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DECEMBER 2014/JANUARY 2015

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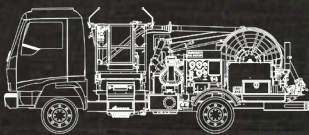
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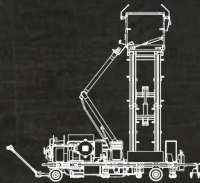


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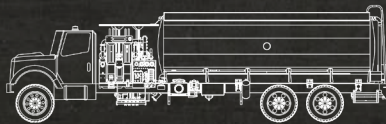
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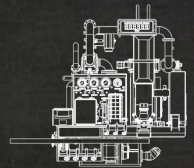
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Subscription Policy: Subscriptions are free to qualified businesses. Others may purchase subscriptions at these rates: US, 1-year \$45, 2-years \$85; Canada & Mexico, 1-year \$65, 2-years \$120; All other countries, via airmail, 1-year \$95, w-years \$180. Single copies \$10.

Ground Support Worldwide (USP 015-386, ISSN 1934-2861 print, ISSN 2150-4016 online) is published ten times annually in February, March, April, May, June/July, August, September, October, November and December/January. Periodicals postage paid at Fort Atkinson, WI and additional mailing offices.

Change of address or subscription information: Toll Free – 877-382-9187, Local – 847-559-7598, circ.groundsupportworldw@omeda.com

POSTMASTER: Please send address changes to *Ground Support Worldwide*, Cygnus Business Media, PO Box 3257, Northbrook, IL 60065-3257. Printed in the U.S.A.

Canada Post: PM40612608. Return undeliverable Canadian addresses to: Ground Support Worldwide, PO Box 25542, London, ON N6C 6B2. Canadian GST #R42773848.



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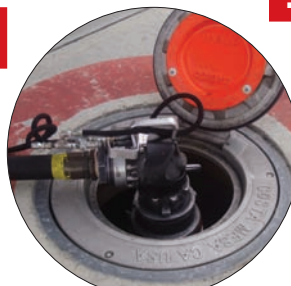
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Missy Zingsheim

Make Plans To Attend Our 2nd Annual GSE Leaders Golf Invitational

Event will take place March 9, one day before the start of the GSE Expo.

By Missy Zingsheim

On behalf of *Ground Support Worldwide* and *PAGE Industries* it is our pleasure to announce our 2nd Annual GSE Leaders Golf Invitational.

The Invitational will be held on Monday March 9 at the beautiful Revere Golf Club in Henderson, Nev., overlooking the Las Vegas strip. The tournament will be a four-person best ball with a tee-off time of 12:30 p.m.

This will be a top of the line event attended for the aviation ground support industry. Each invited participant will receive free transportation to and from the event, a light lunch and practice range balls, an event gift bag, 18 holes at a breathtaking golf course, drink coupons, hole-in-one prizes at every Par 3, and a phenomenal BBQ dinner that evening. The awards banquet dinner will be fully catered. Trophies will be present -

ed for 1st, 2nd, 3rd place, men's and women's closest to the pin, and men's and women's longest drive. The evening will close with an unbelievable raffle prize giveaway.

We encourage you to partake in this incredible opportunity and get involved with the best networking opportunity available at GSE Expo. This will undoubtedly be the most talked about event of the week, so don't hesitate and secure your place in this magnificent event.

If you have questions about participating or becoming a sponsor, contact me at 920-563-1665 or missy@aviationpros.com.

Missy Zingsheim
Associate Publisher



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Major Events in 2015

	GSE Expo Las Vegas, NV
	GSE Buyers & Ramp Ops Conference Milan, Italy
	IATA 28th Ground Handling Conference Istanbul, Turkey
	AAAE 87th Annual Conference & Expo Philadelphia, PA
	inter airport Europe Munich, Germany
	NBAA Business Aviation Conference & Exposition Las Vegas, NV

Business Buzz

U.S.-based Liquip Aviation and Beta Fluid Systems are now **BETA Fueling Systems**. The former Liquip Aviation management as well as German manufacturer Alfons Haar are managing partners in the company.

Aéroports de Montréal and Aéro Mag inaugurated a \$10 million ethylene glycol recovery, recertification and reuse facility at Montréal-Trudeau International Airport's deicing center that will significantly reduce the airport's environmental record while reducing deicing charges for airlines.

The UK operations for **dnata** continue to grow with the addition of ground handling services at Manchester International Airport.

Swissport International

continues to seek justice in the Ukraine. In open letters to Ukraine's President and Prime Minister, the ground service provider asked for both politicians to support its case to regain control over its former ground handling subsidiary.

Menzies Aviation and the Service Employees International Union will work together to set new health and safety standards for thousands of workers at LAX. The joint effort follows a more than \$77,000 fine imposed by California regulators following the death of a Menzies worker at the airport. The partnership plans to establish:

- Joint health and safety committees staffed with Menzies and union officials, health and safety advocates and Menzies employees.
- Worker health and safety training programs developed with industry experts to address the hazards faced by LAX ground service workers.
- New vehicle and heavy equipment inspection initiatives.
- New ways for workers to raise health and safety concerns with top-level Menzies management.

ASIG has hired more 100 new employees in the past month to help service its first airline at Changi Airport. A manpower shortage led to severe disruptions to Jetstar Asia flights. SATS, which had been handling ground support for the airline, had to step back in briefly at the request of the airline. In response, ASIG reportedly offered higher pay and promised retention bonuses.

UAS International Trip Support was named "Ground Service Provider of the Year" and also received the "Corporate Social

Responsibility" award, at last November's Aviation Business Awards 2014.

LEKTRO, Inc. announced the sale of its 4,500th electric towbarless tow vehicle to Jet Aviation Dubai. On opening day of NBAA convention, Eric Paulson, LEKTRO's president, handed the keys of the 4,500th LEKTRO tug, a model AP8850SDA, to Stefan Benz, vice president of Jet Aviation MRO and FBO Services, EMEA & Asia.

Thanks to the increased demand for its TCS 3000 electronic register/flow computer, **Total Control Systems** built a dedicated automation center within its 95,000 sq. ft. North American facility.

Clyde Machines Inc. is expanding its production facility by 35,000 sq. ft. This will bring the total square footage to more 100,000. The added space will feature a new semi-automated powder coat paint system, which will double the company's current painting capacity, as well as a new welding department.

CV International has upgraded and added equipment in the machine and welding shops in order to streamline the machining and fabrication process. Additionally, the fabrication and assembly of tubes and hoses (used on CVI's hydraulic systems as well as nitrogen products) has been brought in-house in order to control product quality, delivery time and price.

PASSUR Aerospace and **INFORM** are integrating their existing solutions for airline and airport turn management and hub control into a new offering. The new product will help forecast potential ground

delays, prevent gate conflicts, out-of-position ground crews and unnecessary gate changes.

Plug Power Inc. successfully completed the installation of its first GenFuel hydrogen infrastructure for the ground support equipment market at the Memphis Airport that will be used for a fleet of 15 airport tugs powered by Plug Power fuel cells.

Xcled Aviation Services has launched a Cargo Loader Trade-In program to help customers affordably obtain new cargo loader equipment for their fleet.

The Boeing 737 is now officially certified for **Taxi-Bot** dispatch towing by the European Aviation Safety Agency and the Civil Aviation Authority of Israel. The Supplement Type Certificate was issued for Boeing 737 Classic aircraft. TaxiBot in-service evaluation will start in the next few weeks, with regular commercial Lufthansa Boeing 737 flights departing from Frankfurt airport.

U.S. Transportation Secretary Anthony Foxx recently awarded \$10.2 million in FAA VALE grants to six airports around the country to reduce emissions and improve air quality. The airports to receive VALE grants for GSE-related improvements include: **Chicago O'Hare International Airport**, \$2 million – to allow the airport to install an underground fuel-hydrant system, eliminating the need for diesel-powered fuel trucks. The system will provide fuel for 20 gates in Concourse F.

Dallas-Fort Worth International Airport, \$2 million – to help the airport install 12 electric gates at Terminal B and install

and connect seven PCA units for parked aircraft.

Seattle-Tacoma International Airport, \$2 million – to allow the airport to install 43 charging units in Terminals A

and B to support electric GSE.

Yeager Airport in West Virginia, \$3,678,168 – to fund both gate power units and PCA units at seven of the airport's gates.

The stock of **Southwest Airlines** has soared 110 percent this year, making it the best performer in the S&P 500. Outside the stock exchange index, American, Delta and

United are all enjoying stock gains between 50 percent and 80 percent this year.

JetBlue Airways plans to eliminate free checked bags for its lowest fares and decrease legroom on its Airbus A320 fleet. The baggage change leaves Southwest as the only large U.S. airline that allows all passengers to check at least one bag for free.

The Wednesday before Thanksgiving Day is traditionally the most crowded for the nation's airports. However a study by **U.S. Travel and Cambridge Analytics** shows that congestion is poised to reach that peak level on a regular basis for America's top 30 airports by the end of the decade. The association analyzed Federal Aviation Administration forecast data that found the nation's airports are expected to see peak congestion levels sooner than predicted because of a steady increase in demand for air travel and a failure to invest in needed infrastructure.

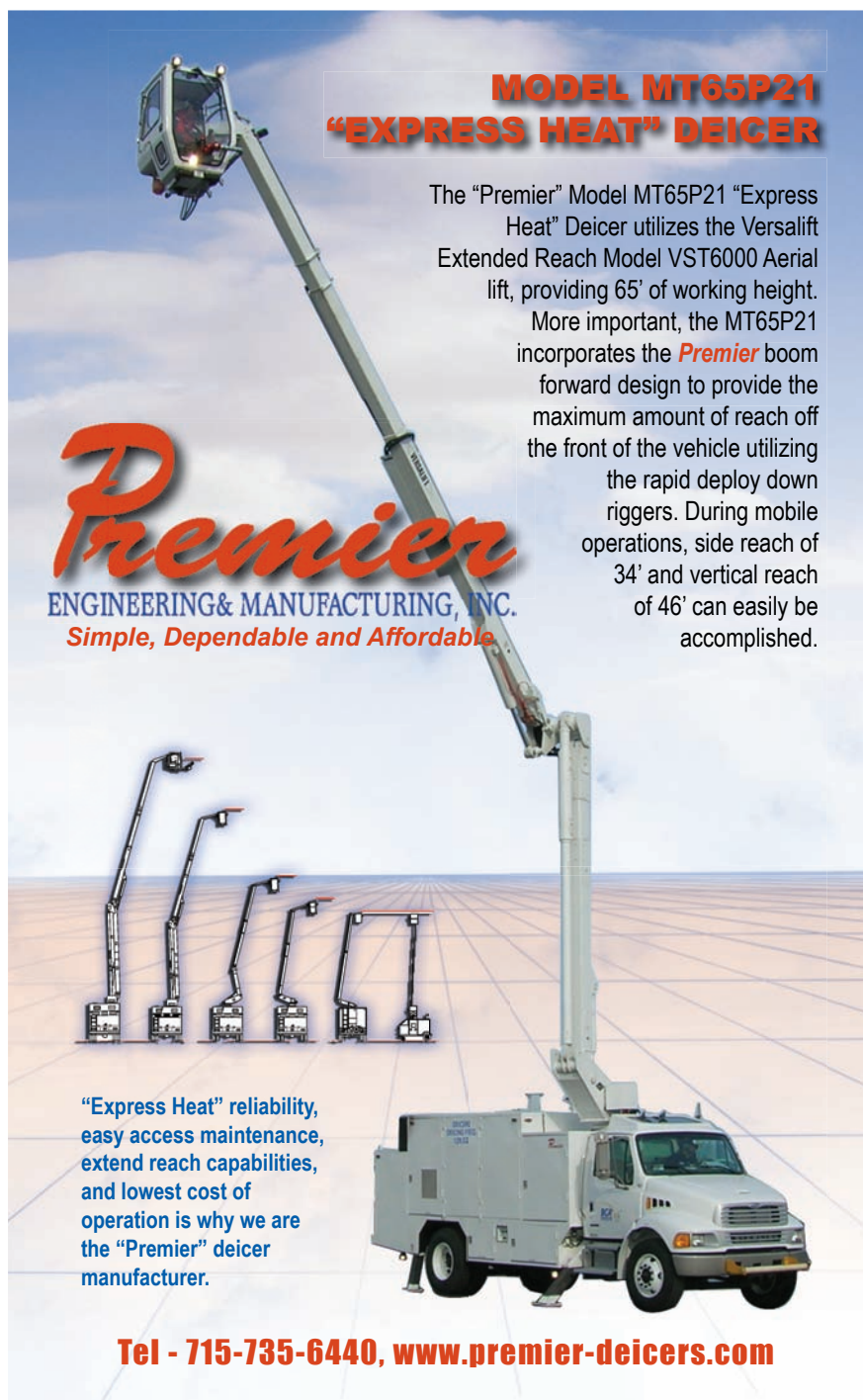
New Deals

BETA Fueling Systems

received an order from Delta Airlines to supply 10 HT-800s, its newest hydrant truck series, for Delta's operations at Hartsfield-Jackson Atlanta International Airport.

Access Control Group has acquired the GSE Minit charger division from ECotality North America.

B GSE Group received orders for Marine Corp Air Station Beaufort, South Carolina, Luke Air Force Base, Arizona and Iwakuni, Japan to supply F 35 hangars with



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I.D. Systems received a \$500,000 order to expand its GSE tracking system with a leading U.S. airline to a third major U.S. airport.

Spanish airport authority, **AENA**, received 167 bids for ground handling business at 19 airports. Iberia, Globalia, Acciona and Menzies are the confirmed participants.

Signature Flight Support announced that Menzies Aviation of Barcelona, Spain, has joined the Signature Select network.

Integrated Deicing Services has been awarded a deicing contract for Spirit Airlines at Detroit Metro Airport. IDS began its relationship with Spirit at ORD. The association grew with an additional award at MSP.

Gazpromneft-Aero has concluded a long-term agreement for two years with airBaltic for refueling new scheduled flights from Riga to Moscow. The new agreement has allowed Gazpromneft-Aero to double the total refueling of airBaltic aircrafts at the Moscow Air Hub since November to 3,000 tons of aviation fuel per year.

Iberia Airport Services renewed its contract with Lufthansa at airports of Bilbao, in Spain's Basque Country, and Gran Canaria in the Canary Islands.

Fraport AG Frankfurt Airport Services Worldwide and its partner Copelouzos Group have been selected as preferred investor for a 40-year operating concession by the

Hellenic Republic Assets Development Fund for 14 regional airports in Greece.

Winner Aviation, a full-service FBO at Youngstown-Warren Re-

gional Airport, has branded with Avfuel Corporation. Previously known as Beckett Aviation, Winner Aviation has operated in Youngstown since 1946.

Baltic Ground Services will provide Travel Service Airlines, a Czech charter carrier, with ground handling and fueling services at Vilnius International Airport. In other

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news, the ground service provider extended an agreement with Wizz Air ground handling services at Vilnius International Airport for another three years.

Aviall is expanding its stocking of aircraft ground support equipment designed and manufactured by Tronair. In other news, **Tronair** has selected **Derco**

Aerospace, Inc., as its exclusive channel partner for the military after-market in a three-year agreement.

People In The News



Jon DeLine has been named president and CEO of BETA Fueling Systems,

LLC, and part of the Alfons Haar Group. "Jon has built a foundation for future growth with a strong leadership team over the last three years and has established a reputation for delivering customer focused growth and results," said Thomas Haar, managing partner of Alfons Haar. "He and his management team have grown profitability while improving product reliability, customer support, and on time delivery consistently over the last three years."

"I am passionate about delivering to our customers a better experience by providing reliable fueling equipment, providing great after sales support, and doing what we say we are going to do on time," said DeLine. "I'm excited to extend this proposition further into the aviation industry and into other near industries in the future."

Liquid Controls is pleased to introduce its **LC Aviation Team**. The LC Aviation Team is an interdepartmental team of Liquid Controls employees dedicated to providing fueling solutions for the aviation industry:

Frank Montalvo - Aviation Business Line Leader, fmontalvo@idexcorp.com

Bill Hughes - Aviation Sales Manager, bhughes@idexcorp.com - 847-612-6396

John Mardoian - Aviation Sales Engineer, jmardoian@

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Teri Gulke - Aviation Software Engineer, tgulke@idexcorp.com

Hans Hetrick - Aviation Marketing Specialist, hhetrick@idexcorp.com

Malabar International promoted Executive Vice President



of Operations
Chris Advani
to president
of the recently
acquired DAE
Industries, Inc.

John E. Carroll, Jr., Malabar chairman and CEO, said: "I feel this is a very positive move for our company. With DAE complementing Malabar's product lines and Malabar's well established market position, having Chris's excellent talents at DAE will help Malabar meet its expanded commitments to the worldwide commercial and defense aviation markets."

"I am excited to tackle this new challenge and guide DAE in streamlining how it brings its products to market," Advani said. "We will ramp up production, add new products and meet delivery schedules that satisfy our customers' needs."

Michael Göntgens will head the communications team at Lufthansa Cargo. Previously, Göntgens worked as a team leader for PR and internal communications for the freight airline. In his new position, he will report to Lufthansa Cargo CEO Peter Gerber. He will take on responsibility for internal and external communications and marketing communi-

cations for the Lufthansa subsidiary.



Brian Goodsite
was promoted
by FlightSafety
International

to manager of the company's Cessna Aircraft Maintenance Learning Center in Wichita, KS. He succeeds John Brasfield who is now leading FlightSafety's efforts to restore the training programs affected

by the recent accident at the company's Learning Center in Wichita, Kansas. Goodsite joined FlightSafety in 2005 as an instructor and was promoted to supervisor of maintenance training, ✈️

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IS-BAH:

Raising The Bar for International Safety Standards

Collaboration between the National Association Transportation Association and the International Business Aviation Council creates a new international standard for business and general aviation ground-handling operations.

By Colin Bane





As one global industry code of best practices, IS-BAH will provide standardization to handlers and operators around the world to meet the coming SMS requirements from the International Civil Aviation Organization.

The National Air Transportation Association's successful Safety 1st Ground Audit program has been incorporated into the new International Standard for Business Aircraft Handling (IS-BAH), implemented last July 1 in partnership with the International Business Aviation Council (IBAC). The IS-BAH launch was announced in May 2014 at the European Business Aviation Convention and Exhibition in Geneva, Switzerland, setting a new and higher standard for Safety Management Systems and best practices throughout the industry.

"I am extremely excited about the new IS-BAH standard because it is the first time NATA and IBAC have come together to provide a uniform, internationally recognized standard from which businesses can drive their internal processes while improving safety performance," said NATA President Tom Hendricks. "This is a significant step for the international aviation community."

The new standard was developed at the urging of the European Business Aviation Association. Day-to-day operation of the standard and audit processes will be managed by IBAC. Terry Yeomans, formerly of Rockwell Collins Flight Services in Luton, UK, has been appointed to serve as director of the IS-BAH program.

"We are pleased to have created a truly worldwide ground-handling standard with NATA," said Kurt Edwards, Director General of IBAC, in a statement prior to the announcement in Geneva. "From conversations with handlers and operators and based on our experience with IS-BAO, we see great benefits for the business aviation community from an enhanced safety culture and a more standardized, predictable set of practices at airports around the world."

IS-BAH is modeled on the International Standard for Business Aircraft Operations (IS-BAO) and combines the International Civil Aviation Organization (ICAO) standards – including forthcoming Safety Management System (SMS) requirements – and NATA's Safety 1st Ground Audit pro-

gram. It improves upon the guidelines from all of that disparate source material, and creates a global code in place of the morass of regional and country-specific standards previously in place.

"The purpose of IS-BAH is to be performance-based so it doesn't tie into any country's regulations – or lack thereof – and to create conformity between the aircraft operators, FBOs, and ground handlers both here in the U.S. and overseas," explains Michael France, NATA's Director of Safety & Training. "For the first time, we have a single worldwide standard, and that's big news. Historically we've had a number of different organizations taking their own approach, but we've all come together and realized it's in everyone's best interest to have a single standard."

Among the more obvious benefits, France said the IS-BAH audit process will reduce the number of different safety audits required of many NATA members.

"The transition to IS-BAH should be a smooth one for NATA members because this grew out of the NATA Safety 1st Ground Audit standard, which was developed by our Safety 1st Committee and our Environmental Committee over the last several years and launched in June 2012," France says. "A lot of NATA members participated through those committees in creating that standard, and will see that work reflected in IS-BAH. We're all aligning to bring the benefit of a single standard to the industry, and it's very much a win-win all around."

COVER STORY

Implementation of IS-BAH comes amidst a series of industry-wide safety reforms and increasing levels of international collaboration. According to preliminary data released by ICAO in January, 2013 was the safest year on record for scheduled international aviation, with air transport fatalities down 53.5 percent from the previous year and down 76 per-

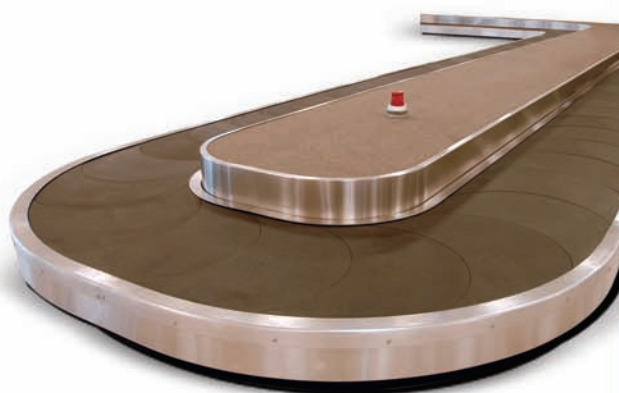
cent from the baseline measure in 2010.

"These results are no surprise given the level of commitment our sector demonstrates, year-in and year-out, to improving the safety of the global air transport network," ICAO Secretary General, Raymond Benjamin said in a statement at the time. "Recent years have seen a tremendous increase in the

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level of cooperation and partnership on aviation safety priorities and we are now seeing the fruits of these efforts born out by these remarkable 2013 outcomes."

The push behind the development of the IS-BAH standard and efforts to encourage its wide-spread adoption is partly in preparation for a series of new and forthcoming ICAO requirements mandating Safety Management Systems for international operators. ICAO Council president Dr. Olumuyiwa Benard Aliu has called safety "ICAO's guiding and most fundamental Strategic Objective" and has made cooperative international safety programs a top priority to "continue to coordinate the investment and collaboration needed to ensure that air transport remains the safest means of rapidly moving people and goods worldwide."

Hendricks similarly made IS-BAH one of his immediate priorities upon joining NATA as president.

"We began discussions with IBAC very soon after my arrival at NATA in 2012," Hendricks says. "In my former career, I worked closely with the International Air Transport Association on the IATA Operational Safety Audit standards (IOSA) and was very aware of the benefits to industry of international standardization. When NATA was approached by IBAC on this effort in 2012, the benefits were obvious for aviation businesses. We worked very closely with our partners at IBAC to help drive this benefit for the industry."

"IS-BAH is another step down the path towards wide implementation of Safety Management Systems," Hendricks explains. "This ongoing evolution will, in



Audits conducted every two years ensure conformance with the standard and provide valuable feedback to the operator.

the framework for the adoption of SMS principles in aviation operations. This construct will inevitably build rapidly in the coming years and the NATA/IS-BAH standard will serve as a key enabler of SMS for our industry."

FBOs and Business Aircraft Handling Agencies in the United States can purchase the IS-BAH manual and implementation guide online at www.nata.aero, the first step in becoming registered operators through the IS-BAH audit process. NATA member companies can purchase IS-BAH for a discounted rate of \$1,200, which includes a print copy of the IS-BAH standard, a copy of the SMS Toolkit booklet, and a USB drive with the complete IS-BAH files. The IS-BAH implementation guide details how to conduct a gap

analysis between an operator's existing standards and those of the IS-BAH program, and IBAC will also be conducting a series of "Fundamentals of IS-BAH" workshops.

"The price for companies that are members of IBAC member associations, partnering helicopter associations or NATA has been discounted to account for the substantial investment of the associations in developing the standards," according to IBAC's IS-BAH resource library. The cost to non-members is \$1,650.

NATA is encouraging its members to pursue full IS-BAH registration for their Safety Management Systems, through a series of audits which will be conducted every two years. The audit process will confirm that Safety Management System infrastructure is established, targeted to manage safety risks, and fully integrated into the operator's business. Successful completion of an audit will serve as proof of compliance with several key ICAO Safety Management System standards, which

the long term, change the relationship between regulators and industry as fully mature SMS programs enable both regulators and industry to focus resources on those areas in an operation where risks are most relevant. The International Civil Aviation Organization has already created

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More than 700 business aviation operators in 35 countries are currently IS-BAO registered, which continues to improve their safety risk profile and operating effectiveness and efficiency.

IS-BAH Basics

By Steve Smith

The IS-BAH follows the long established structure of the International Standard for Business Aircraft Operations (IS-BAO) Program and incorporates the NATA Safety 1st Ground Audit Program. As one global industry code of best practices, IS-BAH will provide standardization to handlers and operators around the world to meet the coming SMS requirements from the International Civil Aviation Organization (ICAO).

INTRODUCTION TO IS-BAH

Implemented on July 1, 2014, the International Standard for Business Aircraft Handling (IS-BAH) is designed to promote use of industry best practices blended through a progressive Safety Management System (SMS) for Fixed Based Operations (FBO) and Business Aircraft Handling Agencies (BAHA). It provides baseline requirements for structuring a FBO/BAHA in the planning and conduct of their operations; it challenges these organizations to review their current systems, programs and procedures, recognize strengths and weaknesses in those procedures, and upgrade to a higher standard. The standard is based on International Civil Aviation Organization (ICAO) standards and recommended practices in the preparation of handling business aircraft.

IS-BAH is an industry code of best practices developed by the international business aviation community for the benefit its members. It is the group's contribution to promoting highly professional operational practices that will build on the excellent safety record already established by business aviation. Conforming to these standards and recommended practices is voluntary and may be self-administered. However, recognition for implementation of and conformance to the standards is available via an auditing process that results in an IBAC certificate of registration.

The program centers on the Safety Management System (SMS) developed by ICAO and other operations-critical industries. It leads the operator from establishing beginning principles to maintaining a sustaining SMS and operations program for establishing a performance-based, risk-averse culture for both large and small FBO/BAHA's. Audits conducted every two years ensure confor-



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mance with the standard and provide valuable feedback to the operator. The registration certificate issued upon successful completion of an audit serves as proof of compliance with several key ICAO standards, which are required for operations in number of countries.

Audits concentrate on SMS development through a gradual process of advancing maturity:

- Stage One confirms that the SMS infrastructure is established and that safety management activities are appropriately targeted. All supporting standards have been established.
- Stage Two ensures that safety management activities are appropriately targeted and that safety risks are being effectively managed.
- Stage Three verifies that safety management activities are fully integrated into the operator's business and that a positive safety culture is being sustained.

More than 700 business aviation operators in 35 countries are currently IS-BAO registered, which continues to improve their safety risk profile and operating effectiveness and efficiency. These business aviation flight operations, as part of their SMS requirements, seek verification of the level of proficiency of the handling of their business aircraft. IS-BAH provides a means of conformity to those requirements

BENEFITS OF IS-BAH

IS-BAH registered FBO/BAHA's will benefit from the same advantages experienced by current IS-BAO registered operators, who say they have experience the following benefits since implementation:

- Enhanced operational safety through predictive and proactive methods.
- A sense of teamwork and pride of achievement among their personnel.
- Improved efficiency and effectiveness through an integrated management system.
- Increased senior management understanding and appreciation for the flight department.
- Reduced insurance rates.
- The ability to measure overall department performance.

The program leads the operator from establishing beginning principles to maintaining a sustainable SMS and operations program for establishing a performance-based, risk-averse culture for both large and small FBO/BAHA's.

are now required for operations in some countries and may also lead to reduced insurance rates and other benefits. NATA members with a minimum of five years' experience in aviation-handling management can also apply for IS-BAH Auditor Accreditation through IBAC.

"This is a significant step for the international aviation community," according to Hendricks. "We look forward to working with our international colleagues to provide other products to help improve safety and business operations. NATA's groundbreaking work on NATA Safety 1st and our creation of the Air Charter Safety Foundation are two examples of our com-

mitment to improving safety and serving aviation businesses worldwide." ✈️

(This article first appeared in the 2014 3rd quarter issue of Aviation Business Journal.)

About the author:



Colin Bane is a Denver-based staff writer for ESPN and frequently contributes to Aviation Business Journal and other publications including Smithsonian Air & Space Magazine and Outside Magazine.

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High Safety Performance Requires A Strong Safety Culture

Changing an ingrained culture need not be incredibly difficult, but it does require commitment, the right change program and consistent enforcement.

By Ian Bell

Poor safety is probably the greatest concern in today's workplace. Risk-taking behaviors result in injuries and cost to the individual and employer and cause demotivation in the workforce generally. An employee's personal life can be severely influenced by avoidable safety mistakes.

To effectively face this problem, every workplace needs to develop a strong safety culture. Consider that new technology typically will result in a significant initial improvement in safety performance. But this will only take an organization so far.

Improved standards and a Safety Management System will provide the next level of improvement.

But the final hurdle remains to be implementing a sustainable safety culture. This is also generally the hardest for management to achieve without the help of an external facilitator.

A major Australian airport recently set about tackling exactly this issue. Surveys of air-side workers over a number of

years, indicated the number one concern among employees was excessive vehicle speeds. The managers of air-side organizations weren't actively encouraging their drivers to speed, but some were probably not doing enough to actively discouraging it either! The airport company were issuing Penalty Infringement Notices (PINs), but was not deterring enough of this risk-taking behavior. Yet there was an ingrained cultural issue in relation to driver speeding behavior.

Changing an ingrained culture need not be incredibly difficult, but it does require commitment, the right change program and consistent enforcement.

Previous attempts to solve this issue had provided some benefit; but a more significant and sustained change was necessary to achieve the results now needed.

Global Safety Partners have extensive experience changing safety culture across hazardous and aviation businesses. Approaching the problem from an external perspective enabled them to implement a three-phase program to tackle this risk-taking behavior. Working with the airport, airlines and ground handling organizations, Global Safety Partners designed and implemented a change program that provided the program that has delivered the needed results in five short months.

Phase 1: Observation and Engagement

Often, safety concerns are tackled with Band-Aid solutions. These programs do not provide the sustained change or tackle the root cause of the problem.

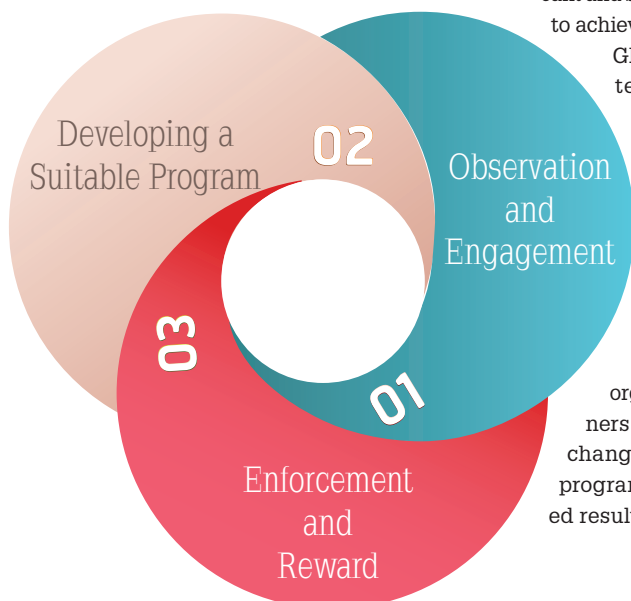
Through extensive observation of drivers from the terminal, the speed compliance rate was concerning. Interviews with managers, leading hands and safety representatives concluded that none condoned driver speeding despite recognizing it as an issue. Most interviewees believed the issue was with drivers of other organizations and did not know the basis of the existing set speed limits. But it was the interviews with the drivers that were even more revealing.

Many drivers perceived their managers and leading hands to supporting speeding if it got the job completed more efficiently. These supervisory staff were not condoning speeding, but they were often not doing enough to actively discourage it either. Many transferred the responsibility for controlling vehicle speeds to the airport owner. But it is not the airport owner's job to control the activities of a tenant's employees, only their own employees and contractors.

Phase 2: Developing a Suitable Program

Global Safety Partners developed a single three-hour workshop to be run on different days and times to suit a shift work environment over the two-month period. The workshop targeted managers, supervisors, safety representatives and leading hands of all air-side organizations. These people are the key influencers of air-side personnel.

The workshops conveyed the safety messages in a manner which resonated with the target audience and allowed



substantial discussion among the attendees. They took a practical approach focusing on education and provided target audience with tips to make them more effective supervisors. Many of us are placed in supervisory positions because of technical knowledge, but are not taught how to direct people effectively. This program gave the audience many of these skills.

The program also introduced a new reward and penalty system developed with driver input. This, in turn, helped motivate a change in driver behavior and overall safety culture and provides both recognition to those who help develop a safety culture and "go the extra mile" as well as to establish a simple Just Culture for warranted poor behaviors. Effectively, the reward system was their own system recognizing behaviors everyone felt were worthy of recognition.

Phase 3: Enforcement and Reward

Following the workshops, a sustained period of enforcement was introduced. This required additional staff to support the change and monitoring needed. At first a few drivers were caught speeding and subjected to the agreed enforcement. This showed how serious the airport was about creating a safer workplace for everyone.

Often, safety concerns are tackled with Band-Aid solutions. These programs do not provide the sustained change or tackle the root cause of the problem.

Each participant was provided with a "toolbox" to effectively communicate to their air-side drivers the importance of speed limits and trained on how to run an effective toolbox in their workplace. This was supported by the airport's communication program.

Recognition of drivers "going the extra mile" started rewarding drivers who made a significant contribution to an improved safety culture across the airport recognized by the airport company, their employer and their workmates. This provided incentive for an organization-wide shift allowing a strong platform for future safety advancements.

Three weeks into the program, results were starting to become obvious. Two weeks after the conclusion of the workshops, compliance with speed limits had moved from less than 50 percent to 96 percent.

This change has resulted in less time managing the consequences and more organized workforces, improved planning, less infringements and a strong safety culture. A significantly safer workplace for everyone and no increase in flight delays.

This program has provided the strong foundation in safety necessary to drive further safety improvements. ✈️

About the author:



Ian Bell, director of Global Safety Partners, has a long history in the aviation industry first with Trans Australian Airlines and Australian Airlines (the forerunners to Qantas). He spent 11 years in airlines' operational roles before joining the Shell Company of Australia where he spent 23 years in a range of senior management roles including having primary operational responsibility for the Shell Aviation operations throughout Australia and Papua New Guinea. Ian has also been involved with the Australian Aviation Ground Safety Council, which is intently focused on improving ground safety performance in airports across the Australasian region. He can be contacted at globalsafetypartners@gmail.com

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Dealing With **ON THE**

A close-up, low-angle shot of a large commercial airplane engine, likely a Boeing 787 Dreamliner, sitting on a snowy and icy tarmac. The engine is dark and metallic, with a large circular intake. The background shows the wing and tail of the aircraft, all covered in a layer of snow and ice. The overall scene is cold and hazardous, emphasizing the theme of ramp safety.



Winter Weather RAMP

By Dr. Ed Brotak

Winter brings many new challenges to ground support services. Not only do temperatures drop, but freezing and frozen precipitation can cause many problems. These can range from impeding airport operations to delaying or canceling flights to even shutting down the whole facility. Unfortunately, we can't control the weather. We just need to learn what nature may bring us and how best to deal with it.

As temperatures drop, the cold itself can become a problem. The first critical point is when the temperature drops to 32 degrees F. When water freezes, all kinds of

problems can ensue. Clearly, even colder temperatures can begin to affect equipment and personnel.

For those who work outdoors, wind

is also a factor. The Wind Chill effect is real. Not only do you feel colder when the wind blows (up to 20 degrees F colder than the actual temperature or more), but your body loses heat faster. Exposed skin is subject to frostbite and hypothermia is even possible. Do keep in mind that the Wind Chill only affects people (and animals) not equipment.

For those in the high latitudes, extreme cold in winter is common and is allowed for. But it's in the lower latitudes, where such cold temperatures are unusual, that the cold causes more problems. Arctic outbreaks occur when

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the jet stream takes a big dip. This happened repeatedly last winter (2013-14) in eastern North America.

Problems with the cold are minor in comparison with the travails that accompany winter precipitation. Not only are normal operations affected, but safety becomes a significant issue.

AOA

A major concern for airport operations is the condition of the runways. Rain water is one of the most common "contaminants" as referred to by the Federal Aviation Administration. Runways are often grooved, sloped, or crowned to allow rain water to run off. But in the winter, we often have to contend with much more than rain. Snow, sleet, and freezing rain are common in the colder climates and even occasionally in areas typically warmer. And water in its frozen form will not drain off on its own.

Actions must be taken to keep the runways safe and usable. According to the FAA, "a contaminated runway has more than 1/8 inch of slush, snow, or compacted snow, ice, or frost covering more than 25 percent of the required length and width of its surface." It takes very little time, sometimes only minutes, for 1/8 inch of frozen or freezing precipitation to accumulate. Only if the air or ground surface temperatures are above freezing will we get melting from below and runoff.

Snow is the most common type of winter precipitation. Snow is made up of ice crystals. The consistency of snow varies as will the problems it causes. Temperature is a major factor. With temperatures well below freezing (and, yes, it is never too cold to snow), the snow has a lower water content. This "dry" snow is lighter and does not adhere to surfaces that much. It is more easily removed. Even when accumulated, dry snow has some traction. On the downside, this type of snow is more prone to blowing and causes visibility problems.

With temperatures closer to freezing, the snow is wetter. (Keep in mind that snow is produced in clouds well above the ground. It can snow with surface temperatures above freezing, even in the 40's.) Wet, mushy snow is slippery and greatly reduces runway traction. It also sticks to surfaces and would have to be removed from aircraft. At least, it's less likely to blow around.

How bad things get and how fast they get bad depends on the snowfall rate. Snowfall is considered heavy when it falls at a rate of one inch per hour. This is typical in a winter storm. At that rate, a runway would become "contaminated" in less than 10 minutes. Convective snows such as the infamous "thundersnow" can fall at rates approaching four inches per hour. Runways and other grounds can become covered in minutes!

Extreme snowfall rates can also bring about the unusual occurrence of accumulating snow with surface air temperatures above freezing. As long as the snow is falling faster from above than melting from below, the snow will accumulate. If the snow slacks off or stops, then it will eventually melt away on its own.

Snowfall rates are also important in snow removal. Snow has to be physically removed from runways and other key areas by snow plows, snow blowers, snow brooms, and even people with shovels. These are very labor-intensive, relatively slow processes. If snowfall rates are too great, it becomes physically impossible to remove the snow fast enough to keep runways clear and the airport will have to close until the snowfall lessens. In colder climates where winter storms can be numerous, snow removal costs can be a significant part of airport budgets.

Sleet, which is comprised of small ice pellets (actually frozen rain drops) can also accumulate quickly. But it tends to bounce off surfaces rather than sticking to them. And in terms of traction, it's not as bad as snow.

THE WORST

Probably the worst conditions ground crews will have to deal with in winter come with ice storms. Freezing rain or glaze occurs when liquid water droplets produced in clouds with above-freezing temperatures fall into a shallow layer of air with below-freezing temperatures near the ground. The water freezes on contact with a surface producing a layer of ice. On runways, a veneer of ice often with water on top makes braking conditions nearly impossible. Aircraft on the ground can become quickly coated with ice, severely affecting their ability to take off safely. The accumulation rate and severity of the icing is a function of temperature (freezing rain can even occur with temperatures near 0 degrees F) and the intensity of the precipitation.

For winter precipitation situations, the intensity of the precipitation is critical. Weather radar is the best tool we have for determining precipitation intensity. The colors you see on a radar display actually equate to how hard it is raining or snowing. Green would be light rain. Once you start seeing yellow, then look out for moderate to heavy rainfall. Snow with its crystal structure and lower water content (1 inch of rain equivalent water can produce anywhere from 6 to 30 inches of snow depending on temperature), shows up differently on radar. Blue echoes can be snow reaching the ground. Green indicates significant snow rates. Short-term precipitation forecasts can be made by just examining the radar display and determining where the precipitation is moving.

There are other winter hazards not associated with falling precipitation. Black ice can develop on paved surfaces when temperatures drop below freezing and there is standing water. The ice can be clear and difficult to see and the sheer ice surface is especially slick. Frost, which tends to form on clear and calm nights, can occasionally affect runway traction. Fog is always problematic at airports. The reduction in visibility can often lead to flight delays. Besides your common fog, which is made up of tiny water droplets suspended in the air, winter brings two variations. Freez-

ing fog occurs with temperatures slightly below freezing. The fog is still composed of tiny water droplets, but these are "super-cooled". A number of airports attempt to disperse the fog by seeding it with solid carbon dioxide or with propane gas. "Ice fog" is made up of ice crystals and occurs with much colder temperatures, -30°F or lower. Nothing can be done about it until it dissipates on its own.

Besides precipitation, winter storms usually bring strong winds. They are certainly a concern for aircraft taking off or landing. Often these winds are coming from an unusual direction. For larger airports, alternate runways may have to be used to avoid dangerous cross winds. For smaller airports with limited runways, this is even a greater problem. Strong winds also increase the chances of power outages.

Can meteorologists forecast all of these winter weather situations? If so, how far in advance can warnings be given? The answer to the first question is yes. As for the second question, it depends. Today, weather forecasts are primarily generated by high powered computer models. These "machine produced" forecasts are then tweaked by human forecasters. Winter storms can usually be forecast days in advance. A week at most. Temperatures are somewhat easier to forecast. Even out to 14 days, we can generally tell if it will be warmer or colder than normal. Two weeks out is about the most the computers can forecast. And that's about it for accurate weather forecasts. Can we tell if it's going to be a cold winter? Not really. There is some correlation of winter conditions and the El Nino/La Nina cycle in the Pacific Ocean. But the cycle itself is difficult to predict. ☁

About the author:



Dr. Ed Brotak is a retired meteorology professor turned freelance writer. His specialties include weather-related aviation hazards. He has written extensively on weather-related threats to aircraft for Aero-Safety World.

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How To Properly Store Flammable And Combustible Liquids

The first step to determine the storage requirements of fuel as well as other liquids such as oils, chemicals and cleaning solutions, is to clearly define the characteristics of the liquid.

By Aaron Johnson

Common to all aviation facilities is some form of flammable or combustible liquid storage. How is this storage type determined? Is the storage provided adequate? How can we ensure that fire or other incident will be prevented? Where do we start when specifying, installing, or inspecting liquid storage tanks? Guidance on liquid classification, tank types and installation, and fire/spill protection requirements is found in the National Fire Protection Association standard, NFPA 30, Flammable and Combustible Liquids Code. (This document can be viewed at: www.nfpa.org/30.)

The first step to determine the storage requirements of such liquids (typically fuel at aviation facilities, but also oils,

chemicals, cleaning solutions or the like) is to clearly define the characteristics of the liquid. Defining the liquid answers these two questions:

- **Is this liquid flammable or combustible?**
- **What class of liquid is this?**

To determine the difference between a flammable or combustible liquid, one must first determine the liquid's flash point. If the liquid has a flashpoint below 100 degrees F, then it is considered "flammable." Liquids that have a flashpoint at or above 100 degrees F are "combustible." Determining this information must be completed first, so that the liquid can then be properly classified (as defined in NFPA 30:4.2.2 and 4.2.3).

Flammable liquids are broadly classified as Class I (with sub-classifications)

and combustible liquids will be either Class II or Class III (with sub-classifications). The liquids are classified based on their flash points and boiling points.

Flammable liquids:

- Class IA – flash point below 73 degrees F and boiling point below 140 degrees F.
- Class IB – flash point below 73 degrees F and boiling point at or above 140 degrees F.
- Class IC – flash point at or above 73 degrees F, but below 100 degrees F.

Combustible liquids:

- Class II – flash point at or above 100 degrees F and below 140 degrees F.
- Class III – flash point at or above 140 degrees F.
 - ° Class IIIA – flash point at or above 140



Guidance on liquid classification, tank types and installation and fire/spill protection requirements is found in the National Fire Protection Association standard, NFPA 30, Flammable and Combustible Liquids Code.

degrees F, but below 200 degrees F.

- Class IIIB – flash point at or above 200 degrees F (per NFPA 30:4.3).

There are four primary liquid storage methods:

- Aboveground tanks.
- Underground tanks.
- Storage tank buildings (tanks inside a structure).
- Container/locker storage.

Each of these is designed for a specific use, has clearly defined installation requirements and must be adequately protected against fire, spill and other emergencies.

Aboveground storage tanks come in three variations based on pressures. Atmospheric tanks are rated for pressures of 0 to 1.0 psig. Low-pressure storage tanks can handle up to 15 psig. Anything required above 15 psig must be stored in a pressure vessel. We mostly see atmospheric tanks for housing our JP-8 and other aviation fuels. The higher pressure tanks are required for liquids that have a high vapor pressure. NFPA 30, chapter 22 outlines the construction requirements, clear distances to other structures, and separation between multiple tanks.

Underground storage tanks are widely considered to be the safest form of storage. Ground water and environmental concerns must be considered for this type of installation. And these tanks must be able to withstand the aboveground pressures that they may be subjected to (earth, concrete, structures, traffic). The installation requirements are outlined in NFPA 30, chapter 23. The tank manufacturer's installation, maintenance, and inspection guidelines must be closely reviewed and followed.

Tanks within a structure, or storage tank buildings, are permitted for the storage of all liquids except for Class IIIB. These tank storage buildings must meet specific construction requirements including, minimum two-hour fire-rated construction, and deflagration venting for explosion protection. The complete construction, site, and protection requirements can be found in NFPA 30, chapter 24.

Liquids that are stored in containers of less than 119 gallons or portable tanks under 660 gallons may be stored in special hazardous materials storage lockers or cabinets. These lockers are

To determine the difference between a flammable or combustible liquid, the liquid's flash point must be determined.

movable and modular, and can safely and cost-effectively meet minimum code requirements. These lockers must remain in their designated area as approved by the local fire official. The construction of these cabinets must meet the requirements of NFPA 30, chapter 9. These can be purchased pre-fabricated, or can be constructed using the guidance provided in this code.

SPECIFIC REQUIREMENTS

Each of these storage options has specific fire protection requirements. Some require fixed fire protection systems, such as fire sprinklers, water mist, water monitors, or fire alarm systems. Others do not require this.

However, NFPA 30 outlines gener-

al fire safety and emergency response procedures that must be met for any flammable or combustible liquid storage configurations.

For example, open flames, lightning, smoking, cutting and welding or static electricity can be the primary contributing factor to a flammable or combustible liquids fire. Every precaution should be taken to control ignition sources. Smoking should be prohibited or only allowed in designated and clearly identified areas. Combustible waste and vegetation should be cleared from the storage area. A hot work permit program should be in place and strictly enforced for all personnel performing hot work on, or around, the liquid containers and tanks. All metallic tanks, piping, or other components are required to be bonded and grounded.



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About the author:



Aaron Johnson has been in the fire protection and life safety industry for nearly 10 years. He began his career as a firefighter, then transitioned to fire prevention. He currently serves as fire marshal for a Fortune 100 aircraft manufacturing corporation. He also blogs about fire protection and life safety issues at www.TheCodeCoach.com.



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Although there is no specific fire alarm requirement, NFPA 30 does state that, "... prompt notification of fire or emergency to those within the plant and to the ... fire department shall be provided." (NFPA 30:6.6.1.)

One method of meeting this requirement would be to install a fire alarm system. Any area where a spill potential exists should be monitored by patrolling/observation personnel, spill indicating and monitoring equipment, or gas detectors that continuously monitor the area.

Regardless of the presence or requirement of a fire sprinkler system, a reliable water supply must be available. The water supply is required to meet the pressure and quantity demands that the hazardous liquid storage requires. The water supply also must be prevented from becoming contaminated by any process systems that may be present.

An emergency action plan that addresses all possible hazards and events should be in place. These emergency plans should include the proper procedures for sounding an alarm, notifying the fire department, evacuating personnel, and controlling or extinguishing a fire. Specific personnel should be assigned duties that must be performed in the event of an emergency. Procedures for operating and maintaining fire protection equipment should be clearly outlined, shut down procedures for liquid storage or transfer operations should be listed. This plan must be regularly reviewed and practiced. Exercises should be conducted for all responsible personnel to ensure that initial and ongoing training is received. 🚒

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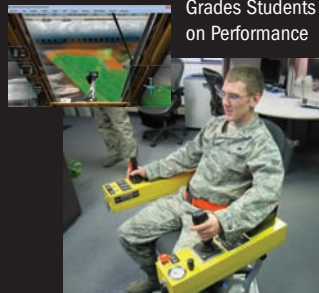
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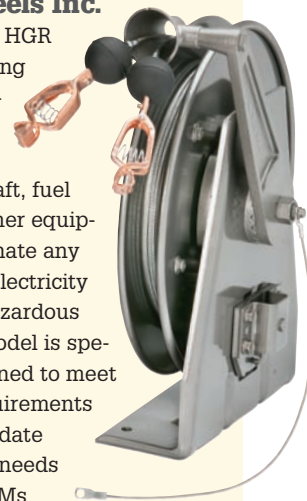
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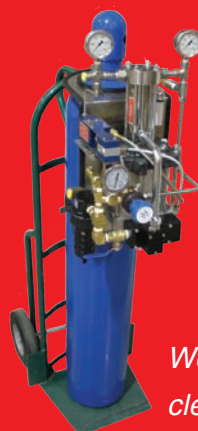
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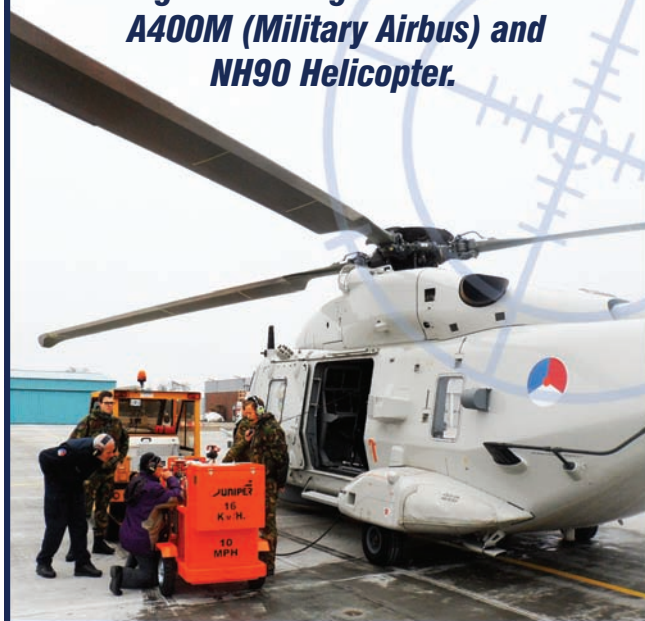
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Steve Smith, Editor

Outsourced Jobs Equal Source Of Security Risk

Security experts cast suspicion on outsourced work.

Not a month goes by without news of another arrest of a bunch of baggage handlers nabbed for pilfering checked luggage. These folks may never rise to the level of criminal masterminds. Then again, consider for a moment the potential damage that could be done by such airport workers who may not possess the biggest of paychecks, but who do have security clearance to routinely get on board aircraft or walk into sensitive facilities of an airport around the clock.

Or consider an event in Chicago a few months ago that didn't even take place at any of the city's airports, but which still ended up canceling thousands of flights and disrupted air traffic throughout the United States.

Brian Howard faces up to 20 years behind bars if convicted of one count of felony destruction of aircraft facilities after he allegedly set fire to a Chicago-area FAA air traffic network site.

The disgruntled employee was caught on surveillance footage dragging a suitcase and can of gasoline through a security checkpoint and into the Chicago Air Route Traffic Control Center early one Friday morning last September, according to charging documents filed in court. Howard allegedly set the fire near telecommunications cables where a floor panel had been pulled away to expose the wires.

The breach that enabled him to carry out his plan speaks to a continuing trend in the aviation industry that most security experts say is ripe for abuse: an over-reliance on contractors whose workers are often paid low wages and are not screened properly, but who have easy access to some of the most vulnerable areas of the nation's biggest airports.

Most reports I've read related to this issue discuss that such workers don't have the same "buy-in" to the job that a full-time worker would have. This lack of identity is what has security experts so concerned.

Howard, for example, worked for eight years as a contracted field tech for telecommunications service firm Harris Corp.

In 2002, Harris won a \$5 billion FAA contract to provide service at more than 4,500 of the aviation regulator's sites in the United States.

Richard Bloom, director of terrorism, intelligence, and security studies at Embury Riddle Aeronautical University in Prescott, AZ, says contracted employees can be less accountable than full-time employees, and that screening is often "perfunctory," only involving criminal background checks.

"When it comes to in-house sabotage, much more often than not, you're not going to catch any of that if you only look at bank accounts and arrests," he told a newspaper after the FAA fire. He advocates frequent re-screening to detect psychological issues that could be flagged early.

"Often people who engage in [sabotage] are fine when they are hired," he added, "but over a period of time, they change. There are objectively valid screening procedures that can monitor people on an ongoing basis and if they change for the worse, fire them or talk to them or deter them." ✈️

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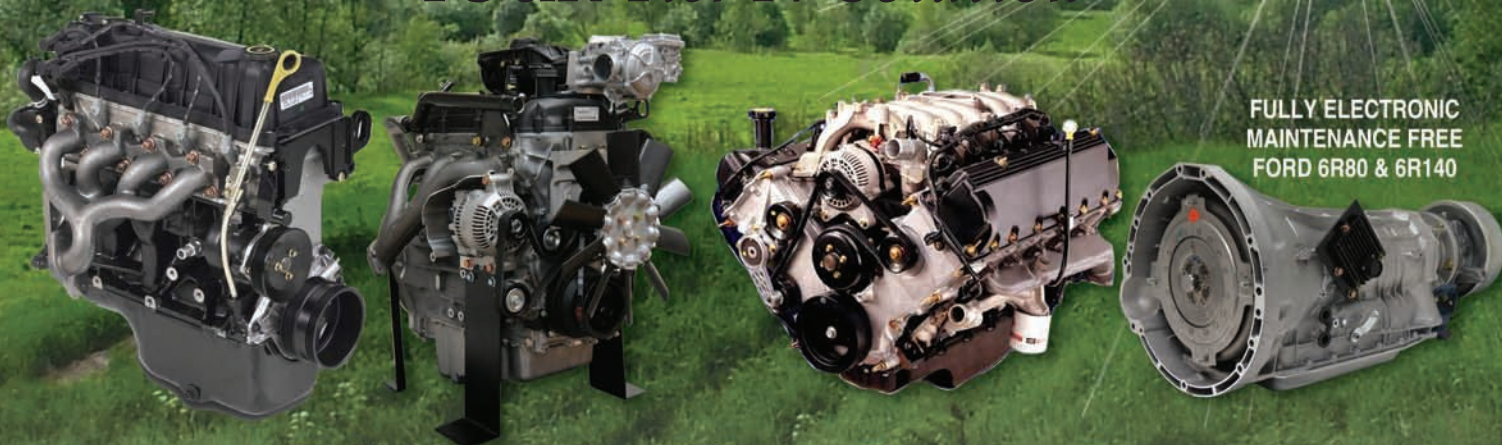
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