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# **GROUND SUPPORT**

## **WORLDWIDE**

A photograph of Bill Biermann, an older man with white hair and sunglasses, smiling while driving a white GSE (Ground Support Equipment) vehicle. He is wearing a white jacket with a yellow and blue collar. The vehicle has a large windshield and a side mirror. The background shows a green lawn and trees.

# **BILL BIERMANN**

## **2013 LIFETIME ACHIEVEMENT**

Electric GSE Pioneer Bill Biermann set the first SAE standards for e-GSE, proved its value while at Eastern Airlines and grew the market while at Charlotte of America.

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JUNE/JULY 2013

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**EAA AirVenture  
Oshkosh**  
Oshkosh, WI



**Deicing Management  
Conference**  
Arlington, VA



**inter airport  
Europe**  
Munich, Germany

## Business Buzz

### Ground handler creates own deicing fluid:

**Baltic Ground Services** will become the first ground service provider to develop, certificate and produce its own eco-friendly Type I deicing fluid in Europe. Baltic announced the successful certification of a glycerin-based Type I deicing fluid called Defrosol ADF.

### Delta retrofits GSE to electric:

Delta Air Lines recently partnered with Clean Cities Atlanta on a project to retrofit 35 diesel-powered GSE to all-electric units at Hartsfield-Jackson Atlanta International Airport. Hercules Engine Components repowered 24 TUG Belt Loaders, JBT Corporation repowered 11 FMC Container Loaders, while Averest, Inc. supplied the batteries for the converted units.

### SATS posts higher profits:

Growth in Asia's aviation sector boosted full-year profits for SATS. Earnings for the fiscal year ending last March rose 8.1 percent year on year to \$184.8 million. The earnings growth came

on the back of a 7.9 percent jump in sales to \$1.82 billion. In other news, SATS clinched the "Best Air Cargo Terminal in Asia" title at the 27th Asian Freight & Supply Chain Awards. It is the 15th time that SATS has received this award.

### AMSS opens new factory in UK:

Aircraft Maintenance Support Services opened a new \$1.9 million engineering/manufacturing facility this week. The new site is set to create a minimum of 28 new jobs over the next three years, in addition to 23 already created and will enable the company to meet the growing demand for its products.

### Signature opens at SIN:

Signature Flight Support will open a new facility at Changi International Airport. It will provide "supervisory services" for ground handling and fuel coordination. The Changi location will be Signature's second facility in Asia and joins its investment in the Hong Kong Business Aviation Center at Chek Lap Kok/Hong Kong International Airport.

### Airlines collected \$6 billion in fees in 2012:

U.S. airlines collected more than \$6 billion in baggage and reservation change fees from passengers last year — the highest amount since the fees became common five years ago. The nation's 15 largest carriers collected a combined \$3.5 billion in bag fees in 2012, up 3.8 percent from 2011, according to the Bureau of Transportation Statistics. Fees for changing a reserva-

tion totaled \$2.6 billion, up 7.3 percent. Delta Air Lines once again took in the most fees — \$865.9 million from baggage alone — but it also carried more passengers than any other airline.

### Airline takes airline-owned ground handler to court:

Dutch Antilles Express had to take the Surair Ground Handling Services to the court to get services restored to its flights upon arrival at the Paramaribo-Zanderij International Airport. The president of Suriname Airways refused to provide services to DAE even though DAE made the demanded transactions to eliminate outstanding arrears and also offered to pay cash on delivery. Suriname Airways is the owner of the only terminal of the only international airport in Suriname, the owner of the only ground handling service company at the airport and is a direct competitor of DAE to Curacao and Miami.

### United to offer annual packages for checked bags:

United Airlines will offer customers annual subscriptions to prepay for checked bags and more legroom. Starting at \$349, United passengers can prepay for checked bags for a year. The subscription also has add-ons, such as checking more than one bag and adding additional travelers.

### GlobalAir upgrades rating system:

Aviators can now more accurately shop for FBOs at GlobalAir.com. Pilots can view the ratings on each FBO's page to get the overall score, or select the rating system to view a more de-

## Advertiser's Index

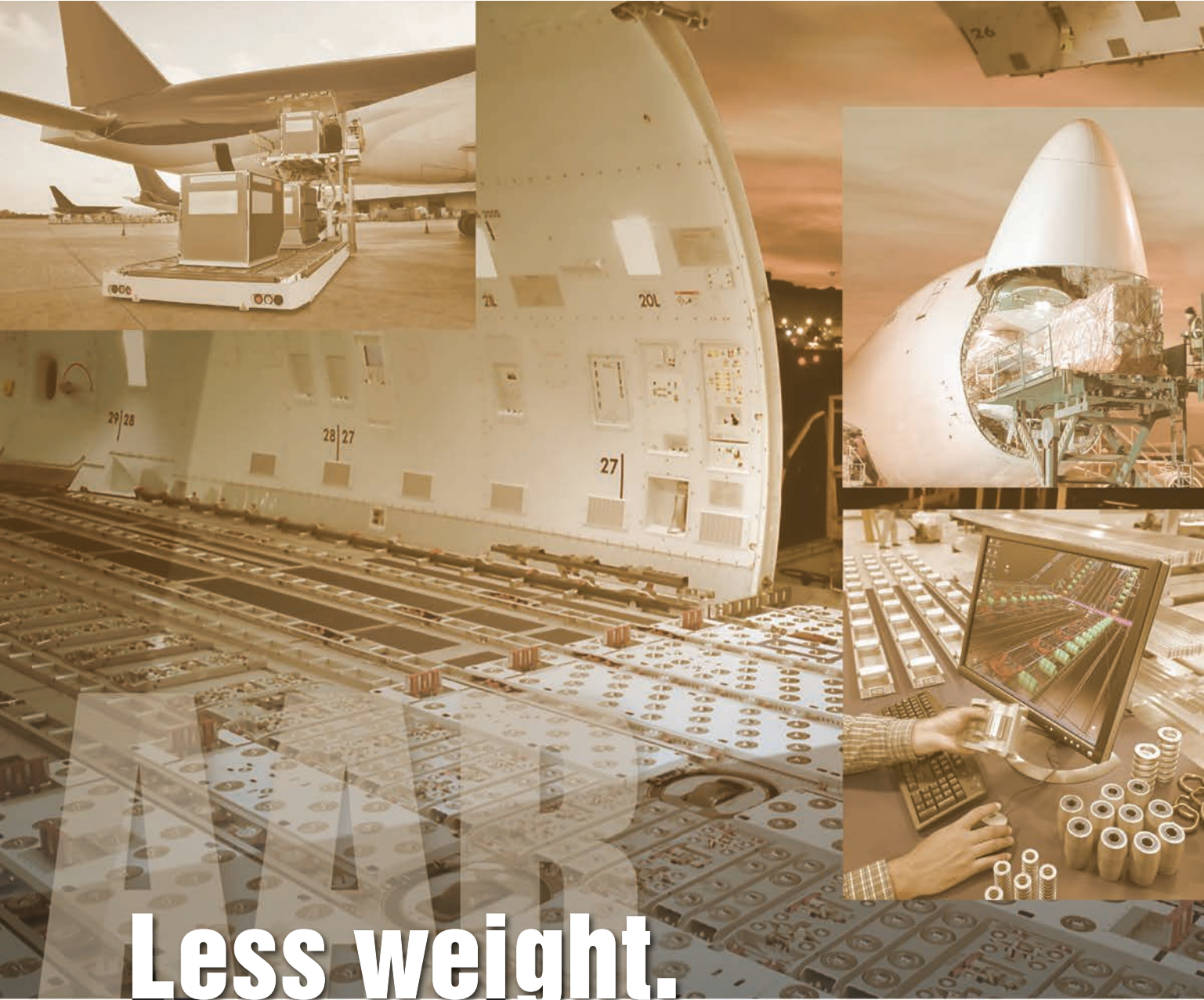
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tailed rating of the facilities' cleanliness, front desk and line services, competitiveness of fuel price and the pilot amenities.

### Mitigation work continues at LGA:

The Port Authority approved \$59 million for enhanced storm mitigation and recovery measures from Superstorm Sandy. At LaGuardia Airport, for example, a large generator will be installed at the pump house to ensure that water can be quickly pumped off the airfield. Approximately 100 million gallons of water flooded Delta Air Lines' shuttle ramps at LaGuardia Airport and destroyed the airport's instrument landing system pier.





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## Honors for Palmer Johnson:

Eaton recently named Palmer Johnson Power Systems to its list of Top 24 North American Hydraulics Group Distributors for its excellent 2012 performance as an Eaton Airflex distributor.

## 'E' Awards for AAR, Gorman-Rupp:

U.S. Acting Secretary of Commerce Rebecca Blank presented AAR and The Gorman-Rupp Company with the President's "E" Award for Exports. The "E" Awards are the highest recognition any U.S. entity may receive for making a significant contribution to the expansion of U.S. exports.

## Emirates wins ... again:

Emirates SkyCargo won the Best Air Cargo Carrier Middle East award for the 18th consecutive year at the annual Asian Freight & Supply Chain Awards.

## Shell honors FBOs for safety:

ExecuJet Europe's FBOs at Berlin Schoenefeld Airport won the Shell Aviation Platinum Award for Safety and Quality. This latest accolade marks five consecutive years the Berlin FBO has been presented the award. In addition, ExecuJet's FBO at Frankfurt am Main International Airport won the Shell Bronze Award for Safety and Quality, after being in operation for just one year.

## United opens kennel at ORD:

United Airlines has opened a new, on-airport kennel facility at its Chicago O'Hare International Airport hub. The kennel, which is located inside United's new cargo facility, has 28 individual enclosures.

## New Deals

- Dubai-based flight support specialist Hadid International Services has launched a partnership with Saudi Arabia's Wallan Aviation to offer ground handling for business aircraft across Saudi Arabia.
- Cryotech Deicing Technology and Provion will introduce Polar Guard® II, a Type II aircraft deicer. This fluid is certified to AMS standard 1428 and specifically designed for the European market.

Frankfurt Airport awarded ACCIONA Service a seven-year contract to provide handling services at the airport until 2020. The company competed with five others for the only ground handling concession at the airport.

- Turkish Airlines, Air Baltic and Monarch Airlines have chosen Air Malta as the preferred ground handling partner at Malta International Airport. Starting this summer the airlines



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will operate more than 140 flights to and from Malta.

- **ATS Euromaster** mobile technicians will be working airside after winning a contract to inspect, fit and service tires for TCR. Technicians at nine of the UK's largest airports will conduct monthly comprehensive tire safety inspections for GSE and provide TCR with a report listing needed work.
- **Dnata** purchased the 50 percent stake it hadn't already owned in Italy's **Servair Airchef**. The in-flight caterer with nearly 700 employees has a presence in 23 airports in Italy.
- **Swissport International Ltd.** signed a contract with **Service-VS**, the ground handling operator at **Vnukovo Airport**, to launch a joint-venture and mark the first time Swissport has done business in the Russian Federation. **Service-VS** has more than 1,300 employees and more than 500 units of ground aviation, which allows to serve more than 100,000 flights a year.
- **WheelTug** and **airberlin** have signed a letter of intent, which gives Germany's second largest airline the opportunity to become one of the world's first airlines to install the system on part of its fleet after the drive technology has been certified.
- **NTL Aviation Services** will provide customer service, baggage handling and aircraft cleaning to **QantasLink** at the **Mildura Airport**. **NTL** provides similar services for regional airlines in New South Wales, Tasmania and Victoria.
- **Etihad Airways** has acquired three airport services companies to accelerate and consolidate the development of in-flight catering services, ground handling and cargo operations at **Abu Dhabi International Airport**. Formerly part of **Abu Dhabi Airports Company**, the three companies, **Abu Dhabi Airport Services**, **Abu Dhabi In-Flight Catering** and **Abu Dhabi Cargo Company**, are being incorporated, subject to regulatory approvals, into **Etihad Airport Services**.

## People In The News

**Jerry Derusha**, Premier Engineering & Manufacturing, was on hand to accept the Equipment Provider of the Year for

2012 from **Larry Laney**, director of ground support from the airline's GSE department. It's the second year in a row the deicing manufacturer



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has won the award. The award started in 2007 as an expansion of the GSE department's employee recognition program. The entire GSE staff nominates and then selects the winner based on criteria ranging from customer and parts support

to training and warranty.



Swissport International Ltd. announced that **John Batten**, executive vice president, cargo services,

and a member of Swissport's Group Executive Management will step down from his position effective Aug. 31 to pursue new opportunities. Batten joined Swissport from Qatar Airways in August 2008. At press time, Batten was reportedly joining cargo airline Coyne Airways as managing director.

In other news, Swissport International appointed **Steen Georg Pedersen** as commercial director, integrator handling.



**Paul Nutter** joined ABC Industries, Inc.'s industrial ventilation ducting division as a product manager with an emphasis on airline, dehumidification/restoration and distributor development. In his new role, Nutter will be responsible for building and managing customer accounts and new product development. He will also work closely with inside sales to assure all aspects of customer service are executed in a timely, accurate manner.



**Mike Beck** was named vice president and general manager of the fuel and motion control systems division for Eaton's Aerospace Group. Most recently, Beck was the chief executive officer of GKN Aerospace Engine Systems Business where he led the due diligence, business synergies and integration of a \$1.1 billion acquisition. Prior to that, he was president and chief executive officer for GKN's propulsion systems and special products business where he led a global organization with 15 manufacturing locations.

Three more senior executives of Kingfisher Airlines Ltd, including **Saurav Sinha**, chief information officer, **Capt. Ronald Nagar**, flight operations head and **Ajit Bagchi**, cabin crew head, have quit the grounded carrier. Their resignations come close on the heels of **Hitesh Patel**, executive vice president and **Murali Ramachandran**, ground handling chief reportedly parting ways with the airline.

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# Bill Biermann:

## Lifetime Achievement Winner

*Electric GSE Pioneer Bill Biermann set the first SAE standards for e-GSE, proved its value while at Eastern Airlines and grew the market while at Charlotte of America.*

*By Steve Smith*



**T**he first thing you need to know about Bill Biemann is that he never stops. Or at least he doesn't want to.

We talked with him on a morning when he was stuck at home nursing an injury.

"It's keeping me off the golf course," he says, "and I don't like that at all."

We spent the next hour talking about his long career as Bill checked off working for a number of airlines that built the industry. Although pioneers like Pan Am and Eastern may be gone, their memories remain. But ever heard of Colonial Airlines or Mackey Air?

"We did everything in those days," Bill says of the time he was more in charge of airline operations at destination travel spots in Bermuda, The Bahamas and central Florida.

"And while it was typical to operate on a contract basis for

ground support, I was still interested and involved in ground support, too. I certainly had to oversee it once I became a manager."

By the end of our call, we realized Bill lived just a short drive away from the company he spent 17 years with before retiring last December. Later that same day, Bill must have driven to Charlotte of America since we received the image on this month's cover by the following day.

With that attitude, it's no surprise that this year's Lifetime Achievement winner has managed to "retire" not once, but twice and earned the chance to retire a third time.

## E-GSE PIONEER

Bill started his career in 1951 as a field agent with Pan American World Airways in his native Bermuda, and eventually joined Eastern Airlines in 1956 where he would stay for the next 33 years.

Since he spent much of his early days more in general airline operations, let's jump ahead to 1979 when Bill is promoted to corporate GSE manager at Eastern's home office at Miami International Airport. (For

Bill Biemann



Bill Biemann stands atop the first electric loader/lifter acquired by Eastern Airlines in the early 1980s.



Bill Biemann accepts his Lifetime Achievement Award during this year's AviationPros LIVE trade show. Behind him is Rob Lamb, Charlotte of America, who nominated Bill for the honor.



Hospitable Bermudians greet Colonial Airlines' passengers arriving from New York, less than 4 hours away.

# COVER STORY

more on the start of Bill's career, see sidebar "Before GSE.") Business couldn't be better for Eastern at the time. The airline, buffeted as all were by deregulation, was coming off four of its most profitable years under the command of former astronaut Frank Borman.

In his new role, Bill immediately got involved in promoting electric GSE.

"This equipment was coming on the scene," Bill remembers, "and we all knew that we would need some protocol on operating and charging electric GSE."

With that in mind, Bill joined SAE International and started a committee that developed the trade group's first standards and recommended practices for e-GSE. Working with battery makers, Bill also

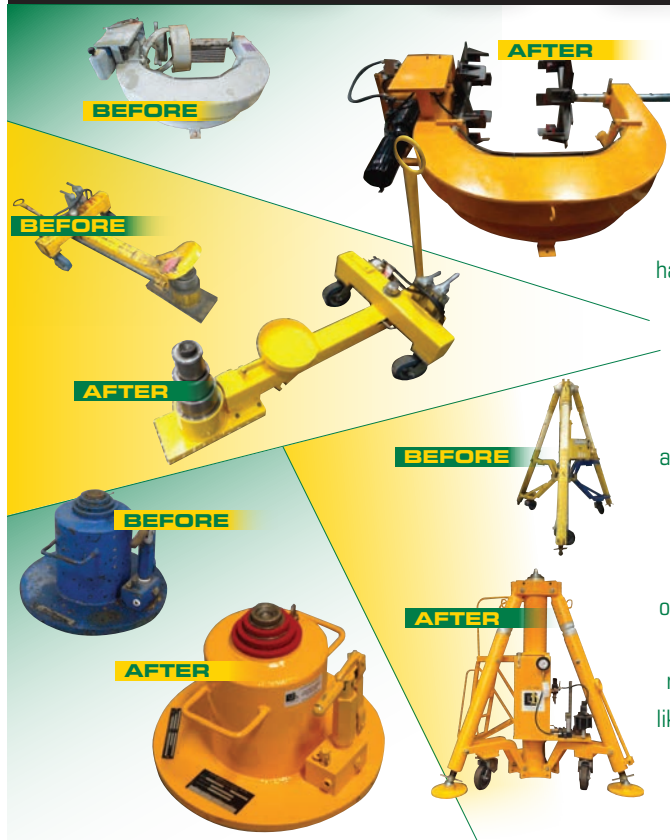


Bill Biemann

*Nancy and Bill Biemann with their son Wayne, at the start of Bill's career as a field agent for Pan American World Airways in Bermuda.*

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helped develop opportunity charging and other electric utilization on the ramp.

The SAE meetings met several times each year, with much of the work reviewed in-depth every five years for major revisions.

During these SAE meetings, Bill also met an executive named Ed Shaffrey who worked for Kersey Manufacturing, an electric mining manufacturer based in Virginia. As it turned out, that friendship would serve both men well in the many years to follow.

## BIG ORDER

By 1980, Eastern operated a major hub at what was then called Hartsfield Atlanta International Airport. As its name implies, Eastern's original success came from its decision to travel up and down the country's East Coast rather than fly from coast-to-coast.

That made Atlanta a natural choice for the airline's growth. To give an idea of just how large Eastern's Atlanta hub was, consider these figures we dug up from 1990 – the airline's last full year of business as it limped along through management mishaps and union strife:

- The airline operated around 288 daily departures from Atlanta.
  - For the year, Eastern carried almost three-quarters of its 16.5 million passenger base from Atlanta.
  - From Atlanta, Eastern served 68 destinations.
- For Bill, a major hub meant a lot of GSE.



And for Bill's boss, that meant a lot of expensive gasoline and diesel.

"The edict came from the top" Bill remembers. "Frank Borman ordered us to find alternative fuels. He was ahead of his time as far as ground support equipment goes. It's not what most airline chiefs are concerned about. But by this point, gas was around \$2 a gallon."

As a result, Bill looked at electric and liquid propane to power its GSE fleet. "The propane LP looked almost better than batteries," Bill says, "but no airport authority would want LP storage tanks anywhere near its property."

So electric it was. Bill started buying the first of 600 electric bag tractors made by Lansing-Bagnall, a UK-based material handling manufacturer. Although the tractors were distributed throughout Eastern's network, the majority went to Atlanta.

"We were leaders in the world at that time with the electric equipment," Bill adds. "The only other airline at that point to operate so much electric GSE was British Airways at Heathrow."

While the scuttlebutt remains to this day that electric equipment costs more than the price tag of new gas or diesel GSE, today's would-be e-GSE buyers can sleep easy compared to a pioneer like Bill. The electric equipment he was purchasing was *two times* the price of comparable fossil fuel models.

"We always were asked by the finance department, 'Can't you do this another way to save money?' But we could always prove the value in going with electric GSE," Bill explains.

While there certainly was a savings in fuel costs, Bill says the maintenance costs was where the higher upfront costs more than justified the decision to go electric.

"Time and time again, we could show that our cost to maintain electric GSE was two-thirds the cost to maintain the same type of equipment that ran on diesel or gas," Bill adds.

With the bag tractors in place, Bill next turned his attention to electric pushbacks. And here's where his SAE friend, Ed Shafrey, had an idea.

Ed figured a modified version of his electric mining equipment might do the trick. Built low to the ground, Bill figured the same way.

"It was perfect in every way," Bill explains, "but the main problem was the articulated front end.

For a pushback, the equipment needs to provide a straight push.

"And at the time, every pushback operation required a tow bar," he adds. "There was no such thing as towbarless – not even close."

The two met a few times and even jotted down some design improvements on a napkin over dinner. About six months later,

Ed showed Bill a prototype. There were still a couple of tweaks needed. The accelerator was too close to the brake and the steering radius wasn't quite right.

Finally, Ed's company shipped a model to Atlanta that Bill put to a 30-day test. The

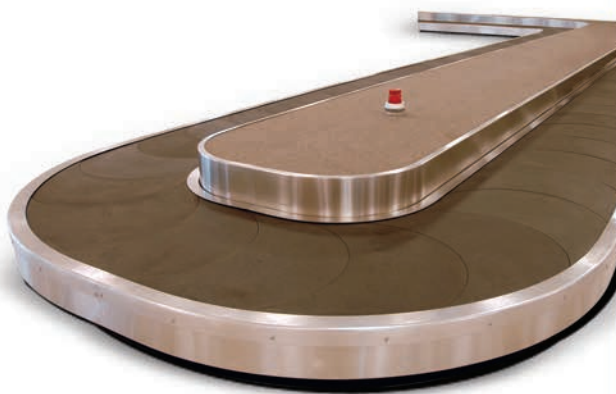


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# COVER STORY

model was stationed at a gate at the end of a terminal that had a 2-3 percent slope going away from the gate and that required a skillful turn.

Bill put the pushback through its paces, but finally the big day came when he would demo it for the airline's top brass.

"I was as nervous as I could be considering all the big bosses were there," Bill adds not sure if Frank Borman, himself, was present.

But all Bill and Ed's work to develop the new electric pushback paid off, and that day's pushback performed just as well as all the others.

"When the operation was completed, even the pilot got on his intercom and told the operator that that was the smoothest pushback he'd ever had," Bill says.

Kersey ended up selling Eastern around 40 of its modified electric pushbacks, primarily for its Atlanta hub. As with most GSE, the Kersey pushbacks went on to provide decades of service.

"A few of the vehicles ended up being

bought by Alaska Airlines after Eastern went bankrupt," Bill says. "I know for a fact that some were still in service until just a few years ago. And if you could get parts, they might still be pushing back planes."

## GSE REBUILD

Bill made one more GSE venture while at Eastern. In 1985, he was made operations manager for PRO Inc. Located in Gainesville, GA, the airline's GSE shop may be the furthest away from the ocean any of Bill's jobs have taken him.

There Bill was given an 85,000 sq. ft. build-out to outfit a shop to rebuild GSE.

"We built it just like we wanted," he adds. "We had 20-foot service bays with everything a mechanic would need right there without running all over the place to look for something."

During his time at PRO, Bill figures he worked with all types companies and models, such as Cochran & Western, TUG, Clark, John Bean Technologies, Aeroplane, Stewart & Stevenson and NMC-Wollard,

to name a few.

"They were new in every sense of the word when we got through with them," Bill says.

Not content with just rebuilding GSE, Bill ended up becoming a GSE manufacturer as well.

"Of course, none of us had done anything like that before," Bill explains, "but as it turned out building a new catering truck was less expensive than rebuilding a used model."


Bill's first catering trucks went to the Chelsea Co., at the time part of Continental's operations at Newark Liberty Airport. (The in-flight caterer is still in business and currently part of United Continental.)

But by the time Bill arrived at PRO, his employer of more than 30 years was coming to its last days. By 1985, Eastern was the largest IATA airline in terms of passengers enplaned and operated in 26 countries on three continents. However, the airline was also bleeding cash.

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industry's first no-frills airlines and pinned down by crippling union strikes, Borman sold Eastern to Frank Lorenzo in 1986 and a fixture in aviation since 1928, became a subsidiary of the Texas Air Corp.

Lorenzo ended up driving the airline into bankruptcy in 1989. By then, labor unions and management had become so embroiled over their versions of Eastern's future that they systematically tore apart one of the nation's oldest and once most-prestigious airlines. The airline shut down at midnight on Jan. 18, 1991.

## RETIREMENT NO. 1

Bill's shop didn't last quite that long. Continental was supposed to support the shop, too, but the airline never sent as much

equipment to Georgia as Eastern had. So Bill "retired" for the first time, but spent the next several years successfully working in South Florida real estate.

By 1995, however, Bill had lost his wife to cancer and he received a call from his old SAE friend again. Kersey had gone out of business, but Ed Shaffrey had joined Charlotte of America when it opened in 1993 as president and brought along other former Kersey employees that had helped engineer Bill's first electric pushback.

"Ed called and said, 'If you want a job, you've got one,' " Bill adds. Bill joined Charlotte in 1995 as the sales/marketing manager and continued on for 17 more years to do his part in building the company into an industry leader in electric GSE.

Bill retired from Charlotte last December, but quickly joined yet another industry friend. This time around, Bill joined Tim Wix, Wix Support Equipment. Tim spent about 30 years working at Delta Air Lines, ultimately serving as general manager of GSE and was responsible for more than

\$900 million worth of GSE worldwide. (For his efforts, Wix won one of our ground support leadership awards in 2006.)

After retiring from Delta, Wix worked another four years as vice president of sales for Averest Inc., before starting his own business a little over a year ago to distribute products, such as Crown Battery; Ecotality, Access Control Group and Trowin.

Wix sent us an email that summed it up simply: "I offered him a position so that he could continue to be involved in the industry."

Sounds like a good reason to us.

"I'm getting tired of retiring," Bill adds, "but I guess I'll do it a third time. ✈️"



**Bill Biemann**  
in his days  
with Eastern  
Airlines in The  
Bahamas.

Bill Biemann

## BEFORE GSE

We can make quick work of much of Bill Biemann's early career, if only because he didn't effectively get involved in GSE until 1979:

**1950s:** Bill takes his first job in his native Bermuda in 1951 as a field agent with Pan American World Airways, handling everything from reservations and ticket counter to mail and freight. Later, Bill joins Colonial Airlines handling much of the same responsibilities. Founded as Canadian Colonial Airways, the airline eventually was awarded a route to Bermuda in 1946. By the time of Bill's arrival, however, Colonial was in a dogfight as Eastern Airlines and National Airlines fought for control. So by 1956, Bill becomes an Eastern employee. By 1958, the airline promotes to airport supervisor and later to station manager.

**1960s:** Knowing a thing or two about sunshine and island living, Eastern moves Bill and his family to The Bahamas in 1966 to integrate another acquisition. This time it's Mackey Air, which was started by a former stunt pilot and U.S. Air Force colonel after WWII. The airline mainly served Florida and The Bahamas.

**1970s:** Bill eventually becomes the director of Bahamian operations in 1972. In 1976, Bill says goodbye to island living, but not to sunshine after Eastern promotes him to area manager of the Sarasota/Bradenton region of Florida.



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## IATA Refines Its Ground Damage Database

*New reporting protocols hope to tackle a \$4 billion dollar a year problem.*

*By Steve Smith*

**T**he International Air Transport Association outlined its revamped Ground Damage Database initiative to address not only ground damage, but the larger issue of ramp safety, during the association's Ground Handling Conference in Vancouver last May.

"Airlines have collected data on accidents in many different buckets on their own," said David Anderson, head of operational safety for British Airways and chairman of the GDDB. "It's not a question of the quantity of the data, but the quality of the data."

The GDDB was originally launched in

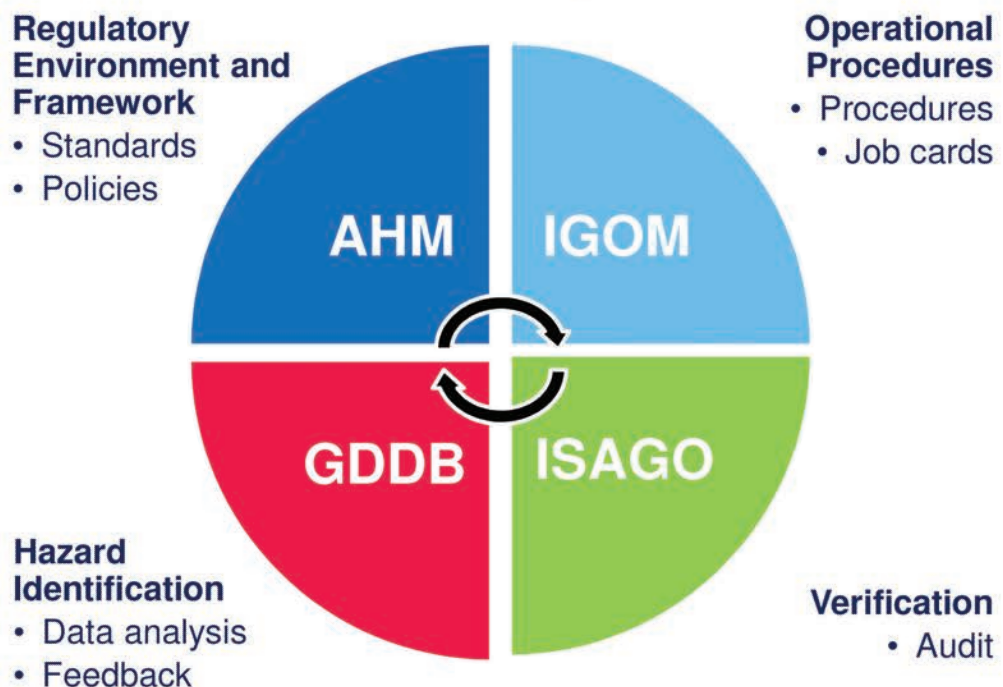
2011 to provide exactly that high-caliber quality of data which could be analyzed to determine the reasons and causes for aircraft damage. The launch in 2011, however, was purposefully done with limited membership since IATA spent time that year and in 2012 to make sure the data was reported consistently so that

it could be used to better measure the progress made against what is largely costing the aviation industry some \$4 billion annually.

"We need to be able to conduct statistical analysis on clean, defensible data," said Nancy Rockburn, assistant director, SMS and operational data management for IATA and secretary of the GDDB. "Imagine the industry without aircraft damage. That's \$4 billion that could be used to buy new planes and make other investments in the industry."

To tackle the issue, key stakeholders from the industry identified ground damage data fields as well as the parameters

## Strategy ~ Continuous Improvement Circle



*This PowerPoint slide from Nancy Rockburn shows how the GDDB information will also feed applicable IATA working groups and task forces, and, if warranted, will then drive changes to the trade association's Aircraft Handling Manual; Ground Operations Manual; and Safety Audit for Ground Operations programs.*



for how that data should be reported.

"Putting this rigor in place minimizes as much as possible any variation in the data, thereby allowing us to not only provide aggregate information back to participants, but also accurate, detailed analysis to identify trends and contribution factors," wrote Juergen Haacker, project lead, IATA Operations Data Management, last April in a letter to ground operations members to promote the GDDB.

## NEW PROTOCOLS

IATA started its new reporting protocols only since the first quarter of 2012 so the program is still very much in its infancy. For example, here is mandatory information that must be provided for "Incident Details:"

- Location details
- Aircraft details
- Ramp conditions
- Phase of operation
- Activities
- Type of damage
- Damage to aircraft
- Ground equipment
- Severity

Information of "Type of Damage" includes the following:

- Scratch/Dent/Scuff
- Puncture
- Delamination

- Tear or Crack
- Detached
- Slide Deployment

Now that the group has tackled the data quality issue Anderson mentioned, IATA now has to attract more members to buy into reporting the confidential data.

Rockburn said the GDDB currently includes reporting from 23 airlines and three ground service providers. While the locations of these firms are spread across the world, it's a thin spread since it represents about 4.5 percent of the world's flights. Only after more members take part can IATA draw any conclusions on the causes of aircraft damage.

And in some cases, some the refinements still haven't kicked in either.

For instance, an example of current GDDB information shared during the conference includes three instances of damage to landing gear caused by push-back vehicles. However, from those three, one was with a towbarless vehicle and the other two are "unknown."

IATA will also soon go to a new Web-based reporting tool with handy drop-down menus that should clear up many of these "unknown" instances with ex-

## Purpose Of The GDDB

Any airline, ground service provider, and/or airport which provides ground services are eligible to participate in the program.

The general purpose of the program is to gather and analyze global data through industry partnership:

- Provide information not otherwise possible.
- Identify trends and contributing factors allowing for the development and assessment of effective mitigation actions.
- Establish a baseline of ground damage performance in which future comparisons can be made.

amples of real equipment.

The data will go to supply IATA with further ways to reinforce many of its other safety-related programs.

The GDDB information will also feed applicable working groups and task forces, and, if warranted, will then drive changes to the following IATA programs:

- Aircraft Handling Manual
- Ground Operations Manual
- Safety Audit for Ground Operations programs. ✈️



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# How To Supply Power And Air For The F-35

*The military's latest fighter jet is significantly different from its predecessors and requires a significantly different hangar.*

*By Bryan Bullerdick, sales manager of JBT AeroTech's Jetway Aircraft Support Equipment (JASE) division*



**O**ver the last few years, Lockheed Martin has been busy manufacturing the world's latest fighter attack jet. The F-35 Joint Strike Fighter (JSF) with its three different variants is an example of the best of the best.

The F-35 JSF is a significantly different aircraft compared to legacy fighters, such as the F-18 and F-16, it's designed to replace:

- The F-35 needs 270v DC ground power, not 400 Hz.
- It also needs high-pressure cold dry air supplied to it for ground operations.

Full production of the aircraft is not expected until



2019, but hangars have been in the works for more than four years. The new hangars that support this fantastic aircraft can't be just ordinary hangars. They need to have the latest in technology and safety built into them. What used to work for hangar design doesn't necessarily apply anymore.

With a handful of these hangars 100 percent up and running and many more being built both in the United States and in some NATO countries, how is the learning curve going?

Our exclusive military distributor B GSE Group, based in Huntersville, NC, and its employees have been involved in almost every F-35 hangar design to date in some form or another.

Scott Dils, vice president of sales and marketing, B GSE Group, informs me that we are currently through most of the learning curve. Which is not to say that there haven't been a few very long years since there's been much to learn.



*The F-35 is a single-seat, single-engine, fighter jet designed for ground attack, reconnaissance and air defense missions with stealth capability and will replace different jets currently used by the U.S. Navy, Air Force and Marine Corps.*

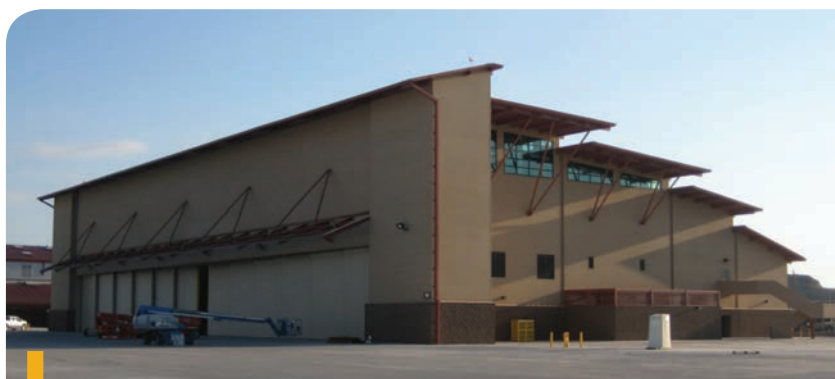
Lockheed Martin

## POWER SUPPLY

The F-35 uses 270v DC power. This power supply is more advanced and different in almost every way from 400 Hz power we are used to.

Like 28v DC, it is more difficult to have long cable runs from the power supply to the aircraft. In other words, central 270v DC systems or putting this power supply far away from the aircraft is not possible.

The F-35 is also a very smart aircraft. If the quality of the 270v DC provided from the converter, or the 28v DC E&F safety



**Although full production of the F-35 is not expected until 2019, hangars for the jet have been in the works for more than four years.**

B GSE Group

power circuit is not the perfect voltage, amperage or harmonics at the aircraft plug, the aircraft will not accept the power and will not turn on when the ground crew hits the external power switch. Nobody likes it when that happens.

Due to required, shortened 270v DC cable lengths, the power converter will most often be located in the hangar.

However, if the hangar will also service legacy aircraft, space may not be available to fit the converters along the hangar wall. Solutions have ranged from raised platforms, hangar ceiling mounts and high wall-mounting solutions. Many specialized designers have had to change the way they think if they have done 400 Hz hangars in the past and now are de-

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signing for 270v DC power.

Running these cables across the ground is also not very feasible. These

are very expensive cables that contain a lot of smaller, easily damaged conductors.

It's been a real design challenge and

the solution most widely accepted has been through subterranean service PITs.

## A Fighter Jet For All Armed Forces

The F-35 is a single-seat, single-engine, fifth generation multiuse fighter jet designed to perform ground attack, reconnaissance and air defense missions with stealth capability.

There are three variants of the F-35:

- The F-35A conventional takeoff and landing variant.
- The F-35B short take off and landing or VSTOL variant.
- The F-35C carrier variant.

The F-35 is designed to replace the A-10 and F-16 in the U.S. Air Force; the F/A-18 for the Navy; and the F/A-18 and AV-8B Harrier for the Marine Corps. Also, NATO countries, including Canada, Denmark, Italy, Turkey,

Netherlands, Norway and United Kingdom, plan on equipping their forces with the new aircraft. Israel, Japan and Singapore may equip their militaries with this aircraft as well.

The United States is projected to acquire 2,443 F-35s for its own air power. The Pentagon in the fiscal year beginning Oct. 1 plans to spend \$8.4 billion to buy 29 F-35s, including 19 for the Air Force, six for the Marine Corps and four for the Navy, according to the budget request for fiscal 2014, which begins Oct. 1. The production schedule of this new aircraft could surpass Boeing's most popular passenger aircraft, the 737.

## SERVICE PITs

Service PITs are the most popular way to provide multiple sources of required service points right at the aircraft without running any cables or hoses across the hangar floor.

It also solves the problem of taking up valuable hangar floor space and not causing potentially dangerous situations with hard-mounted podium service tables for equipment in the middle of the hangar floor.

At Luke AFB, located outside Glendale, AZ, Dils says that B GSE Group has designed, with the help of USS PIT Co., an all-in-one everything you need PIT for the F-35 – 270v DC power, 28v DC power, 120-volt receptacles, multiple 480-volt receptacles, dual shop air for pneumatic air tools, high pressure PCA for the F-35, remotes and automation like no other hangar seen to date.

Without taking up valuable hangar floor space, cable and hose to provide the F-35 with its required power and air can be brought directly into position and then stowed away under the hangar floor with the push of a button.


This product has a hydraulic pop up lid that lifts itself 3 feet in the air to provide all of this convenience. This type of pit is a graduate from the old pulley and weight design that had personnel pulling and pushing to assist it to rise up and down. With all of this equipment packed in this well-organized PIT system, there is no need to run one cable across the hanger other than from the PIT to the aircraft.

## PCA

With the F-35's multiple, complex on-board electronic systems, the PCA requirements are very difficult to provide for the F-35. Not too hot ... not too cold ... it has to be very dry air and at a higher pressure than normal commercial PCA requirements.

This balancing act would be hard enough with aircraft mobile units, but these modern hangars have to have underground trunk-line systems with the actual units outside the hanger.

B GSE Group and JBT were challenged a few years ago to come up with the first fully compliant F-35 unit called a HPC-F



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*Without taking up valuable hangar floor space, cable and hose to provide the F-35 with its required power and air can be brought directly into position and then stowed away under the hangar floor with the push of a button.*

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(High Pressure Air-Conditioner-Fixed). This is an amazing unit.

A trunk line system means that several HPC-F units are ducted into a common hard underground pipe and then divided off to each PIT location. There can be more PITs than air units so the logic to make sure every PIT has the right requirements of air with the common trunk line and multiple distances to each PIT can only be done with refined logic.

With a push of a button on the EZ access PIT remote, the operation of the PCA unit, the motorized butterfly valves and the preprogrammed fast cool down sequence is all started up. This is truly one of the most automated aircraft service PCA systems in the world.

## SAFE POWER

One power supply proven to be deadly is 480-volt power. Several types of F-35 mobile GSE need 480-volt power to be available near the F-35 in service PITS. A built-in safety system is required to ensure the airmen plugging this equipment into them do not accidentally get hurt.

B GSE Group has helped develop a "Safety Service System" that is incorporated into these PITs. This system makes it impossible to plug into an active high voltage receptacle.

All of the equipment in the service PITs in these modern hangars are required to be explosion-proof. After two years of research and development, B GSE Group now offers the fully compliant NEMA 7 explosion-proof EZ Access PIT with all of the service points required to be at the aircraft.

Careful layout and products specially made for the USS EZ Access POP UP style

PIT accomplish this. Also, whenever the PIT goes down, all power supplies are automatically shut off just in case one was left on.

## MULTIUSE

The F-35 hangars also need to be multi-squadron ready. For instance, a Harrier squadron could occupy the F-35 hangar at some point. This aircraft, like most of the other legacy fighter aircraft, is based on 400 Hz power.

Dils has worked with JBT to develop a 270v DC/400 Hz combination units. The combo units are ready to supply either generation fighter jet making the hangar ready for all squadrons. The PITs can handle the additional 400 Hz aircraft cable without any modification.

The F-35 JSF is a remarkable aircraft. The hangars being designed and built will be the most modern hangars erected to date.

The use of a new type of power supply, complex PCA requirements and the need to organize many service points underground to a single point of supply has made the F-35 hangars a modern hangar for a modern jet. ✈️

## About the author:



*Bryan Bullerick has worked in the industry since 1993 and is a B-737 retired pilot and instructor. Bullerick is the sales manager for the JBT Aerotech's new JASE division with core products in aircraft power and preconditioned air systems.*

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## Tips To Keep GSE Running Through The Summer

*Ground support equipment naturally runs hot during normal, daily operations, and that means it runs that much hotter during summer scorchers.*

By Kenneth DeVolpi and Jason Chapman, Matheson Flight Extenders

**W**ith the seasons turning to hotter weather, GSE techs need to focus on what receives the most punishment as temperatures and humidity rise over the summer.

Here are several key maintenance procedures to keep GSE in service between now and autumn. The dog days of summer really put GSE to test in two ways. First, the equipment naturally runs hot and only gets hotter by August. Second, the same applies to the

operators who get just as hot and sometimes may not follow the proper procedures while operating the equipment:

### Cooling Systems

There are several components in our equipment's cooling systems that should be inspected closely:

- Of course, the coolant level should be kept full, but the mixture should be correct as well.
- The circulation of the coolant should be checked, too. The thermostat should open at or near the proper temperature level. The radiator fan should have the blades checked for cracks, missing blades, and straightness. The fan belts should be tight and free of weather cracking.
- If the unit is equipped with a fan clutch, it should be checked to ensure that it spins with some resistance and does not freewheel. If the unit utilizes an electric fan, make sure that it engages at the proper temperature.
- Engine oil level and cleanliness is important as well. Engine oil not only lubricates and cleans engine internals, but it cools components, too.
- Starting with the radiator, the cap should seal properly and be made for the pressure required for your system. As far as the radiator goes, the fins should be straight and as clean as possible. Check through the filler hole for corrosion and buildup. If any is present, then the radiator should be flushed with a good quality radiator flush.

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- The cooling system should also be tested with a pressure tester to help locate any leaks. Check all radiator and heater hoses for cracks, blistering, and swelling. All clamps should be checked for tightness.
- If the machine is equipped with an overflow reservoir, make sure that the return hose is free of leaks and the tank is filled to the proper level.
- The water pump should be checked for leaks around the weep hole. If any coolant or coolant staining is evident, it is a sign that the shaft seals are going bad. It is a good idea to replace it now instead of waiting until it goes out completely.

## Transmissions

Summer heat is especially hard on these components, so here are a few things we can do before the heat really sets in:

- First, the transmission should be fully serviced. This includes replacing the fluid, filter and pan gasket.
- Check the cooler lines for leaks, blisters, and cracks. Make sure all clamps and fittings are tight.
- If the transmission is equipped with an external modulator, remove and check the condition of the vacuum hose. If the vacuum spigot is wet with ATF, then the modulator is bad and should be replaced.
- While you're at it, it's a good time to check the drive shaft and u-joints for tightness and play.

## Tires

Now here's an item that gets plenty of punishment during hot weather. With ramp temperatures soaring above 150 degrees in some locations, you can literally watch as the tires are ground into black powder. The heavier the equipment and the tighter it turns, the tougher it is on tires.

There are, however, a couple of things we can do to help prolong tire life:

- Whether the machine uses pneumatic or solid tires, proper alignment is crucial. Camber, caster and toe in settings must be correct for the tires to wear evenly.
- Proper rotation is important as well. If the unit uses the same tire and wheel combo front to rear, then the tires should be rotated at every PMI interval.



**Summer's heat can be just as brutal as winter's cold on batteries, transmissions and many other mechanical components of ground support equipment.**

- Tire pressure should be monitored too. Nothing will wear out a set of tires faster than running them at too low of a pressure - especially during the

summer months. The operators have to look for cuts in tires and also watch their driving speed. 🚫

**For more tips, go online:**  
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## About the authors:

*Kenneth DeVolpi, manager of sales and marketing and special projects manager, has worked for Matheson for more than three years and has been in the aviation industry for more than 20 years, including 15 years with Northwest Airlines. Jason Chapman works in the company's GSE maintenance department and gained GSE mechanical experience with the U.S. Air Force and has worked in the commercial GSE industry for 12 years.*

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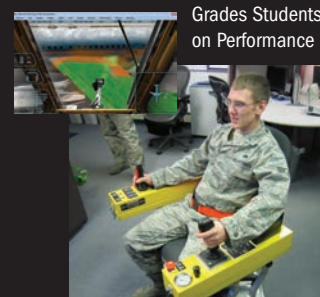
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## Know When To Leave The Ramp Before Lightning Strikes

*Detection and monitoring systems plus old-fashioned common sense can provide ramp agents with advanced warnings to prevent employee injuries and equipment damage.*

*By Kevin P. Crowley, JetBlue Airways Corp.*

**W**ith the summer season upon us, the risk for severe weather is more probable as the temperatures steadily rise and thunderstorms become more frequent.

Summer thunderstorms and other severe weather conditions reduce the normal margin of safety in an outdoor operating environment and recovery to normal operations may take time after an event.

As a result, knowing when severe weather will hit your airport is a very important element to prevent employee injuries and GSE damage.

One major concern to ground service employees is the potential for cloud-to-ground lightning. Advancements in technology have provided airline employees with more robust lightning detection, as well as lightning prediction systems that work in conjunction with the use of weather service providers.

Lightning detection systems include cloud-to-cloud as well as cloud-to-ground lightning warnings. If there is a system installed at your airport, it is important to know exactly what your local system is reporting.

Regardless of technology, however, anyone who sees lightning in the vicinity while out on the ramp should head inside until the weather passes.

### WEATHER WARNINGS

Weather service information when combined with lightning prediction and detection systems will help in making safe, accurate decisions about ramp operations when severe weather approaches.

Most of us are familiar with one such provider. The National Weather Service will provide bulletins about severe

weather. These bulletins should be monitored and all relative information communicated to ground employees to ensure safety prior to any weather event.

Another severe weather tool that can be accessed is the Airport Weather Warnings, a specialized bulletin available from the NWS in larger hub cities throughout the United States. The AWW can be set up and customized to the specific needs of an aircraft operating environment.

For more information, contact your local office of the National Oceanic and Atmospheric Administration ([www.noaa.gov](http://www.noaa.gov)) or the National Weather Service ([www.weather.gov](http://www.weather.gov)).

Airport facilities across the United States have current detection/prediction systems that produce visual and aural alarms when severe weather (thunderstorms and lightning strikes) are approaching. When these alarms are triggered, the operational areas are then cleared of all ground employees; the return to the field notifications is also made using these systems.

Some airports use several different color lights:

- Green for "all clear."
- Yellow for "warning."
- Red for "take shelter."

Some experts, however, recommend using a blue, flashing light as best for single-light systems since it is less likely to be confused with other lights.

Horns or sirens may also be used, but **must** be able to be heard above the en-

gine and equipment noise.

Automatic detection systems track storms, count and locate each lightning strike, and determine the potential for lightning strikes based on atmospheric conditions available. Many different systems are already in place in airports that are owned and maintained by either airline carriers or airport authorities.

When using a lightning detection/prediction system, the proximity of the severe weather is determined by a series of range rings on the station's lightning display map. A minimum of three proximity rings is recommended.

However, if the system setting allows for **four** proximity rings, they should be set as follows:

- 15 miles.
- 8 miles.
- 5 miles.
- 3 miles.

When a lightning bolt is indicated on the display of a lightning detection/prediction system, here are a few steps to remember when dealing with severe weather and lightning:

- At 15 miles: Local station leadership (or a designated ground operations employee) should begin monitoring storm activity and communicating alerts and ramp closures to all operating departments.
- At 8 miles: Ensure all airport operations employees have up-to-date information on the severe weather event. Local station leadership should be responsible for ensuring that a severe weather/lightning communications plan is implemented.
- At 5 miles: Be prepared to stop fueling operations.



- At 3 miles: Ground employees should discontinue aircraft communication with communications headsets.

Be prepared to stop all ramp activity and clear the ramp at 2 miles.

If the ramp is cleared due to severe weather ensure all ground employees are off the ramp and not seeking shelter under the aircraft, under any facility overhangs, near light poles or fences.

These procedural suggestions have proven effective over time. They can result in less amounts of damage when advance notification of approaching severe weather is provided or when a severe weather event occurs without warning. The implementation of lightning detection and prediction systems have been found to be effective when properly maintained.

**NOTE:** Some of these systems are prone to false positives and some predict lightning potential that may never materialize into actual strikes. This can cause airport employees to lose confidence in the warning system. These systems require human monitoring, human interpretation and continual system maintenance for more accurate atmospheric condition analysis. Systems that combine several methods of detection along with visual observation are the most effective.

## NONTECH PROTECTION

There are also a couple of nontechnological approaches to severe weather prediction:

- **The count method** is based on the principle that sound travels at approximately one-fifth of a mile per second.

The approximate distance to the storm can be determined by counting the number of seconds between the flash of lightning and the sound of thunder. Divide the number of seconds by 5 to arrive at the approximate distance of the storm in miles.

- **The 30/30 rule** recommends that outdoor activities stop following a cloud-to-ground lightning strike within 6 statute miles (corresponding to 30 seconds of time delay between the visible lightning strike and the sound of thunder) and not be resumed until 30 minutes after the last lightning strike within 6 statute miles is observed. Additional research conducted on this

rule solely for airport use on economic and operational impact reduced the "all clear" time from 30 minutes to 15 minutes after the last reported lightning strike within 6 miles of the airport.

While this could represent an increased hazard for ramp personnel, it results in a significant reduction in delay time. Again, common sense and extreme caution should always be used when confronted with lightning and thunderstorm activity.

A combination of some or all of these methods is a best practice, and some experts consider quality local prediction

systems as the single most effective tool.

Any information regarding storm activity obtained from one or more of the above methods should always be used in conjunction with information from local weather professionals. Common sense and extreme caution should always be used when confronted with lightning and thunderstorm activity.

No two events are identical, but a broad flexible plan should provide enough options and information to provide safety to the ground crews out in the operation when faced with severe weather. ✈️

## About the author:



*Kevin P. Crowley, an analyst for ground safety programs, JetBlue Airways Corp., started on the ramp in Buffalo, NY, in 1993. He's been with JetBlue for 12 years and began as an instructor at JetBlue University and taught aircraft servicing for the A320 and E190. He has additional experience in HAZMAT and dangerous goods; winter ops and deicing; and is a certified OHSA instructor.*

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## Ground Handler Develops Its Own Eco-Friendly Deicing Fluid

*Baltic Ground Services becomes the first ground handling service provider to develop, certify and produce its own eco-friendly Type I deicing fluid in Europe.*

By Steve Smith

**B**altic Ground Services, a ground service provider with services at Lithuanian, Polish and Italian airports, announced the successful certification of a new glycerine-based Type I deicing fluid called Defrosol ADF.

As a result, BGS will become the first ground service provider to develop, certify and produce its own eco-friendly

ly Type I deicing fluid in Europe.

Certified in May 2013 by AMIL, a Canadian research laboratory and SMI, a Florida-based global leader in aerospace material testing, Defrosol ADF deicing fluid is based on natural materials gained from renewable sources. The use of glycerin instead of monopropylene glycol results in a lower carbon count during the deicing process.

Defrosol ADF also comes with low aquatic toxicity as well as better anti-corrosion characteristics. The Type I deicing fluid is intended for snow, frost and other ice structure removal from aircraft.

The batch production of the fluid is expected to be launched later this year. BGS is planning to start using Defrosol ADF for the upcoming winter season.



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Defrosol ADF deicing fluid is based on natural materials gained from renewable sources.

PHOTO CREDIT: BGS

"Defrosol ADF is a perfect example of the company applying its own experience and know-how to successfully develop more quality and cost-efficient products than its third-party alternatives," said Saulius Batavicius, CEO of BGS.

The company also intends to introduce Type II deicing fluid in 2014. ✈️

## Cryotech Introduces Its Type II Deicer To Europe

Cryotech Deicing Technology, Ft. Madison, IA, and Proviron, a Belgium chemical company specializing in niche markets, have joined forces to introduce Cryotech's aircraft deicing solutions to the European market.

For more than 10 years Cryotech has manufactured Type I and Type IV propylene glycol-based aircraft deicers/anti-icers:

- Cryotech Polar Plus Type I deicer is certified to AMS standard 1424 and formulated specifically for European use. It is a triazole-free propylene glycol fluid that does not contain nonylphenol ethoxylate surfactants. Polar Plus®(80) can be diluted to desired temperature, making it an economical choice.
- Cryotech Polar Guard® Advance Type IV aircraft deicer is certified to AMS standard 1428. Polar Guard® Advance



exhibits low viscosity for easier handling, and has the lowest LOUT (Lowest Operational Use Temperature) in the industry.

This year, Cryotech and Proviron will introduce Polar Guard® II, a Type II deicer. This fluid is certified to AMS standard 1428 and specifically designed for the European market. Polar Guard® II combines low viscosity and superior sprayability with good dry out properties and low environmental impact.

Proviron will market and produce Cryotech's full line of aircraft deicing fluids in Europe. Commercial volumes will be available for the 2013-2014 deicing season. For more than 15 years, Proviron has successfully produced and marketed runway deicers in Europe and Asia.

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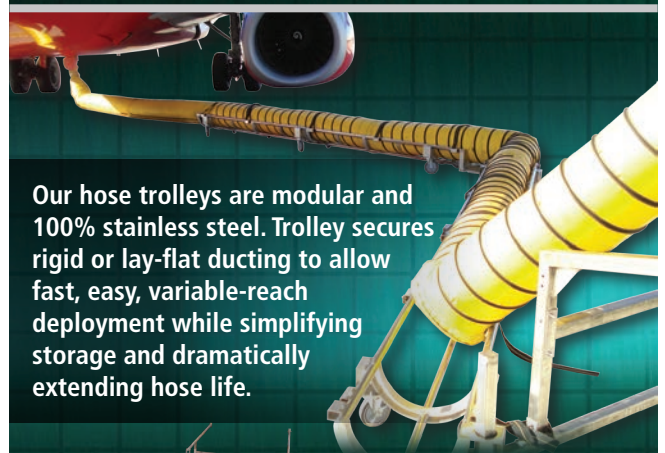
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## Deicer Specialist Ground Support Specialist LLC

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## Deicing Training Solution Leading Edge Deicing Specialists

Leading Edge is a professional training enterprise dedicated to promoting "The Clean Aircraft Concept" within the aviation industry. It offers flight, maintenance, and ramp crews a solution when they require ground icing safety training. The "Fly Clean, Fly Safe" program was designed to emphasize the use of standardized aircraft de/anti-icing methods and procedures, which are essential elements in maintaining safe operations.

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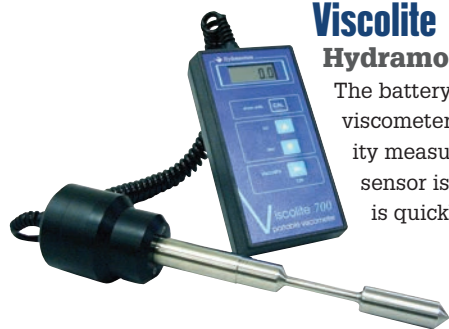
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Steve Smith

## Could Be Worse

*Having a rough day? Consider the plight of two other aviation colleagues.*

By Steve Smith

Is the grass always greener on the other side of the baggage cart? Not always, but here are two items that may make your side look better:

- **LAN Airlines suspended its flights in Argentina for one day last month due to a contract dispute with its one-and-only ground handler, the state-run Intercargo.**

Back in 2010, Argentina's government helped prop up another state-run business, in this case, Aerolíneas Argentinas, by passing a law that gave the ailing flag carrier priority to use all the country's passenger bridges.

The airline found a way to work around the law – one reason may be that it contracted with Intercargo.

But the relationship fell apart earlier this year over prices. Afterward, Intercargo took away the boarding bridges. And since the airline couldn't use the bridges, the planes were parked remotely, which meant passengers would have to take buses back and forth between terminal and plane.

Then, Intercargo said they wanted more money despite signing a contract into next year, and complained in the press that LAN pays 40 percent less than other carriers for the same services.

"No other company has benefitted as much in recent years," Intercargo said in a statement. In other words, do cry for me, Argentina.

Eventually, Intercargo stopped providing much of anything to the airline. Not even buses to transport the passengers.

But LAN planes were soon back in the air after both airline and ground service provider reached some type of an accord. What the terms of that deal are, however, remain a mystery. But you have to figure that its one-day "boycott" wasn't going to work against a

state-run monopoly.

We could only find this report that says the airline vowed to "pay its debt" and pay Intercargo "full fares." And those full fares? LAN sources said Intercargo charges the highest fees in the Americas, a natural tendency when you're the only company in town.

- **At press time, we heard better news for Swissport over a prolonged legal battle in Ukraine, which we wrote about in our May issue ("Swissport Loses Out In Ukraine ... For Now").**

Ukraine International Airlines and its main shareholder, Aaron Mayberg, took the ground service provider and joint venture partner to court after majority shareholder Swissport may ... or may not ... have mentioned a plan to increase its capital into Swissport Ukraine, which Swissport may ... or may not ... have actually done.

Two Ukraine courts agreed on the "may" and handed the whole company over to UIA, but did so in such dubious fashion that the jury – not that there was one – may still be out on the "may not."

After Swissport put diplomatic pressure on the government, officials keen to integrate with the European Union launched a committee to investigate "looting and expropriation" and met twice with Swissport.

Finally, the highest such appeals court in Ukraine will open hearings in June on the legal decision that allowed UIA to take over a \$30 million operations for a mere \$400,000.

A stylized, handwritten signature in black ink, likely belonging to Steve Smith.

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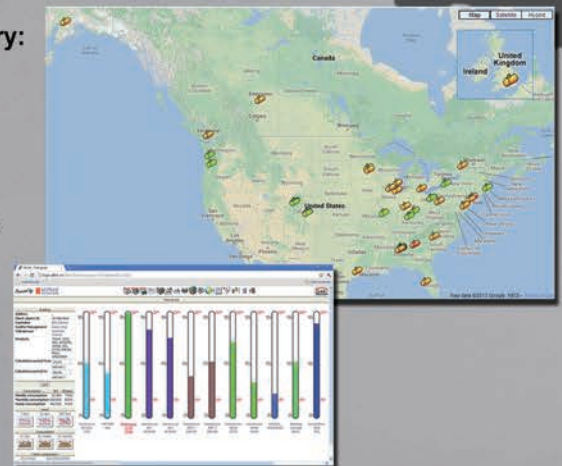
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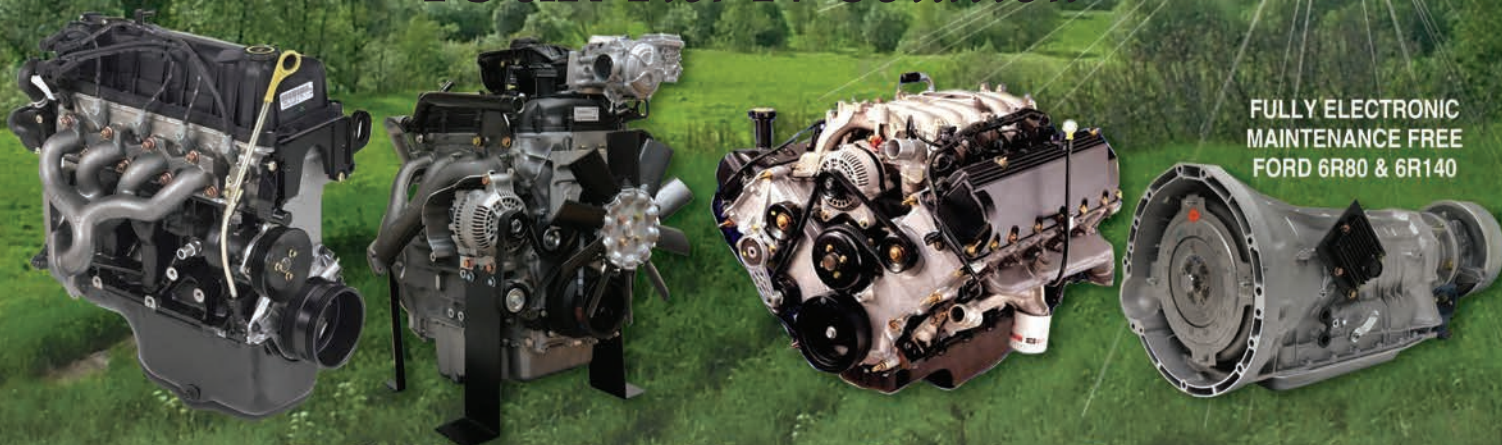
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