandemic and personally guiding hundreds of aviation businesses through complex relief programs. During his tenure with NATA, he brought leaders of other general aviation groups together in demonstrating the industry's commitment to sustainability.

Prior to accepting the position of NATA president and CEO, Castagna served over six years as an NATA board member, including two years as board chair and one year as immediate past chair.

"We all welcome Curt's expansive industry experience and knowledge of the association in helping to further NATA's impact through advocacy advancements, education innovations, and an elevated industry presence. We appreciate Curt's long-standing and continued commitment to NATA and will benefit greatly from his ability to foster progress through effective partnerships and community collaboration," NATA board chair Clive Lowe said.

Aviator Names Bayardo Head of Airport Hospitality

Aviator Airport Alliance, a full-range provider of aviation services at 15 airports across the Nordics and an operator of two business lounges at Copenhagen airport, has further developed the passenger experience and hospitality side of its business by welcoming a new head of airport hospitality, Patrik Bayardo.

Bayardo

"We at Aviator believe that there is plenty of untapped potential in the airport hospitality sector," said Bayardo. "There are a lot of opportunities to offer passengers a better, more encompassing, and purposeful experience while visiting airports and we're here to make those ideas a reality. "

According to Bayardo, who has more than 20 years of experience in the business development field, Aviator is set to develop new concepts that challenge the established industry and public understanding of what airport hospitality is and could be.

New VP/GM at ITW GSE

ITW GSE has announced change in its leadership. Effective Sept. 1, Poul Elvstrøm is appointed vice president/general manager of ITW GSE.

Elvstrøm joined ITW GSE in 1998 and has advanced through a series of roles, the latest as VP, global sales and marketing. Undertaking the VP/GM position Elvstrøm and his family will continue to reside in Denmark.

After 38 years of dedicated service, Henrik Olsson has decided to step down from his role of VP/GM and will take on a reduced set of responsibilities at ITW. Olsson was appointed VP/GM for the global division in 2012 and has been developing the GSE division into a true ITW role model.

David Feuga, from ITW GSE's Dubai branch office, is appointed global sales director as per Sept. 1, and will take over Elvstrøm's responsibility of the global sales and marketing.

Elvstrøm

"Travel is key to world economic growth and with the increase in middle class population in some of the world's most populated regions, passenger numbers are foreseen to increase. And we are pleased to be able to contribute making it possible to travel in a more sustainable way," Elvstrøm says.

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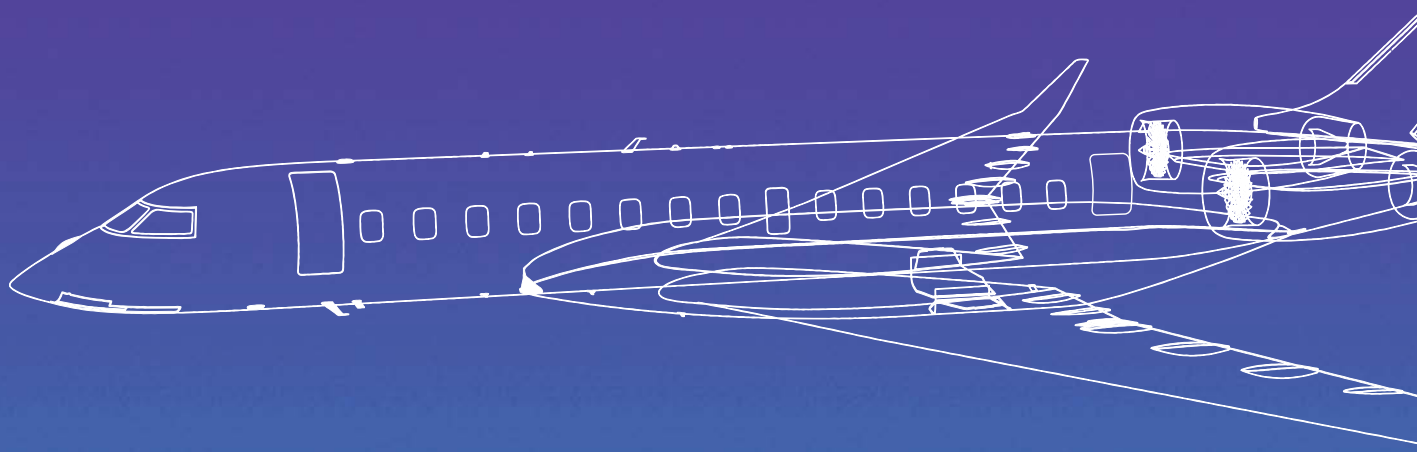

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NEW DEALS

dnata Extends Partnership with GOL Airlines in Brazil

dnata has extended its long-standing partnership with GOL Airlines (GOL), a leading Brazilian low-cost carrier.

The extension of the contract will see dnata continue to provide a range of passenger, ramp and baggage services to the airline, ensuring a seamless airport experience for more than 19 million passengers and safe and timely departure of up to 133,000 flights annually across 20 airports in Brazil.

dnata's latest contract win cements its position as a leading ground services provider in Brazil.

"We are proud to extend our successful partnership with GOL Airlines across their extensive Brazilian operations," David Barker, dnata's divisional senior vice president for airport operations, said. "We will continue to work hard to provide the highest level of quality and safety for the airline and its customers, every day."

Swissport Adds Another Large Hub Operation to Its Network: Rome-Fiumicino, Italy

Swissport began serving airlines at Rome-Fiumicino – Italy's largest hub airport – after successfully concluding consultations with trade unions in early July.

"After constructive consultations with trade unions, we are delighted to welcome 1,608 former Alitalia employees to the Italian Swissport team," said Marina Bottelli, Swissport's general manager Italy. "We are excited to be serving ITA Airways, the Italian national airline, and other customer airlines with safe, cutting-edge and efficient ground services from day one and are well prepared for the busy summer holiday season."

In mid-May, Swissport was awarded the contract for ground services at Rome Fiumicino Airport by Alitalia – Società Aerea Italiana S.p.A. in extraordinary administration. Consultations with trade unions began in June 2022 and were successfully concluded on July 4. On July 14, the company started to provide ground handling at the airport.

Menzies Aviation Enters Montenegro and Serbia with New Joint Venture

Menzies Aviation has agreed to acquire 70 percent of Fly Montenegro Ground Handling in Montenegro and Flystar Aviation Services in Serbia, which both

provide ground services at three airports. Fly Montenegro Ground Handling provides ground services at Podgorica Airport (TGD) and Tivat Airport (TIV), and Flystar Aviation Services provides ground services at Belgrade Nikola Tesla Airport (BEG). Menzies' initial focus will be increasing the scope of services provided and to attract new customers to its portfolio, while also maintaining existing customer relationships.

"I am delighted to announce a further expansion in Eastern Europe with a joint venture in Montenegro and Serbia, both of which have significant potential for growth," Miguel Gomez, executive vice president – Europe, Menzies, said. "Fly Montenegro and Flystar have built up a strong customer base over the past 13 years to become a leading ground services provider."

Universal Aviation Expands its Certified FBO Network in Latin America and Caribbean

Universal Aviation, the FBO ground services division of Universal Weather and Aviation, Inc., announced it has expanded its presence in the Latin America and Caribbean market with two new Universal Aviation Certified member locations in Guatemala City, Guatemala (MGGT) and Luque, Paraguay (SGAS).

"Business aviation traffic to Latin America and the Caribbean continues to remain strong in most destinations, exceeding pre-pandemic levels," said Adolfo Aragon, senior vice president, Universal Aviation. "However, the traffic influx combined with the global supply chain issues and staffing shortages presents new operating challenges. To address this, we continue to identify highly successful local handlers that share our commitment to standards and service. Bringing these new members into our network reduces risk and eliminates handoffs, one of the causes of trip disruptions."

The new Universal Aviation Certified members include:

- Air Station S.A. at La Aurora International Airport in Guatemala City, Guatemala. Air Station has a 20-year track record of success and can expedite passengers and crew in and out of the airport in 15-20 minutes for international flights.
- Consorcio Aviation SRL at Aeropuerto Internacional Silvio Pettirossi (SGAS) Located in Asuncion, Paraguay. Consorcia Aviation has more than 30 years of ground operations experience and supports all types of missions and aircraft, including wide-body, cargo and medical.

ALTERNATE AEROWORKS CANADA

Towing Technology's Journey to North America

Officials at Alternate Aeroworks Canada are working to identify locations in Canada that can enhance ground operations by deploying TaxiBot vehicles.

By Josh Smith

Having seen positive results from operations in India and Europe, officials are working to implement sustainable aircraft towing technology in North America by introducing the TaxiBot, a semi-robotic towing vehicle, at locations across Canada.

With the experience of already launching the equipment in India and initially supporting TaxiBot operations in Amsterdam, AeroTech Support Services and its subsidiary Alternate Aeroworks Canada have identified Montreal, Toronto, Vancouver, Edmonton and Calgary as airports that could utilize TaxiBot due to longer taxiing times and their number of flight operations.

TaxiBot is controlled by the pilot of the aircraft as the tractor tows the plane from the terminal to the runway. Because this is done without the use of the aircraft's engines, a significant amount of jet fuel is preserved. Powered by a hybrid of electric and diesel engines, TaxiBot provides additional green benefits.

By deploying 26 TaxiBot units across these five Canadian airports, company officials say 650 TaxiBot operations could be carried out on a daily basis. According to Ashwani Khanna, director at Alternate Aeroworks Canada, this would help save approximately 200,000 tons of carbon dioxide (CO_2) on an annual basis.

"Presently, we have signed a MOU with Montreal, have conducted a survey at Vancouver Airport and are in talks with Edmonton Airport," explains Khanna. "We are aligning various resources and closure of MOUs and are planning to launch the project starting October to November of this year."

Alternate Aeroworks Canada has an exclusivity to own and operate the TaxiBot in Canada. TaxiBot was designed by Israel Aerospace Industries (IAI), is manufactured by TLD and is powered by technology developed by TLD's sister company Smart Airport Systems (SAS). AeroTech Support Systems, the parent company of Alternate Aeroworks Canada, would also assist Canadian operations by setting up procedures at each airport and providing training for TaxiBot operations.

ALTERNATE AEROWORKS CANADA

Earlier this year, a stakeholders meeting was held in Montreal to explore the viability of TaxiBot at the airport. The meeting, which was organized by the airport authority, was attended by representatives from airlines and service providers. Additionally, a case study has been conducted at Vancouver.

From these initial trials, Khanna says Alternate Aeroworks Canada proposed an option to use TaxiBot to decongest the apron area.

"A plan has been discussed in detail that when we start Montreal, the airport would like to see the decongestion benefit arriving from the use of the TaxiBot," Khanna says. "The logic was that after pushback and engine start, there is a lapse of about six minutes. This may impact other aircraft movements, especially in the cul-de-sac area.

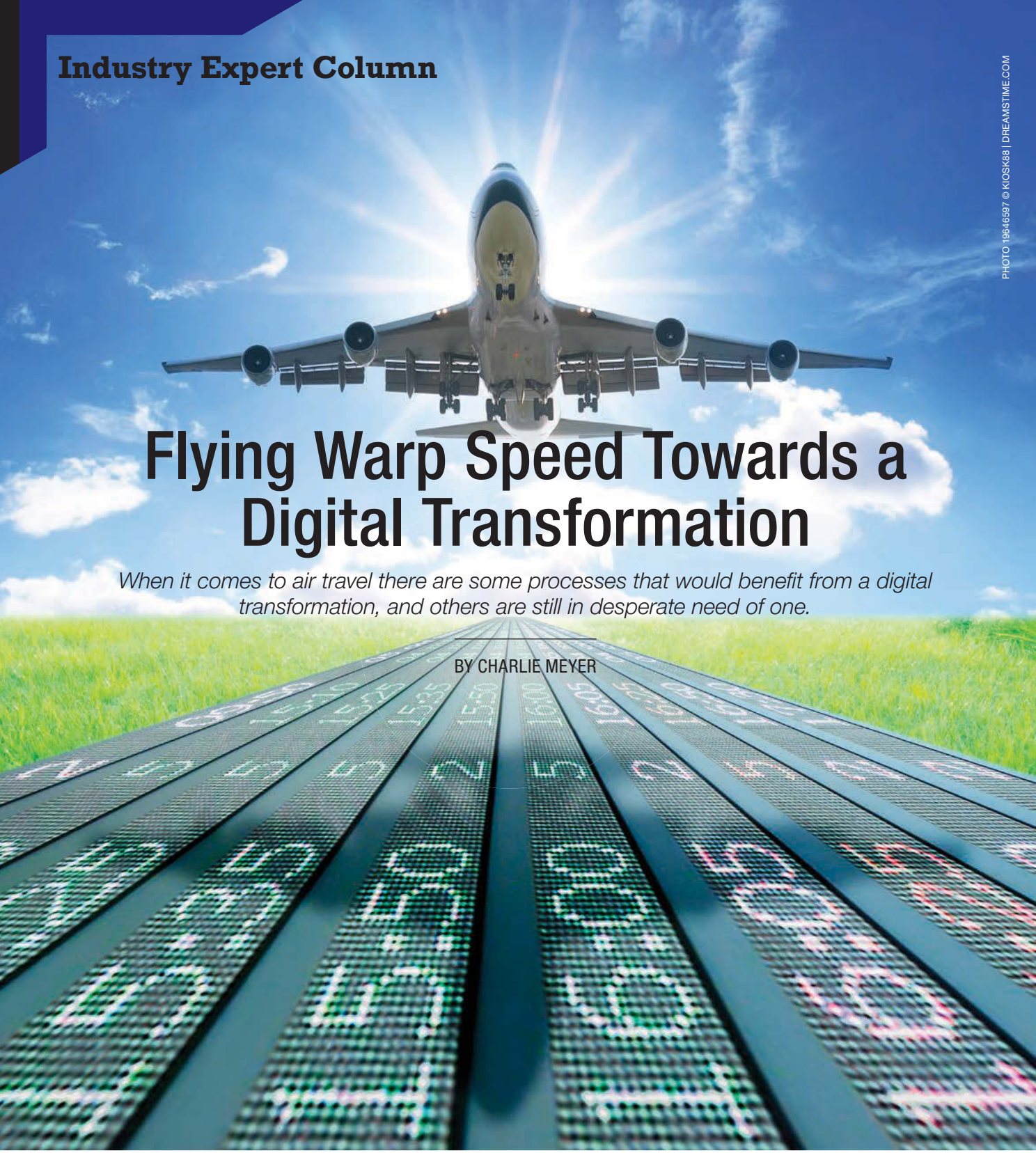
"With the use of the TaxiBot, as there is no engine start, the holding time is reduced to about two minutes," he continues. "This is where the savings come for the airline and airport."

In addition to reduced CO_2 emissions and reduced ground times, Khanna says additional benefits for airports and airlines include reduced cost, reduced jet blast damages issues, reduced FOD and brake wear, and reduced wear and tear of jet engines, among others.

Airports in North America have a greater potential for efficiency gains than airports in India, Khanna says, noting more traffic and other factors like deicing requirements can add to taxiing times.

"Each airport is different and the procedures have to be made while keeping operational constraints of that airport," Khanna says.

The Canadian aviation system stands to benefit from the use of TaxiBot, Khanna says, especially ground handlers with a vision to support sustainable aviation practices. **GSW**



Flying Warp Speed Towards a Digital Transformation

When it comes to air travel there are some processes that would benefit from a digital transformation, and others are still in desperate need of one.

BY CHARLIE MEYER

Talk of the digital transformation has been abundant among stakeholders of any industry for years if not decades. What, in exact terms, encompasses digital transformations remains vague and varies from party to party. In its simplest terms, a digital transformation is exactly what it sounds like: a conversion from analog processes to digital ones.

For some, a digital transformation consists of more simple adoptions of already existing technology and technological processes. For others, especially leaders in the tech industry, a digital transformation is more of a mindset wherein they are always searching for opportunities to innovate and transform. A survey conducted by Zippia found that 56 percent of business leaders consider executing on a digital transformation to be among their top priorities, and a further 87 percent believe digital transformation will disrupt their industry. In an increasingly tech-driven world, business strategies need to be specific and deliberate to keep a business ahead of the curve instead of trailing behind.

Although the air travel industry consists of many different businesses sharing space in the world's airports, the basic features of any given airline are all similar. For the most part, the journey from booking a ticket through retrieving luggage off the carousel has the same rhythm, but there are some processes that would benefit from a digital transformation, and others are still in desperate need of one. World over, airports are often the sites where some of the angriest outbursts tend to rear their ugly heads. Though there are few founded excuses for bad behavior, airports tend to make hot heads hotter through stressful and frustrating exchanges. There is ample room to smooth over rough patches with digital tools.

From the outset, customers selecting and booking their travel could avoid any potential annoyances when airlines ensure their websites are supported by large enough servers to accommodate for digital crowds that will only increase in the coming years. From there, employing the use of an automated queuing system can alleviate the pressure created by digital crowds by giving users the option to track their spot in line and can alert them once their turn nears. In the physical airports, the innovations should continue. Already ubiquitous are the practices of pre-downloading digital boarding passes and using digital kiosks to print baggage tags, but why not take it a step further by leveraging similar technology used on websites to upgrade in-person experiences.

A digital transformation could completely revolutionize the air travel experience. Imagine a solution that predicts, prepares for and accommodates capacity surges whether from seasonal demand, inclement weather or anything else. Imagine a solution primed to respond to disruptions instantaneously through a series of pre-approved pathways. Instead of the stress of an unpredicted situation resulting in a long line of already disgruntled passengers expecting immediate answers, travelers could be continually notified in accordance with an evolving situation. Then, if necessary, they could be sent through the proper channels to reroute, rebook or find a place to stay the night all at the tips of their fingers. Even ground operations could be improved with the right solutions to help with streamlining.

There is plenty to be done to future-proof the air travel experience. Answering the question of what to do is easier, but more difficult is solving the problem of how. Look no further than the now tried and true warp speed mindset. The term warp speed came into fruition after being fairly successfully applied to the race to create and distribute the COVID-19 vaccine known as "Operation Warp Speed," and the business world has taken note. The warp speed mindset has a few defining characteristics: singlemindedness, detailed scheduling, interdepartmental buy-in and, obviously, speed. All of this makes for a very compelling business strategy companies could use to tackle big, transformative projects. Applying that mindset to approach a digital transformation for an airline could be revolutionary, especially with the right tech partners who can also adopt the warp speed mindset while also separating the good ideas from the trendy ones.

Digital progress is fast, but it is also filled with red herrings. Tech trends rise and fall with such haste that even experts sometimes have difficulty accurately predicting which developments have staying power and which are destined to fade into obscurity. The trick here is to rely on practical solutions rooted in best practices rather than anything unproven. Technological solutions should lubricate slower processes and optimize clunky ones. The solutions chosen should make sense and be intuitive to the end user. Implementing a digital transformation will require a significant investment of time, money and labor, which will only pay off if the solutions make air travel easier from the outset and do not require additional and unwanted investment into instructing customers how to benefit from the changes. Looking at the case of Operation Warp Speed, the same was and is true there. In order to move as efficiently and effectively as possible, real critical thought had to be applied and followed to choose the most viable path forward.

Imagine a solution that predicts, prepares for and accommodates capacity surges whether from seasonal demand, inclement weather or anything else.

If an airline wants to get on the cutting edge and stay there, getting there is not only possible, but brimming with innovative potential. Choose the right technological partner and guide, then get buy-in from stakeholders across all functions at the company. Total participation is the name of the game here. With everyone on board and reliable solutions identified, it's time to commence warp speed. In doing so, there are sure to be tangential benefits. Aside from reaching the goal of preparing a business for the future of industry, there is also sense of community created when employees across the board all see their impact reflected in the work to achieve a common goal.

More and more Americans are returning to their regular flying habits as restrictions lift and the appetite to travel is strong. Over time, the industry will likely recuperate and may even exceed previous norms. The time is now for sound strategies to improve passenger experiences, safeguard against future uncertainties and to exploit new efficiencies for lower costs and greater rewards. This is the way to fly forward. **GSW**

ABOUT THE AUTHOR

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Charlie Meyer is the senior VP of sales and leads the North American sales team at QLess. With more than 20 years of sales leadership experience in enterprise and SaaS software, Meyer brings a wealth of sales and leadership guidance to the growing company and market.

SAFETY MANAGEM

An SMS actively looks for safety issues in an FBO's operations and services offered, considers safety objectives and identifies safety concerns.

BY JOSH SMITH

GROUND SUPPORT WORLDWIDE FILE PHOTO

ENT SYSTEMS 101

The importance of safety at an FBO cannot be understated. A lapse in safety can lead to expensive damage, injury or a loss of life.

To ensure safe practices are being carried out and regularly improved, many aviation companies and FBOs are adopting and implementing a safety management system (SMS).

"SMS is the formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of safety risk controls," explain NATA COO Keith DeBerry and NATA managing director of safety and training Steve Berry. "It includes systematic procedures, practices and policies for the management of safety risk."

A safety management system offers a structured process designed to elevate safety to the highest concern, Berry and DeBerry point out, adding an aviation business must treat safety with the same attention as other business concerns.

An SMS actively looks for safety issues in daily operations and services offered, considers safety objectives and identifies top safety concerns, according to Terry Yeomans, director of the International Standard for Business Aircraft Handling (IS-BAH) program at the International Business Aviation Council (IBAC).

"It's organized common sense," he says, adding an SMS develops corrective actions to reduce the risks those safety concerns present and monitors them over time to be sure the risks have been appropriately controlled.

"In layman's terms, the safety management system is basically a formalized way for the organization to recognize and reduce risk before an event occurs through measurement, evaluation, surveillance and continuous improvement," say Baldwin Aviation – Safety and Compliance senior manager of standards Todd Thomas and Baldwin Aviation – Safety and Compliance director of standards Jason Starke.

"The SMS framework establishes the policy, processes and procedures for people to work together to achieve this aim."

Starting an SMS

When an organization is ready to implement an SMS, it is vital that everyone involved buys into the concept.

DeBerry and Berry recommend starting at the top, securing CEO buy-in first.

"Without support at the very highest levels of an organization, implementation of a successful SMS is very difficult," they say.

Both recommend appointing a member of senior leadership to lead the development and implementation of the SMS. Yeomans refers to this person as the accountable executive (AE), adding that person's commitment to safety culture will drive policy accordingly.

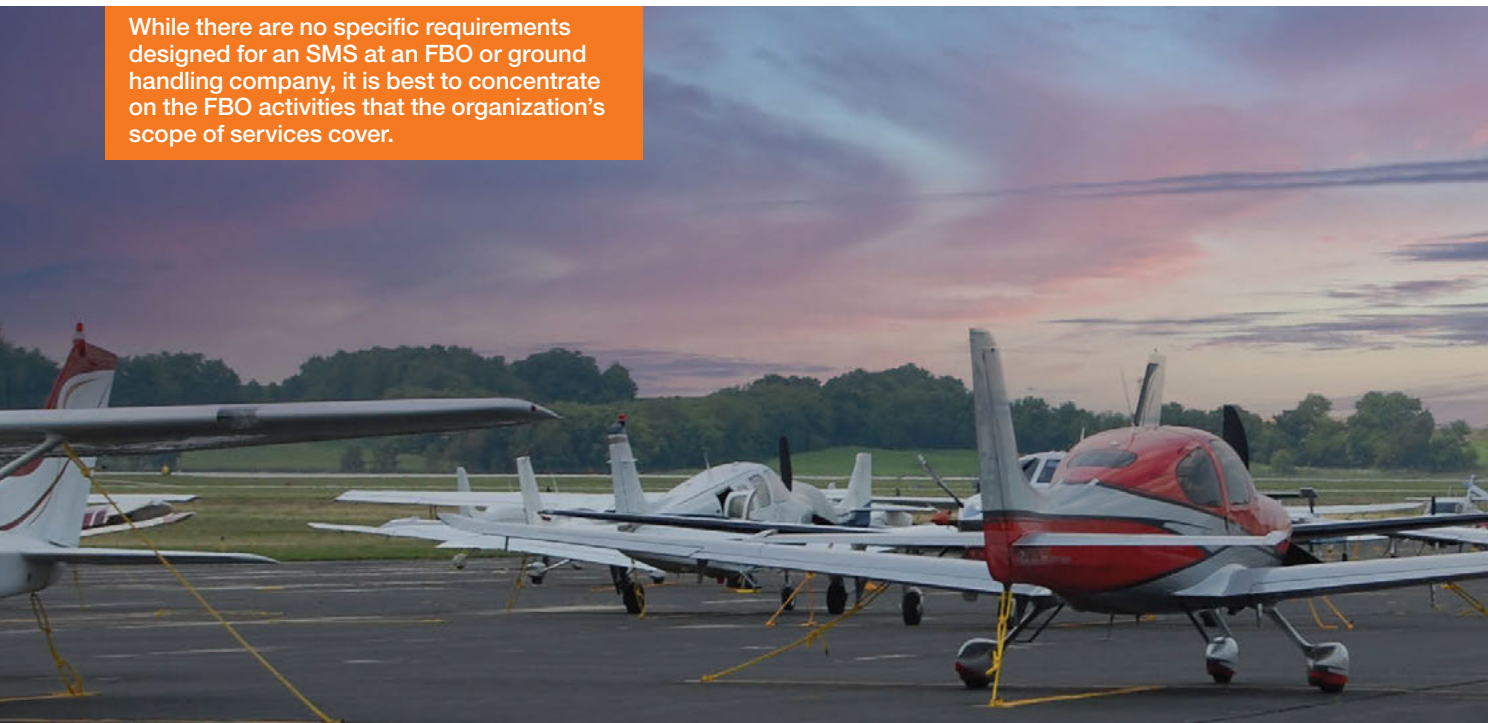
FBOs and ground service providers can also reference existing programs, say Thomas and Starke. For example, the framework for an SMS is included in the International Civil Aviation Organization's (ICAO) international standards and recommended practices as part of Annex 19 to the Convention on International Civil Aviation.

Title 14 of the Code of Federal Regulations (14 CFR) also highlights SMS.

"They can also use a standard such as IBAC IS-BAH or IATA Ground Operations Manual (IGOM) / IATA Safety Audit Ground Operations (ISAGO). If they use either of these, the ground handler can be recognized as meeting the IATA or IS-BAH standards," they say. "If they use existing regulations such as ICAO Annex 19 or 14 CFR Part 5 for non-ground handlers, they can still create an effective SMS but will not have it recognized by the regulators for acceptance since there is not a current requirement to do so."

In addition to acquiring leadership support, first steps for beginning an

While there are no specific requirements designed for an SMS at an FBO or ground handling company, it is best to concentrate on the FBO activities that the organization's scope of services cover.



SMS include mapping and analyzing the existing organization; conducting a gap analysis; and preparing an implementation plan. Thomas and Starke say this method takes the overall complexity of the task and divides it into smaller, more manageable subcomponents.

"The initial mapping and analysis start by describing and documenting your organizational structure, operational environment, and specific functions of each department," they say.

"A gap analysis involves analyzing and assessing your existing programs, systems, processes and activities with respect to SMS requirements found in the regulations," Thomas and Starke add.

While a company may use any technique to identify what needs to be done to implement an SMS, Thomas and Starke note completing a gap analysis will provide input for development of an implementation plan.

In addition to an AE or other management-level point of contact, other personnel may be required to assist with implementing an SMS. This varies depending on the size and complexity of an organization, but an SMS is scalable to accommodate any size business.

"The key aim is to make it effective without trying too hard," says Yeomans.

GROUND SUPPORT WORLDWIDE FILE PHOTO

While an SMS offers value to a business, it has to be an initiative desired by the company, so that it can be approached positively and with full commitment.

Resource provision should be looked at from two sides, according to Thomas and Starke.

"First, there are the resources needed to maintain the SMS, such as administrative resources, supporting infrastructure, etc.," they say. "Second, resources in terms of risk controls also need to be considered. Examples would be training, new equipment or programs that need to be provided to control identified risk."

The time required to implement an SMS from the ground up can also vary depending on the size of the business. But according to DeBerry and Berry, the Federal Aviation Administration (FAA) has found that it takes about three years in many cases.

GROUND SUPPORT WORLDWIDE FILE PHOTO

Requirements of SMS

There are four key components in an SMS. Commonly referred to as pillars, these components include safety policy and objectives, safety risk management, safety assurance and safety promotion.

"SMS should not be a separate system used on top of or next to other systems and business practices," DeBerry and Berry advise. "SMS should be integrated into existing systems and practices."

Within the four main components are 12 elements – each of which is required for effective SMS, Yeomans explains.

"Scalability does not mean you can eliminate any of the components or elements," he adds.

Within the safety policy and objectives component, elements include management commitment; safety accountability and responsibilities; appointment of key safety personnel; coordination of emergency response planning; and SMS documentation.

The safety risk management component includes two elements – hazard identification as well as safety risk assessment and mitigation.

The three elements within the safety assurance component are safety

To be successful, a safety management system needs support from the top down, including CEO buy-in.

performance monitoring and measurement; the management of change; and continuous improvement of the SMS.

Within the safety promotion component, elements include training and education as well as safety communication.

"The appeal of SMS is that the basic components and elements are universal," say Thomas and Starke.

"Consideration should be given to alternative reporting sources including customers and workers who interface within your operational sphere," DeBerry and Berry add.

While there are no specific requirements designed for an SMS at an FBO or ground handling company, Yeomans suggests concentrating on the FBO activities that the organization's scope of services cover.

"As the SMS matures over time, you start to bring in the interfaces, such as the aerodromes you are based at and the aircraft operators you handle, constantly evolving and improving," Yeomans says.

The Importance of SMS

An SMS is not just about safety, DeBerry and Berry say. It is equally about business process efficiency.

"The more efficient a business can become, the more successful it will be," they say.

What's more, Thomas and Starke note safety management systems are becoming a standard throughout the global aviation industry, adding SMS is recognized by the Joint Planning and Development Office (JPDO), ICAO and civil aviation authorities (CAA) as well as product/service providers as the next step in the evolution of safety in aviation.

By recognizing the organization's role in accident prevention, they say an SMS provides a structured means of safety risk management decision making; a

DIGITAL TOOLS FOR AN SMS

Digitalization can improve a safety management system's efficiency and enhance safety by increasing compliance, control and agility.

BY JOSH SMITH

For better or for worse, digitalization is an inherent part of future progress and development in every industry, according to Paul Sandström, chief operating officer at Web Manuals.

"I would argue that it´s hard to imagine significant improvements that exclude digitalization completely, especially after the last few years. Therefore, the question is not about digitization or not, but merely about the degree and timing," he says. "It could be argued that digitalization has left the strategic decision-making sphere and entered the tactical and operational questions regarding what, how and when."

The more interesting part now, Sandström says, is how digitalization will change the aviation industry.

"Not only do digital tools provide us with an opportunity to be better at what we do, but new avenues can open as a consequence of digitalization," he explains. "If we apply this logic to the aviation industry and SMS, it is easy to see that digitalization is here to stay."

According to Sandström, digitalization helps an SMS with efficiency, and it improves safety by increasing compliance, control and agility.

"But it´s not just about doing the same thing we always have done but now on a computer with faster software than previously. It´s about moving the goal posts in relation to the capabilities, and sometimes, it´s not easy to see or understand the possibilities at first and that is okay," Sandström explains. "We need to be open-minded and visionary enough to allow for that to come."

The same is true for ground operators, according to Sandström. He says they are an integral part of the aviation industry, which has been confirmed by staffing issues this summer in Europe.

"So, it´s not just about doing the same thing we have always been doing for the past year faster and with more resources, but it´s also about pushing the potential for improvements as the results of the new capabilities," Sandström says, adding a great start is acquiring International Standard for Business Aircraft Handling (IS-BAH) registration, due to the continued development by the industry experts.

WEB MANUALS

Paul Sandström

"For example, Web Manuals do not only allow you to transfer your current manual to a new DMS, which allows for more efficient and better compliance handling of your current manuals; it also gives the opportunity to interconnect manuals and compliance libraries that were not even possible before," he says. "It makes your manuals more dynamic manuals - instead of static/dead pdfs - and how does that affect how we write and structure our manuals, from my experience, quite a lot beyond the 0s and 1s."


PHOTO 93127 © MARK RASMUSSEN | DREAMSTIME.COM

means of demonstrating safety management capability before system failures occur; increased confidence in risk controls though structured safety assurance processes; an effective interface for knowledge sharing between regulator and certificate holder; and a safety promotion framework to support a sound safety culture.

"Also, we have to recognize that an SMS provides the tools to bring more insight into the organizational system," Thomas and Starke continue. "Before, the system was a mystery until something happened. Through SMS, we are able to better understand the operating environment and the associated complexity. As such, through the insight we gain, we can proactively find ways to stave off harm and increase efficiency."

There are a several locations around the world where authorities are taking the lead and introducing SMS for ground handling service providers, Yeomans says. In the European Union Aviation Safety Agency (EASA) region in Europe, he says work is progressing on the ground handing regulations and oversight. Within the next few years, the requirement of a management system including safety will be in force.

"Right now, the focus will come from the aerodromes and aircraft operators who, themselves are mandated to have an SMS," Yeomans says. "As their SMS matures, they will be already starting to look at their suppliers and how these interfaces affect the safety of their own operations. FBOs may already be getting enquiries from Part 135 operations internationally about management of safety, if not they will soon."

While an SMS offers value to a business, Yeomans points out that it has to be an initiative desired by the company, so that it can be approached positively and with the full commitment.

"Every organization has the choice to decide if now is the time to make the changes to improve the safety of their operations," Yeomans says. "I would encourage anyone to talk to one of the current IS-BAH registered locations and see what differences they have seen since implementing the SMS."

The Advantages of SMS

The specific benefits of an SMS may vary from one location to the next. But Yeomans says opportunities exist for everyone to evidence that safety is a core value; foster a better understanding of safety-related interfaces and relationships; evidence enhanced early detection of safety hazards; evidence enhanced safety communication; see a reduction in the direct cost of incidents, aircraft and GSE damage and lost time injuries; and evidence a reduction in indirect costs such as insurance, business reputation, etc.

Yeomans also advises businesses to challenge themselves.

"If you can make any changes to improve the safety of your operations what would they be?" he posits.

A fully functioning safety management system fosters proactive and collaborative relationships that greatly enhance organizational management effectiveness, Thomas and Starke point out.

"An SMS is essentially a quality management approach to controlling risk. It also provides the organizational framework to support a sound safety culture," they say. "For general aviation operators, an SMS can form the core of the company's safety efforts. For certificated operators such as airlines, air taxi operators, aviation training organizations and repair stations, the SMS can also serve as an efficient means of interfacing with FAA certificate oversight offices.

"The SMS provides the company's management with a detailed roadmap for monitoring safety-related processes and can increase productivity."

For anyone interested in developing and implementing an SMS, DeBerry and Berry urge organizations to obtain formal training.

"Creating a safe work environment is a goal across all industries and implementing a safety management system is an important step in fostering a culture of workplace safety," they say. "Adopting a safety management system can not only reduce injuries and manage industry legal requirements, but also cut safety-related costs and improve organizational performance." **GSW**

MORE ONLINE

For more information and related resources, read this article online.

AviationPros.com/21278728

The Appeal of Equipment Pooling

A common-use GSE setup can offer benefits to airports, airlines and ground service providers.

BY MARIO PIEROBON

Prior to the pandemic, ground support equipment (GSE) pooling was high on the agenda of airports, airlines and ground handling companies, mainly driven by a desire to reduce ramp congestion and improve on-time performance (OTP) at the most optimal total turnaround cost.

"There have been multiple initiatives, the most notable has been Luton Airport, which was one of the first airports we supported to go towards GSE pooling at airport level," says Kristof Philips, chief operating officer of TCR. "Since the successful go-live, many airports have visited Luton to improve their understanding of how pooling can support their respective ramp operations and help achieve their strategic ambitions."

Since Luton's GSE pooling project launched, COVID-19 impacted the aviation space as the world adapted. But Philips says the industry can benefit from pooling post-COVID.

"Many actors on the airport are struggling to reach the right staffing levels to support the aviation ramp-up. Also here, pooling can help by reducing the need to move assets, in case of a stand-allocated approach, resulting in a lower need for ramp staff," says Philips.

Why Pooling?

Pooling refers to the common use of ground equipment on the ramp. A pooling setup can range from a fully centralized GSE approach, where users pick up and return GSE at/to a central location, or a stand-allocated scenario, where GSE is dedicated to a unique stand.

In Luton where ground power units (GPUs), belts and passenger stairs are dedicated to each stand and tractors are shared in zones, TCR implemented a hybrid model, Philips explains.

"Here, the setup is like a pit stop approach in Formula One: when the airplane arrives, they move in; when the airplane leaves, they move out. The benefit is that an asset is always there when needed, improving significantly on-time performance, and reducing congestion as GSE movements are minimized," he says.

GSE pooling can also be a strong catalyst in support of green projects.

"Having at a single moment in time an aligned strategy in regard to battery choice, GSE fleet and infrastructure allows a quick and smooth green transition. Whereas if every stakeholder has to do it on an individual basis and pace, infrastructure, chargers and GSE fleet mix will result in an almost impossible transition journey stopping it from happening," says Philips.

GSE Pooling's Allure

Where pooling is appealing, and which setup is to be considered, needs to be assessed at an individual airport level. However, GSE pooling does not necessarily need to be implemented at an airport level.

"An implementation of a pooling setup in a single terminal or across a set of stands can be equally considered. Each situation is different, and each solution differs case by case," says Philips.

Magnus Söderberg, business improvement director at Aviator, observes that GSE pooling is more easily accomplished at those airports where there is a dominant GSE lessor providing the equipment.

TCR

When considering a GSE pooling project, stakeholders should evaluate the project around three pillars: sustainability, continuity and affordability.

"The investment mechanism is assumed to be that several ground handlers lease from the same lessor; sharing the equipment result in a smaller fleet, freeing up capital and a more cost-efficient fleet," he says. "The benefits, apart from the potential financial aspect, are freeing up of space on the apron, resulting in space to invest in infrastructure for the airport.

"As for ground handlers, freeing up space allows avoiding accidents and damage as well as saving costs."

"Key for a pooling project to work is the commitment and engagement from all stakeholders involved, including the airport, the airlines, the ground handlers; and the access to an experienced pooling facilitator that has proven experience with running a pooling solution and has an in-depth understanding of GSE as well as ramp operations," adds Philips.

Another success factor is the clarity in regard to the GSE needs in support of the envisioned flight schedules.

This is important as a pooling project requires a significant capital investment that benefits from maximal/optimal GSE usage reducing the cost per turn, according to Philips.

Benefits of GSE Pooling

The biggest benefit of GSE pooling is for the airlines because the on-time performance improves.

"There are also benefits for the airports from the GSE pooling setup because airports reduce congestion and complexity and get improved safety standards by gaining control over the assets," affirms Philips.

The ground handlers benefit from GSE pooling by reducing the complexity of ensuring that all the assets are always where they need to be.

"This way, ground handlers can focus on planning personnel rather than the GSE around the aircraft. Finally, all stakeholders benefit if pooling is used as an enabler to speed up green transition projects," says Philips.

Söderberg says GSE pooling benefits ground handling companies as it allows them to reduce the overall GSE fleet, improve mobility and safety on the apron, and save costs.

"The limitations would concern customer-specific GSE, peak driven equipment and the difference in GSE specifications requirements (e.g., electric vs. diesel ambition), investment appetite, as well as the risk of cooperating/adapting to competing operations," he says.

GSE Pooling Implementation

When considering a GSE pooling or similar project, there is a need to evaluate the project around three pillars: sustainability, continuity and affordability, according to Philips.

"Sustainability refers to the 'green' aspect of the implemented solution. Continuity refers to the access to the main sources of energy that are used to run the GSE fleet. Finally, there is affordability. The latter is a complicated one as pooling is disruptive because benefits and costs do not always lie with the same stakeholder," he says. "It is, therefore, once more, imperative that the community comes together to assess the total benefit of pooling, and ensures burden and benefit are fairly distributed."

It could seem logical for an airport to own GSE and run the pooling as it is the airport that owns and/or manages much of the airport infrastructure, observes Philips.

"However, what happens more regularly is that the airport defines the 'rules of the game,' and an independent pooling facilitator sets up the pool in line with these instructions.

An individual airport needs to assess where pooling is appealing, and which set-up should be considered. However, GSE pooling does not necessarily need to be implemented at an airport level.

TCR

TCR

At London Luton Airport, GPUs, belts and passenger stairs are dedicated to each stand and tractors are shared in zones.

Often pooling setups are a triangular agreement structure meaning that the airport concludes a pooling agreement with the selected pooling facilitator and agrees on an operating permit with the handler/airlines stipulating that common equipment has to be used in support of the ramp operations," he says.

"The third agreement is the one between the pooling facilitator and the handlers defining the rules of use, specifications, turn price, etc.," he continues. "At Luton, TCR acted as an integrator taking into consideration all stakeholder and infrastructural needs to ensure the successful pooling of GSE." **GSW**

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Common Fueling Mistakes and How to Avoid Them

Utilizing the tools and resources available, including clear communication, can prevent misfueling accidents from occurring.

BY REBECCA KANABLE

What type of fuel does an aircraft use?

The answer should be straightforward.

However, in 2009, a Cessna 421C incorrectly fueled with 80 gallons of Jet A fuel instead of 100LL avgas led to a loss of engine power. Unable to return to a runway, the pilot landed the plane in an open field. The airplane was substantially damaged, and the pilot and two passengers sustained minor injuries.

The National Transportation Safety Board (NTSB) determined the probable cause of the accident to be "the failure of line personnel to ensure that the airplane was serviced with the proper fuel." Contributing to the accident was the Federal Aviation Administration's (FAA's) approval of a Supplemental Type Certificate, which allowed an improper fuel filler opening, and the complacency in non-standard fueling practices by fixed-base operator (FBO) line personnel.

As one of about 50 regional air safety investigators with the NTSB, Joshua Lindberg's job is to investigate incidents like these.

"One of the things we always look at and try to track down is the type of fuel being used to make sure that it was the proper fuel," Lindberg says.

The reasons that fuel is misidentified or misfueling occurs are different in most every case, he explains, but when the wrong fuel is used, that's almost always a factor in the accident.

"We have a lot of roles and wear a lot of different hats," he says, "but generally we document accident sites, gather all the perishable evidence that's available, interview witnesses and take a lot of photos and then write the final accident report."

While investigators do many things, Lindberg says the main goal is accident prevention.

Because several fueling-related mistakes came to their attention, in part, because of accident investigations, NTSB issued two misfueling safety alerts - Line Personnel: Fueling Matters (SA-051) and Pilots: Fueling Mistakes (SA-050). NTSB also issued a safety alert (SA-079) about diesel exhaust fluid (DEF) and how it was being mislabeled or not labeled at all at airports. As a result, it was inadvertently added to airplanes.

According to Lindberg, misfueling mistakes investigators are seeing today include:

- Fuel trucks being outfitted with the wrong fuel nozzles
- Fuel nozzles being swapped between trucks
- Airplanes not being placarded correctly or not having placards at all
- Airplanes misidentified by line service personnel
- Airplanes outfitted with supplemental type certificates (STCs), which allow them to change the type of engine that is on the airplane, which, in turn, could change the type of fuel required

The fuel filler openings of the Cessna 421C were modified in accordance with airworthiness directive 87-21-02 R1 to prevent the "flattened" Jet A fuel nozzles from entering the fuel filler ports.

The placard near the right main fuel tank filler cap was worn and unreadable.

The final NTSB report for the Cessna 421C accident (CEN09LA145) notes: "Two medium single-engine general aviation airplanes based at the FBO had been modified with turbo-prop engines requiring Jet A fuel. The two modified airplanes were not required by Supplement Type Certificate to modify the fuel filler opening, allowing the airplane to operate with smaller fuel filler openings, which did not

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The reasons that misfueling occurs are different in most cases, but when the wrong fuel is used, that's almost always a factor in an accident.

comply with certification regulations."

The FBO's Jet A fuel truck had the "flattened" nozzle. Line personnel at the FBO discovered that by rotating the Jet A nozzle and dispensing at a reduced pressure, Jet A fuel could be dispensed without using the adapter. This method became the normal way for the line person involved to refuel the two modified PA-46 airplanes. The line tech reported that he incorrectly thought the affected aircraft required Jet A fuel despite having refueled that airplane several times previously.

Although FBO line personnel had correctly fueled the accident airplane in the past, the line technician mistook the airplane for one of the converted aircraft.

In two other cases, Lindberg says the fuel trucks being used were outfitted with the wrong nozzles.

"What we found on those two cases were that there were turbine helicopters at these airports and those turbine helicopters were easier to fuel with the 100LL skinny-type nozzle," he says. "However, they were needing Jet A fuel, so the line service personnel would swap the nozzles to make it easier to fuel and then would never swap them back or would forget to swap them back. And then, when they needed to go fill a different airplane, they had the wrong nozzle on there. They were using the wrong truck. There was nothing really to help them identify that they were misfueling this airplane."

Safeguards

Today, there are a number of safeguards that can be put in place to prevent misfueling.

Fuel nozzles for Jet A and 100LL offer different designs. Jet A requires a larger "duck bill" nozzle while 100LL requires a skinny, round nozzle.

As long as those are installed correctly on the trucks, Lindberg says they are a valuable safeguard to prevention misfueling.

Both fueling trucks and airplanes are color-coded. Black indicates Jet A. Red indicates 100LL.

"If you've got black on black and red on red, you know you've got the correct nozzle going into the correct airplane," he says.

Also, he adds fuel filler port restrictors on many airplanes that use 100LL make the fuel filler port small and very restricted so that it can only fit the small 100LL nozzle. The larger Jet A duck bill nozzle cannot fit inside.

Decals are another safeguard and should come standard on every airplane, Lindberg says.

"If you don't have a placard near your fuel filler port, then it's something

FAA ADVISORY CIRCULAR ADDRESSES DEF, DPF AND TRAINING

FAA Advisory Circular 150/5230-4C contains specifications and guidance for aircraft fuel storage, handling, training and dispensing on airports. The September 2021 AC, which cancels a 2012 AC, lists new training requirements relating to diesel exhaust fluid (DEF), diesel particulate filter (DPF) and fuel system icing inhibitor (FSII).

Diesel Exhaust Fluid (DEF)/Fuel System Icing Inhibitor (FSII)

An FAA spokesperson says the FAA added this training because of instances where DEF was accidentally mixed with fuel. When DEF is mixed with fuel, it causes the fuel filter to be clogged and results in engine failures.

"The FAA has been involved in numerous efforts with the industry to bring attention to this issue. Including this in the AC is one more important effort to make airports/operators aware of this important issue and associated training," the spokesperson says.

Diesel Particulate Filter (DPF)

While the National Fire Protection Association (NFPA) Standard for Aircraft Fuel Servicing addressed DPF procedures, the spokesperson says the FAA believes it's also important to include it in the AC. The vehicle must go through a regeneration process, which cleans the filter by burning off the buildup. The vehicle exhaust reaches extremely high temperatures during this process. The process must be done in a remote area, which is identified with specific signage.

Lastly, the advisory circular (AC) has an addendum of authorized fuel safety training courses. (The FAA initially published fuel safety training as a certification alert then added it into the advisory circular in 2012.) Included in the addendum is a list of training providers that have submitted a program that follows guidance in the AC. According to the FAA, the purpose of the addendum is to ensure the training is complete and effective, and that is determined by training providers and fueling agents submitting a syllabus to the FAA.

The list changes when the FAA approves new providers or previously approved providers stop offering training.

"Ensure your personnel are properly trained in their daily duties," the spokesperson says. "Properly wearing personal protective equipment (PPE) and practicing safe procedures will help reduce the possibility of mistakes. Quick reaction and knowing what to do in the event of an emergency will reduce property damage and potentially save lives.

"Training is not a one and done, it is continuous process. Things are always changing on the airport, be aware of your surroundings and act accordingly," the spokesperson adds.

"Fueling agents should continuously review the safety protocols and local fire codes to ensure personnel are staying up to date on the most current policies and procedures."

PHOTO: GETTY IMAGES

Frequent and high-quality training is the best method for avoiding fueling mistakes.

that you should absolutely add," he says. "That's one of those things that can help line service personnel quickly identify the type of fuel and it just adds to the number of safeguards that we've already got in place."

Who's Responsible?

"The FAA regulations state that the pilot in command is ultimately responsible for the safety of their flight," Lindberg explains. "However, the aviation industry is all about a team effort and we work towards a common goal of safety and accident prevention, which is obviously best for everyone. So, at the end of the day, if we can all share their responsibility and make it about teamwork, then the aviation industry will be safer."

Frequent and high-quality training is the best method for avoiding fueling mistakes, he says.

"The National Air Transportation Association (NATA) has a very good misfueling prevention program on their website that provides free training and resources. I would highly recommend this to all line service personnel to take either annually or quarterly, whatever is in their training program. But this is one of those that should absolutely be included. And this is something that pilots also can take. It's a free program and it can help them identify misfueling issues and work with line personnel, as they are fueling their airplanes," Lindberg says.

"Short cuts are never a good thing," he adds. "Getting in a rush is never a good thing, and we've seen that those (short cuts) can contribute to accidents as well. So, we'd like to make sure that we slow down, ask all the right questions."

Lindberg advises that ground handlers always have a discussion with the pilot for every fueling event.

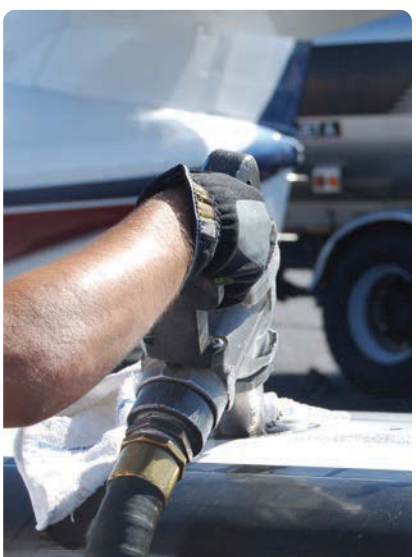

PHOTO 5584868 © ISHOOK | DREAMSTIME.COM

Accident prevention is the main goal of NTSB air safety investigators.

100LL OR UL94? KNOW THE GRADE

The National Air Transportation Association (NATA) recently added an Unleaded Avgas Fact Sheet to its Misfueling Program Resources.

Produced by NATA's General Aviation Fuel Handling Subcommittee, the fact sheet points out that as of August, Swift Fuels' UL94 is the only grade of unleaded avgas that's commercially produced and available at some airports.

What is UL94 Unleaded Avgas?
Produced and sold solely by Swift Fuels from its Indiana fuel facility since 2015, UL94 is a 94+ Motor Octane aviation gasoline without tetraethyllead that meets the ASTM D7547 Unleaded Avgas specification.

According to Swift Fuels' website, "UL94 has an identical density to 100LL, meaning weight and balance calculations will not change by using UL94. UL94 Unleaded Avgas satisfies the minimum octane requirements of over 125,000 aircraft (66 percent of the U.S. piston fleet) as a 'drop-in ready' unleaded avgas. It requires no modifications and no hardware changes."

To minimize refueling errors, Swift Fuels says, "All piston aircraft should demonstrate an FAA-approved fuel placard showing allowed fuels." The company also insists on the use of FAA Form 337 and offers the option to print an auto-populated form from its website.

To determine which aircraft can use UL94, interested parties can search Swift Fuels online database.

To ensure that an aircraft requiring 100LL is not misfueled with UL94, NATA advises pilots should communicate with FBOs and verify their fuel orders every time fueling takes place. According to NATA, a properly communicated fuel order (verbal or written) includes:

*** Aircraft registration (tail) number**

*** Type and grade of fuel** (e.g. UL94 or 100LL) – Until recently, spark-ignition piston misfueling concerns were primarily limited to misfueling with Jet A. Now, if an aircraft requires 100LL, requesting "avgas" is no longer sufficient. All fuel orders must specify the grade of fuel requested.

*** Volume of fuel to be distributed into each tank.**

Once the above has been communicated to FBO staff, NATA advises, "Verify the information by having the order repeated back to you. Additionally, verify your fuel ticket/credit receipt for proper grade of fuel and quantity before signing."

Additional information can be found at https://www.faa.gov/about/initiatives/avgas.

"It's an opportunity for you to communicate with somebody else that's in the aviation industry. You've got like interests and common goals," Lindberg says. "Always have a discussion with them because that discussion can start all of the questions that are necessary to ensure the proper fueling happens. That directly ties into the fact that the aviation industry is a team effort and everyone has an important role to play. We want to make sure that everyone is equally informed and prepared so that everybody appreciates the magnitude of their responsibilities, line service personnel absolutely included."

Lastly, he reminds ground service providers to never assume anything.

"You may have seen a certain type of airplane or a certain type of fueling truck, or whatever the case, maybe 100 or 100,000 different times. But that one time you interact with a different type of airplane, and you think you know exactly what type of fuel it needs is probably the time that an accident is going to happen," Lindberg warns. "So never assume that you know the type of airplane or the type of fuel an airplane needs. Always ask, always get a conversation started with the pilot." **GSW**

MORE ONLINE

For more information and related resources, read this article online.

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Swissport's Concept for Cargo Handling

Global cargo chair Dirk Goovaerts discusses his company's plans to address challenges and meet cargo demand.

BY JOSH SMITH

The air cargo industry has evolved in recent years with trends and expectations for shipped goods altered by the COVID-19 pandemic. More cargo is being sent around the globe and people expect to receive their shipments quickly.

With more people turning to air cargo for timely shipments, the cargo handling industry has been presented with several challenges as well as many opportunities. Dirk Goovaerts, head of Middle East and Africa and global cargo chair at Swissport International, spoke with *Ground Support Worldwide* at the IATA Ground Handling Conference earlier this year to discuss the changes in the cargo industry and share his company's plans to address challenges and meet cargo demand.

"Swissport had already a very, very strong cargo setup prior to the pandemic," Goovaerts says.

"Prior to the pandemic, in fact, we had sufficient capacity everywhere. What we are seeing is we are running out of capacity," he continues. "We are really trying to make sure we find capacity at existing airports or finding capacity in a creative way by collaborating with the stakeholders in the value chain."

With increased e-commerce volumes expected to remain steady moving forward, Swissport anticipates its cargo portfolio will continue to grow. Traditionally, cargo handling represented approximately 20 percent of the company's overall revenue. That figure is likely to increase to approximately 25 percent.

As this segment of the business grows, Goovaerts says the most important thing Swissport can provide is consistency through service.

"We have a clear ambition to grow our cargo presence. We do that through a number of key pillars," Goovaerts explains.

"First of all, consistency of service underpins the growth of the business. So, if you provide a consistent high service, that is, I think, the entry gate to growth," he says. "The second pillar is we try to grow in our existing stations."

To do so, Swissport is optimizing its current facilities and processes in order to put more volume through its existing stations and warehouses.

"So, this means proper innovation, digitalization and so on to get more volume throughput," he says.

"Then we also try to identify in our existing stations where we see growth coming and we identify that additional warehouse space, and we secure that warehouse space."

Recent examples include expansion at Vienna airport, acquiring Belgium Airport Services (BAS) in Liege and securing additional warehouse space in Amsterdam, among others.

Promoting Industry Cooperation

Goovaerts says Swissport is also playing a role in developing air cargo communities.

"Where air cargo communities have been established in the past, the volume of air cargo has increased," he says, pointing to existing cargo communities at Amsterdam, Frankfurt and Brussels as successful examples.

With increased e-commerce volumes expected to remain steady, Swissport anticipates its cargo portfolio will continue to grow.

In July, Swissport launched a pilot program with an unmanned, automated guided vehicle at its cargo center at Frankfurt Airport.

SWISSPORT

Linking all the stakeholders in the chain allows players in the cargo industry to work toward the greater good, Goovaerts explains. He says it makes the airport more attractive and allows all the logistical stakeholders to work toward a common goal.

"We want to play a driving role to do this," Goovaerts says.

Goovaerts' role as cargo chair at Swissport is intended to aid these efforts. In this position, he works with Swissport's global cargo teams to identify successful processes and replicate them elsewhere.

"We have different knowledge bases. There's a knowledge base about forwarding and general sales agents," he says. "There are subject matter experts about operational delivery, another subject matter expert about digitalization and innovation and other subject matter experts about commercial.

"Through these subject matter experts, we can offer solutions to an airline at multiple stations."

For example, Swissport recently established a fresh flower corridor from Africa to Europe. Because fresh flowers are delicate, Swissport leveraged its processes for shipping pharmaceuticals to ensure the flowers were stored at a consistent temperature to increase it shelf life after it arrived in Amsterdam from Nairobi.

Consistent processes among Swissport's cargo divisions and individual locations also benefit employees. Goovaerts notes the same cargo management systems are used at each station, which allows new products to be implemented globally and allows current employees to seamlessly move from one station to another as they advance their career.

Environmental Initiatives

As Swissport grows its cargo business, company officials have an eye on sustainability, too.

At the global level, Nadia Kaddouri was hired as the company's chief strategy and sustainability officer. Within the cargo business, specifically, Goovaerts says every new cargo warehouse that Swissport operates will utilize solar panels. At existing warehouses, Swissport is entering discussions with the property owners to have solar panels installed.

"I think it's a win-win. Because what we see by putting in these solar panels is you reduce your electricity bill as well. It's good for the environment and it's also good for our costs," Goovaerts says.

The company is also investing in electric forklifts and recently introduced an electrically powered automated guided vehicle at its Frankfurt location to reduce emissions.

"In the warehouses, we are very, very green," Goovaerts says. "On the airside, we are moving fast also to battery-driven equipment wherever we can. There, we need also the airports to join us because they need to provide charging ports. But it's moving fast and we're 100 percent committed to following that track."

On the airside, Swissport is converting baggage and cargo tractors to electric drivelines, according to Goovaerts. He also notes new GSE technology, like collision avoidance technology, is making cargo handling operations safer and more efficient.

What's more, he says the cargo handling industry is gaining efficiencies by eliminating pencil-and-paper tasks and making those processes electronic. This also helps with sustainability goals because there is less waste.

What's Next

Swissport intends to continue its cargo expansion.

After entering the Australian market in 2018 with ground handling services, Swissport officials see an opportunity to expand organically by introducing cargo handling products to that region.

According to Goovaerts, Swissport's cargo business also has opportunities to grow in Asia as well as the United States.

Goovaerts adds that complex cargo hub operations are a specialty of Swissport, so expanding its cargo business in those locations is also an opportunity. **GSW**

Desert Jet's Newest Palm Springs Facility Sets the Bar High

As Desert Jet worked to better prepare its building for clientele, the company created a touchless experience throughout the entire facility for customers.

BY CHRISTINA BASKEN

Amid a global pandemic, Desert Jet looked to the future with the completion of its newly remodeled, state-of-the-art FBO in Thermal, California.

This was the first new construction the Jacqueline Cochran Airport had seen in 25-plus years, featuring an air-conditioned 32,500-square-foot maintenance hangar.

Desert Jet is a full-service fixed-base operator (FBO) offering ground handling, ramp parking, fuel, hangar storage and maintenance service. This is the first and only FBO in the Palm Springs area to have an FAA-certified Part 145 repair station making it a one-stop shop for clientele.

"We moved into the brand-new facility in late 2019 and so we had to hold off on any kind of formal celebration, but we operated nonetheless and continue to see tremendous growth since our opening," says Chris Little, Desert Jet chief marketing officer.

Adapting to a Post-COVID World

In any FBO construction project, being able to anticipate clients' needs and adapting to an ever-changing industry is crucial, but especially in a post-pandemic world. As Desert Jet worked to better prepare its building for clientele, the company created a touchless experience throughout the entire facility for customers.

"Their entire visit is touchless if that's desired by them. We have hands-free, motion-sensored doors. So as soon as you come into our facility, you don't have to open a door. All of our restroom facilities, whether it be the toilets, the sinks, the paper towels, everything is hands-free and motion-sensored," says Jared Fox, Desert Jet CEO. "They can even cash out at the front desk without having to touch anything besides handing us their own credit cards – digital signatures, we can email receipts – everything that they need to get access to is hands-free in the facility."

Fox says the facility's technology and software is what truly sets it apart from other FBOs.

"Our trucks are wireless, and we have TCS meters and we're actually getting all new trucks that will be completely paperless. For our [Part] 145 operations, our scheduling software [Corridor and PRISM] is all cloud-based, all of the software and everything that we do allowed us to go remote during the pandemic, and then now allows us and our employees to either work from home or work hybrid, where they come in a few days of the week and work from alternative locations at other times," Fox says.

"The building itself, too, is very environmentally sound with LED lighting and every room in every office in every part of the building and hangar has motion-sensored lighting that turns off when people exit and has real power-saving capabilities."

While Desert Jet put a lot of work into creating an architecturally pleasing space trimmed with features to enhance the clientele's stay, Fox says what matters the most is the customer service because that's what keeps existing and new clients coming back.

"The building is what catches a lot of eyes from the runway and may even be what creates an opportunity for us to service new guests, but what keeps them coming back is our white-glove service and attention to detail and to support service," Fox says. "*How* we deliver our product and deliver our service is really where we focus."

According to Little, Desert Jet Center is rated No. 1 in the Palm Springs area.

"Our line service team is ranked number three in the entire Americas from an FBO survey taken by people who utilize FBO service, including travelers, pilots, aircraft owners, passengers, customers, other operators and vendors," says Little. "Being an independent FBO at a seasonal destination, we're pretty excited for that news to be recognized."

Community-Focused

In large part, the high success rate of the new facility comes from Desert Jet's commitment to involve the community in airport-related operations and educating the community about general aviation.

"We like to open up our facility, whether it be to other local businesses, hosting events in our hangar, opportunities for air shows and those types of things," Fox says. "What I think we're the most proud of is the shadowing program that we work with, the local high school programs, to bring high school students in to see the beautiful facility, but to understand what happens at an FBO, introduce them to general and private aviation, and hope that we stimulate some interest. Not that everybody needs to become a professional pilot or ultimately work at an FBO, but that it gives them an understanding

DESERT JET

This was the first new construction the Jacqueline Cochran Airport had seen in 25-plus years, featuring an air-conditioned 32,500-square-foot maintenance hangar.

of what's out there. You just never know what is going to inspire a young boy or a girl."

Future Growth

"As proud as we are of the physical building, the service that we're delivering and the feedback we're getting from clients, whether that be passengers in the aircraft, pilots, maintenance companies that come out; we really get fantastic, positive feedback that they enjoy working with all team members at Desert Jet," Little says.

With the combination of the new facility, great customer service and advertising by word of mouth, the FBO reached its maximum capacity. To accommodate the demand, Fox says they are building additional hangars and acquiring land.

"We did over a million gallons of fuel last year in the last 12 months and we see approximately 40 percent of the airport volume here on the field. The Thermal airport has more general aviation traffic than the Palm Springs airport, Bermuda Dunes airports, and the other airports in the area," he says. "The current operational number trajectory shows that by 2026, the Thermal airport will have more traffic as a whole than the Palm Springs airport. That includes everything: commercial, GA, private, military, all of it. So, the current trajectory and the growth of the Jacqueline Cochran Thermal Airport is tremendous."

Fox says Desert Jet Center has grown thanks to a willingness to adapt.

"You can't rest on your laurels. The industry is constantly changing, and you have to be able to adjust as the different clientele comes in," he says. "A passenger on a shared seat airplane is a different type of customer than, say, an aircraft owner who's flying the airplane themselves, or is coming in on a G650. So, you really have to be able to adjust on the fly and make constant improvements as the industry and the needs evolve."

The FBO is also looking into installing solar panels.

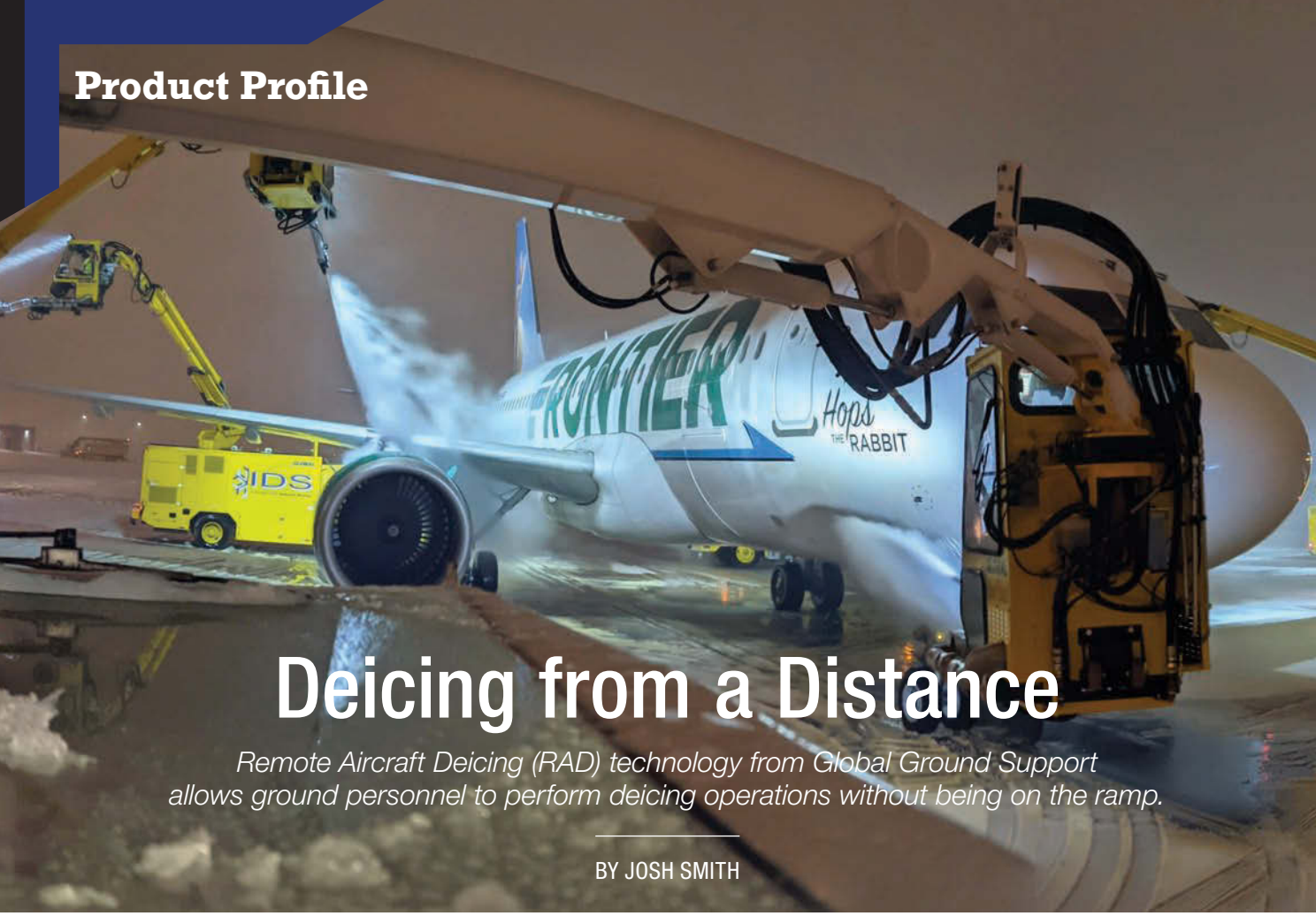
"Being in the desert with that much of an opportunity, our goal is to be able to go completely solar-powered and power our building, even if we build enough solar power here on the airport to help generate power for the rest of the airport," Fox says.

Fox suggests other FBOs looking to enhance infrastructure consider how functional their airport is and how solar-powered energy, proper lighting, Wi-Fi, and internet accessibility can be improved.

"Especially as you design a building, it seems like no matter how much time you put into it, there's always a chance as it gets built, you go, 'Oh, I wish we would've done something slightly different.' But I think ... it's a little unique maybe to us in our location, I think solar power is something that I would take a strong look at, depending on the location of where you're at. Lighting I think is very important for ramps and for the airports. Obviously high-power Wi-Fi, I think, is imperative to make sure that customers can get on and have very high-speed internet accessibility," Fox says.

"You want it to be efficient in every possible way, from the customer experience to being energy efficient, and to making it easy for your employees," Little adds.

"So, all around, you got to think about every aspect of what you're creating, as opposed to just constructing a building and making it look nice. You also have to make it efficient and functional." **GSW**



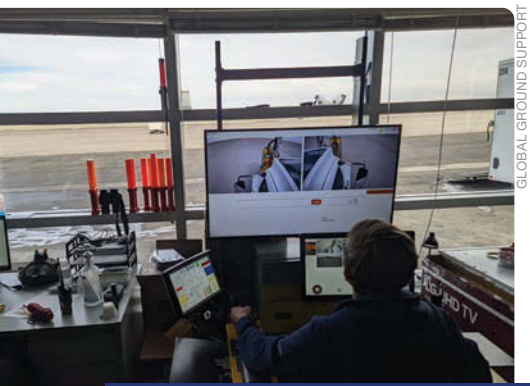
Deicing from a Distance

Remote Aircraft Deicing (RAD) technology from Global Ground Support allows ground personnel to perform deicing operations without being on the ramp.

BY JOSH SMITH

When weather events occur, understaffed ground crews can be stretched even further as they face the pressure of turning aircraft around in a timely fashion while maintaining strict safety protocols.

To assist ground service providers facing such challenges, Global Ground Support developed its Remote Aircraft Deicing (RAD) technology to allow skilled personnel to perform deicing operations without being physically located on the ramp.



GLOBAL GROUND SUPPORT

Each remote operator station allows a user to operate one vehicle at a time. An operator can be assigned to a deicer for a shift, a departure bank or even a single flight.

"Over the last two decades, there has been a huge shift from the airlines operating deicers to third-party vendors. There are benefits to using vendors but one of the challenges to the vendors is manpower," says Jeff Walsh, chief sales and marketing officer at Global Ground Support, adding third-party ground handlers with fewer personnel face an increased challenge with a seasonal activity like aircraft deicing.

"RAD will allow vendors to utilize employees at other stations to backfill this deicing manpower requirement," he continues. "Additionally, most vendors have several people at each station that are deicing experts. These experts, at a station that is not having winter weather, can supplement the station that has an immediate need."

Global Ground Support's concept for Remote Aircraft Deicing has been in development for nearly seven years. Walsh explains the company used that time to further develop the technology to make it a cost-effective solution.

According to Walsh, two specific interactions inspired the business plan to develop RAD.

The first instance occurred when Walsh was installing and conducting training for one of Global's Virtual Reality (VR) Deicing Training Simulators at LaGuardia Airport (LGA).

"One of the operators turned to me and said, 'Why can't I just stay here in this nice warm room and use this to run the truck outside in the freezing cold?'" he recalls.

"The second was a time I was visiting a customer during one of their hiring workshops. They needed to hire almost 150 employees and kept saying how they had so many qualified employees at other cities, and they wished they could use them at this location," he continues. "RAD solved both problems and many others."

Each remote operator station allows a user to operate one vehicle at a time. Depending on the company, Walsh explains an operator can be assigned to a deicer for a shift, a departure bank or even just a single flight.

The RAD system fully integrates Global Ground Support's patented MIDAS


GLOBAL GROUND SUPPORT

telemetry system. Walsh explains this allows owners and operators to see system status, operator performance, station performance and reliability data live on any web-enabled device.

Since its inception, Global Ground Support has made improvements to the user interface, system components and data transmission options.

What's more, Global Ground Support, along with its two primary partners on the RAD system, completed a Failure Mode and Effects Analysis (FMEA).

"This involves looking at every single component, signal, input, etc., and determining how a failure would impact the system," Walsh notes. "An example is a single camera failure might not require the system to be deactivated, but a combination of a camera and an anti-collision sensor would."

With RAD, it is not necessary to have anyone in the vehicle during the deicing process. However, Walsh notes the current scenario is that at least one manned truck will be used in combination with remotely operated deicers.

The manned vehicle, Walsh explains, will be responsible for ensuring the aircraft is completely clear of frozen


GLOBAL GROUND SUPPORT

With RAD, it is not necessary to have anyone in the vehicle during the deicing process. However, the current scenario is that at least one manned truck will be used in combination with remotely operated deicers.

precipitation and communicate with the flight crew.

"A Radio Over Internet Protocol (ROIP) system is used so the remote operators are automatically connected to both the ground/air and ground/ground radios at the facility where the vehicle is operating," he says.

Global Ground Support, which manufactures all the equipment for the patent pending RAD system, completed its first season of testing at Denver International Airport (DEN). The company will perform further testing during the 2022-23 winter season at multiple operator stations located across North America.

Although remotely operated vehicles are new to the aviation industry, it is a proven technology that has been used in mining and construction for almost a decade, according to Walsh. He says utilizing remote technology can offer financial, efficiency and sustainability benefits.

"It has been proven over and over that the level of proficiency of a deicing operator has a direct impact on the time of the process, quantity of fluid used and possibility of aircraft damage," Walsh says. "RAD allows companies to utilize their best employees, achieving a much higher level of productivity while decreasing costs to the under user – airlines."

Customers can also invest in options like Global's Premium Blend, AirPlus and MIDAS products to reduce the total glycol required to safely deice aircraft.

When spec'ing a deicing truck, individual customers must determine which model and options will work best for their specific operation. Details like where the operation is located, the size of the aircraft being deiced, the number of operations per day and environmental restrictions factor into these decisions.

A location with a moderate climate, like Washington Dulles International Airport (IAD) in Washington, D.C., would have a hard time justifying internal Type 1 blending or enclosed cabs, according to Walsh.

"If you are only going to deice a couple of aircraft a day/week, an open basket would be the most economical choice," he adds.

Walsh also says to get the maximum service life and reliability from a deicing unit is to adhere to the recommended maintenance schedule.

"We have customers that are incredible at this and have units in operation that are over 20 years old," Walsh says. "Secondarily, following the PM (preventative maintenance) schedule increases the long-term value of the unit."

Presently, Global Ground Support is only offering RAD on its high-end units, including trucks that have single-operator, enclosed cabins and forced air. However, Walsh explains that RAD was developed to be added as an option to any Global Ground Support deicer model.

As RAD technology becomes more commonplace, Walsh believes it can drastically affect the way ground handlers approach deicing requirements.

"Today, a RAD deicing truck can be used in either the 'remotely operated' mode or as a one-man or two-man unit," Walsh says. "As this technology becomes more accepted, I envision the enclosed baskets and chassis driving positions will eventually be eliminated. This would allow us to increase the boom length, reduce the cost of the chassis and increase the cost-benefit of the RAD system." **GSW**

GS2100 WRAPTOR

GROUND SUPPORT SPECIALIST LLC

The GS2100 Wraptor is a 45-foot working height and 2,000-gallon capacity deicer that has a single engine. A new state-of-the-art cab promotes operator comfort and visibility, as well as overall safety to the deicing operation. A new enclosed basket is also available, as well as smaller sizes of this deicer in order to fit the operation of every airport and user.

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DEICING NOZZLES

U.S. AIRMOTIVE GSE

U.S. Airmotive GSE is proud to be a distributor of deicing nozzles manufactured by Task Force Tips. A single nozzle can be used in two steps to both deice and anti-ice aircraft. The operator simply selects the desired fluid delivery system pressure, and the nozzle responds automatically. TFT backs its nozzles with a five-year warranty.

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TEMPEST-I

JBT CORPORATION

The JBT Tempest-i was a two-year project incorporating customer feedback based on experience of more than 1,300 units in the field. Additions include automated control of boom positioning, auto boom park and operator skill level boom speeds. Upgrades include the control system with key functions integrated into joysticks, intuitive diagnostics and excellent maintenance access for quick and easy repair. The Tempest-i uses the Air First Deicing system, single-operator system and single-engine design, all targeted to safely reduce environmental impact and operational costs.

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SERIES 9900 WIRELESS COMMUNICATION DEICING SYSTEM

DAVID CLARK COMPANY, INC.

The David Clark Series 9900 Wireless Headset Communication systems for deicing and anti-icing operations allow hands-free communication between the driver and bucket, clearly and in real time, and help to prepare the aircraft exterior for on-schedule departure in a safe, efficient manner.

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REFRACTOMETER

MISCO REFRACTOMETER

MISCO digital handheld and inline process refractometers are custom programmed for accurate field testing of both Type I and Type IV deicing and anti-icing fluids, jet fuel and glycol recycling. NIST-traceable certificate of calibration also available. MISCO's lab can provide independent analytical viscosity testing of Type IV fluid.

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WING ARMOR ANTI-ICING SYSTEM

LEADING EDGE DEICING SPECIALISTS

The Wing Armor anti-icing system tracks the amount of fluid dispensed to prevent over-spray. Two TURBO XL digital meters on the unit accurately measure the anti-icing fluid sprayed from each gun. The pressurized system applies fluid with dual application guns with dual meters, ensuring even application on both wings and allowing crews to spray both wings simultaneously. The system fits underneath the wings of most business jets.

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MOBILE DEICER CARTS

TRONAIR INC.

Tronair offers ice and rain protection via its deicer carts. A 6.5 HP industrial Briggs & Straton engine, temperature adjustable to 200° F (93° C), and safety relief valve all come standard.

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ANTI-ICING AND DEICING NOZZLES

TASK FORCE TIPS INC.

TFT manufactures a wide range of anti-icing, deicing and combination nozzles in manual and electric remote versions.

AviationPros.com/21154104

INTELLIMIX TECHNOLOGY

TEXTRON GSE

Intellimix Technology was designed to maximize efficiency, reduce waste and deliver the perfect blend of heat and fluid – optimizing the deicing process and reducing the opportunity for error. Intellimix offers the unique advantage of precise mixing at the nozzle and eliminates the need to flush fluids, resulting in reduced operational costs. Intellimix allows for a lower environmental impact and enhanced safety.

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OPEN BASKET AIRCRAFT DEICING MIXED REALITY TRAINING SIMULATOR

KBY SOFTWARE LLC

The KBY Software open basket aircraft deicing mixed reality training simulator provides a 24/7 environment for initial entry and recurring training in dual operator open basket aircraft deicing. The system utilizes a VR headset with pass-through video stereo camera system to support student interaction with physical controls.

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MULTI-SOLUTION GATE

MSG PRODUCTION AS

The Multi-Solution Gate (RS500) dual system offers complete deicing and washing functionality, while special high-resolution cameras will scan the condition of the entire airframe. The RS500 is a complete washing facility. The systems offer time and cost savings and are the greener choice where up to 95% of spent fluids used are collected and recycled in a closed environment.

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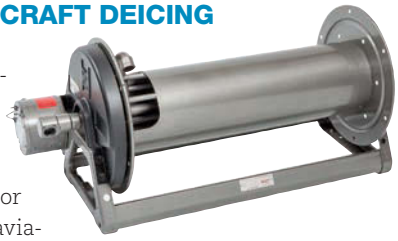
E4000 SERIES HOSE REELS FOR AIRCRAFT DEICING

HANNAY REELS INC.



Hannay's E4000 Series reels are designed to withstand frigid temperatures as low as -60°F, making them a perfect solution for deicing aircraft. This series is constructed of high-quality steel for superior protection against all outdoor elements. For unsurpassed fit and function, the aviation reels are individually designed and built to meet a customer's specific requirements, never retrofitted to the job.

AviationPros.com/21143344

PLUG-IN HYBRID BETA DEICER

VESTERGAARD COMPANY INC.

The Vestergaard Company Plug-in Hybrid BETA Deicer is equipped with a lithium-ion battery, which charges via an on-board charger or a generator on the PTO of the chassis diesel engine. Electric motors run movements, spraying and low-speed maneuvering around the aircraft with diesel engine turned off.

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DEICECUBE GLYCOL MIXING AND DISPENSING SYSTEM

LIQUID AUTOMATION SYSTEMS (LAS-USA)

The LAS DeiceCube glycol mixing and dispensing system provides user-friendly, reliable, accurate and fast mixing of glycol and water to meet all weather conditions. It can reduce glycol usage, costs and environmental impact and improve throughput. It eliminates tripping hazards and reduces operator burden of handling heavy hoses on slippery ground and enables simultaneous loading of Type I and Type IV fluids.

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Advertising Index

CELEBRATING 30 YEARS

A New State of Mind

As new generations enter the workforce, companies that adapt to trends and implement updated practices can find success.

BY JOSH SMITH

PHOTO 224134 / AVIATION TECHNOLOGY © SURIYA SUBSUK | DREAMSTIME.COM

The COVID-19 pandemic's impact on the industry was severe. But the aviation world has been influenced by outside forces before, and the people supporting aviation have always rebounded with new approaches to accomplish the tasks at hand.

Providing people with the tools to succeed and adapting to the preferences of new generations has always been key. For example, Matthias Moulinier – product and customer integration director at Adveez – points to the prevalence of technology in our lives and the generational acceptance of the latest tech.

"The new generation want to improve everything. They know technology is going to help," Moulinier says. "Having new technology on GSE is key for the future – to improve safety, to improve operations and so on."

Moulinier urges ground handlers to continue advancing their "old-school" approach and keep evolving to attract new talent to the ground support industry, especially considering the extensive employee turnover that took place as a result of the pandemic.

According to Moulinier, the mentality toward technology, and specifically with telematics, has changed following COVID.

"I would say before COVID, GSE operations were only interested by GPS position and how long the equipment was driven per day," he says.

"All of our customers that were not looking at access control before COVID – now, they all want to know who's driving and how they're driving," Moulinier continues. "This is one of the new trends that is pushed a lot."

With access control, harsh acceleration, braking and turning can be detected. This is an especially valuable tool with new employees. People who may need additional training can be identified and given additional instruction to ensure safe operations and avoid costly accidents.

Telematics can also assist with the environmental objectives that are on the minds of generations entering the workforce. Ground service providers or airlines can utilize telematics data to identify units having a negative impact on the environment and seek a replacement.

The efficiency of electric GSE can also be enhanced by telematics, Moulinier explains.

"We have a new algorithm based on artificial intelligence. The box knows when you are in a charging zone. We have, in real time, a state of charge for equipment. And with the algorithm, we can estimate when the GSE will be fully charged," he says. "Internally, we know when the charger has been plugged into the equipment. This helps us to say the charging point has started. Depending on many criteria, we can say your GSE has been charged, you can disconnect and put on another one.

"This is going to improve their fleet management and their charger fleet management to make sure that they are used correctly."

Moulinier also notes that the reasons for using new technology has changed, moving away from a punitive approach to an educational one.

"The mentality has changed where a couple of years ago, the access control was 'I want to know exactly what you're doing and fire you if I see something wrong.' Where now it's more about helping employees. 'I want to know what you're doing to improve your skills and improve your training, and make sure that you're doing the right things for safety reasons."

The thought process regarding telematics is changing as well. Telematics solutions are not just for sending data to an equipment platform, Moulinier explains.

"Telematics is here to collect data, but it's also here to prevent something that's going to happen on the equipment," Moulinier says.

"The trend is to help the driver avoid accidents."

Technology will continue to advance, and it will remain imperative that ground service providers find the best use for it.

Moulinier points to artificial intelligence, more precise GPS data and 5G connectivity as new technology coming soon.

How has your operation implemented new technology platforms? What new technology will have the greatest impact on ground support opportunities.

I welcome your feedback on this topic and am interested in sharing your success stories. Email me with your thoughts at jsmith@AviationPros.com. **GSW**

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