

TRACTORS,  
PUSHBACKS  
& UTILITY  
VEHICLES

OCTOBER 2016

# Ground Support

WORLDWIDE

Supporting Aviation from the Ground Up

## LEARNING THE AIRCRAFT GROUND HANDLING PROCESS

### INTERNATIONAL Cuba Service Brings Big Questions

Airlines are restarting service from the U.S. to Cuba for the first time in 50 years, but questions remain about demand and how airports will be impacted.  
Page 18



Your CONDUIT to Performance.™

# INNOVATI



- Single piece replaceable plug with integrally molded HARDNOSE™ Tip.
- Superior Design - eliminates potential for liquid to enter high voltage electrical connections.
- Cutting edge technology ensures durability and extended life of all components.



- Innovative safety features protects aircraft and personell.



## PAGE IS INNOVATIVE:

The airline industry spoke and PAGE listened! Known as the industry leader in innovation and for bringing new products to market, PAGE is introducing our completely unique PCAir Connector with a built-in swivel, 'high flow' screen, the industry's best and only 'snap-in' gasket. As well a stronger, better and easier way to install Baggage Chute. A new digital 400 Hz Reactive Load Bank and the industry's best Dekal Resistive Load Bank.

## CONTACT PAGE ABOUT OUR COMPLETE LINE OF INNOVATIVE PRODUCTS!

[www.pageindustries.com](http://www.pageindustries.com) • [sales@pageindustries.com](mailto:sales@pageindustries.com)

Visit  
**PAGE**  
at the

INTERNATIONAL  
**GSE**  
EXPO

Las Vegas in  
Booth #465!



# ONS THAT WORK.

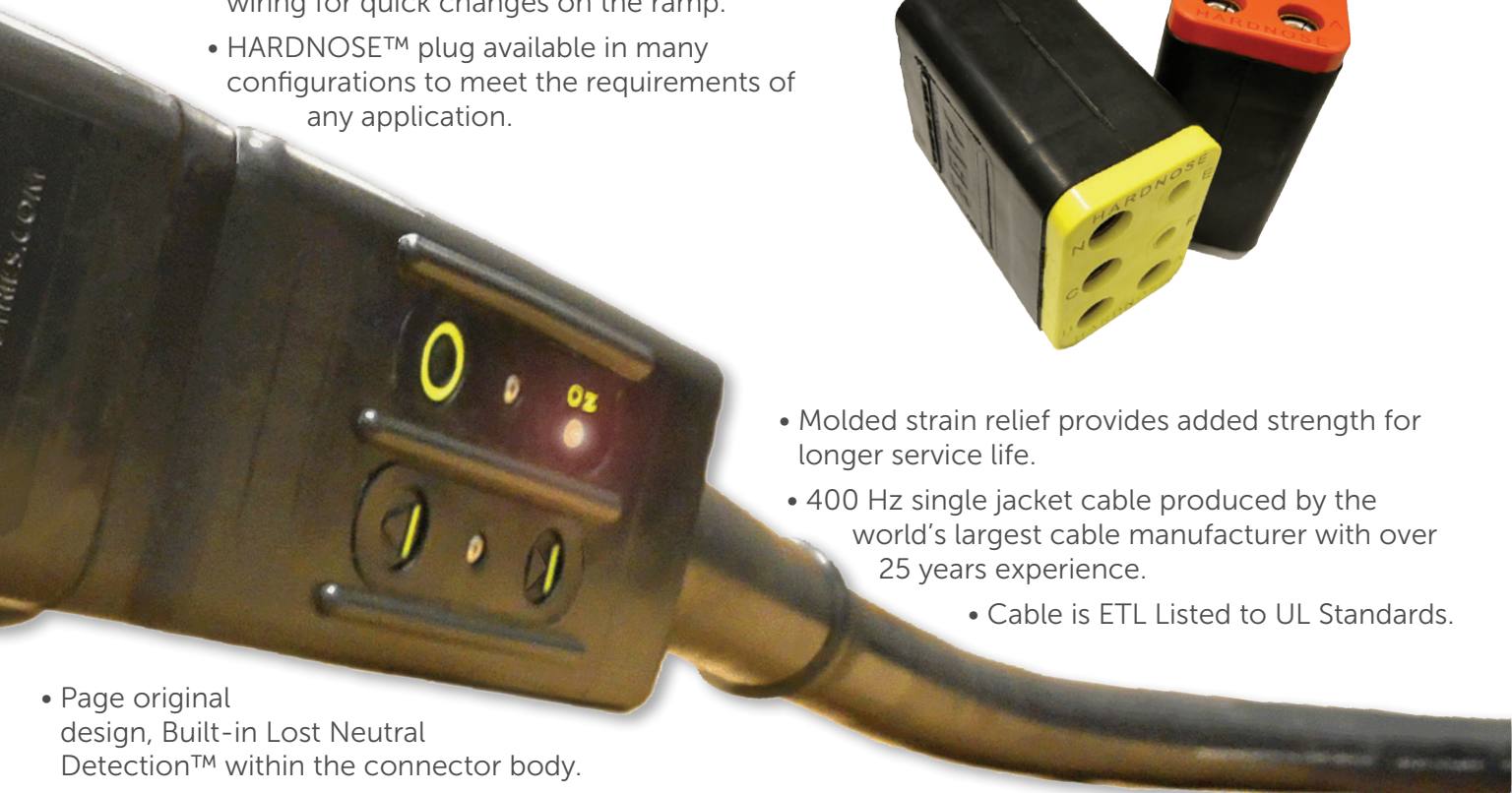


- Replaceable modular switches require no wiring for quick changes on the ramp.
- HARDNOSE™ plug available in many configurations to meet the requirements of any application.



- Molded strain relief provides added strength for longer service life.
- 400 Hz single jacket cable produced by the world's largest cable manufacturer with over 25 years experience.
- Cable is ETL Listed to UL Standards.

- Page original design, Built-in Lost Neutral Detection™ within the connector body.



## OUR CABLE ASSEMBLY IS THE BEST:

Page's modular single jacket high performance six around one cable assemblies provide the finest features in the industry today. The built in safety features provide an extra level of insurance to protect operators and the aircraft being serviced. Only PAGE's Aircraft Ground Power Cable offers redundant thermal protection in the nose and in the connector, AND lost neutral protection making this the safest cable assembly available.

**PAGE Industries, Inc.**  
**1-707-469-PAGE (7243)**



Your CONDUIT to Performance.™

Published by SouthComm Business Media, Inc.  
PO Box 803 • 1233 Janesville Ave  
Fort Atkinson WI 53538  
920-563-6388 • 800-547-7377  
Vol. 24, No. 8

**Editor**

Josh Smith  
920.563.1644 ► jsmith@AviationPros.com

**Publisher/Sales**

Missy Zingsheim  
920.563.1665 ► missy@AviationPros.com

**Classified Advertising**

Michelle Scherer  
920.568.8314 ► mscherer@AviationPros.com

**International Sales Manager**

Stephanie Painter  
+44 1634 829386 ► fax +44 1634 281504  
Stephanie@painter-lowie.com

**List Rental**

Elizabeth Jackson  
847.492.1350 ext. 18 ► ejackson@meritdirect.com

**PRODUCTION & CIRCULATION****Art Director**

Rhonda Cousin

**Production Manager**

Carmen Seeber  
920.568.8373 ► carmen.seeber@AviationPros.com

**Audience Development Manager**

Debbie Dumke  
920.568.1763 ► ddumke@southcomm.com

**Production Director**

Steve Swick

**INTERNATIONAL AIRPORT GSE EXPO****Trade Show Director**

Sue Ralston  
920.563.1655 ► sue@AviationPros.com

**AVIATIONPROS GROUP**

Gloria Cosby ► Executive Vice President  
Gerry Whitty ► VP, Marketing  
Lester Craft ► Director of Digital  
Business Development

**SOUTHCOMM BUSINESS MEDIA**

Chris Ferrell ► CEO

Blair Johnson ► COO

Eric Kammerzell ► VP, Technology

Curt Pordes ► VP, Production Operations

**Subscription Customer Service**

877-382-9187, 847-558-7598  
Circ.groundsupportworldwide@a.com  
PO Box 3257 Northbrook, IL 60065-3257

Ground Support Worldwide (USPS 0015-386), (ISSN 1934-2861 print; ISSN 2150-4016 online) is published 10 times per year in February, March, April, May, June/July, August, September, October, November and December/January by SouthComm Business Media, LLC, 1233 Janesville Ave, Fort Atkinson, WI 53538. Periodicals postage paid at Fort Atkinson, WI 53538 and additional mailing offices. POSTMASTER: Send address changes to Ground Support Worldwide, PO Box 3257, Northbrook, IL 60065-3257. Canada Post PM40612608. Return undeliverable Canadian addresses to: Ground Support Worldwide PO Box 25542, London, ON N6C 6B2.

Subscriptions: Individual print and digital subscriptions are available without charge to qualified subscribers worldwide. Please visit [www.aviationpros.com](http://www.aviationpros.com) and click on "Subscribe". Publisher reserves the right to reject non-qualified subscriptions. Subscription prices: U.S. \$46 per year, \$88 two year; Canada/Mexico \$67 per year, \$124 two year; All other countries \$98 per year, \$185 two year. All subscriptions payable in U.S. funds, drawn on U.S. bank. Canadian GST#R42773848. Back issue \$10 prepaid, if available. Printed in the USA. Copyright 2016 SouthComm Business Media, LLC.

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recordings or any information storage or retrieval system, without permission from the publisher.

SouthComm Business Media, LLC does not assume and hereby disclaims any liability to any person or company for any loss or damage caused by errors or omissions in the material herein, regardless of whether such errors result from negligence, accident or any other cause whatsoever. The views and opinions in the articles herein are not to be taken as official expressions of the publishers, unless so stated. The publishers do not warrant, either expressly or by implication, the factual accuracy of the articles herein, nor do they warrant any views or opinions offered by the authors of said articles.

**▲ COVER STORY**

## 30 Leaning the Aircraft Ground Handling Process

Taking a lean management approach can help streamline procedures for a more efficient operation.

**► INTERNATIONAL/FEATURE**

## 12 Textron Takes on the GSE Market

Rhode Island-based company acquires TUG, Douglas and Premier. What does this mean for you?

## 18 Cuba Service Brings Big Questions

Airlines are restarting service from the U.S. to Cuba for the first time in 50 years, but questions remain about demand and how airports will be impacted.

## 24 Are You Taking Responsibility for Safe and Effective ULD Operations and Handling?

## 34 Ramp Hazards

## 38 What is IATA Resolution 753?

## 42 Revealing the 'Sources' for Safety Information

## 46 Trial By Ice

## 52 Southwest Airlines Goes Electric with Lead Batteries for its Baggage Tractors and Belt Loaders

**► DEPARTMENTS**

## 6 Business Buzz

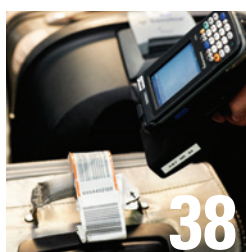
## 56 Product Hangar

## 65 Classified Advertising

**► COLUMNS**

## 5 Publisher's Note

## 66 Editor's Note







▲ Publisher -  
Missy Zingsheim  
missy@aviationpros.com  
920-563-1665

# The International Airport GSE Expo is Here

Worth the wait, this year's event has a lot for you to enjoy.

## WE MADE IT!

We have been talking about it for over a year, The International Airport GSE Expo. It felt like it would never come, but WE ARE HERE! I can't tell you how excited I am for this show, it has been a crazy ride, and myself and the entire staff have really enjoyed putting the show together this year. I also want to thank the GSE Leaders Golf Sponsors this year for letting us put on what will be a fun event again this year at our new location.

Now on to real business, the new Editor, Josh Smith will be at the show, and I am thrilled to take him around and introduce him to as many of you as I possibly can. I know that you will wel-

come him into the industry and help him learn as much about the operations and the equipment as he can retain for one event. Please feel free to talk his 'ear off!' There is no better teacher than each and every one of you.

Also at the event don't forget to come to the opening night reception on Tuesday from 3 p.m. – 4 p.m. where we will be recognizing this year's Ground Support Leaders of the Year Award winners. As always thank you for reading and SEE YOU IN VEGAS!!!

## ► Advertiser's Index

A T Juniper.....	59	Goldhofer.....	36	PowerStow.....	26
AERO Specialties.....	55	Ground Support Specialist.....	20	Safety Systems & Controls, Inc.....	64
Aeroservicios.....	64	Haskel.....	51	Satellite Specialized Transportation Inc.....	63
Air Ocean Pros.....	63	ITW GSE Hobart.....	27	Servicore.....	60
Alberth Aviation.....	63	Hydraulics Intl.....	55	SkyMark Refuelers.....	29
Allen Energy.....	15	Kato Engineering.....	19	Smith Transportation Equipment.....	50
Averest.....	59	Kubota Engine.....	23	Telephonics.....	41
Beta Fueling Systems.....	25	Lektro.....	61	Textron GSE.....	32
Charlotte.....	11	Lift-A-Loft.....	57	Timsan.....	39
Columbus Jack.....	57	Mallaghan GSE.....	49	TNA – Aviation Technologies.....	60
Continental Tire.....	33	MCM Engineering.....	53	Trepel Airport Equipment GMBH.....	44
David Clark Company.....	21	Mercury GSE.....	64	Trinity Highway Rentals.....	48
Engine Distributors.....	68	Myslik, Inc.....	37	Tronair.....	67
Equipment Depot.....	28	Otto Engineering, Inc.....	63	U.S. Airmotive GSE.....	54
FAST.....	7	Page Industries.....	2-3	Unitron Power Systems.....	9
Fortbrand Services Inc.....	63	Par-Kan.....	17	Vestergaard Company.....	13
Global Aviation Services.....	63	Powertrain Control Solutions (PCS).....	43	Vogel Equipment.....	61
Global Ground Support.....	47	Phoenix Metal Products.....	58	Xcēd Aviation Services.....	45

### SOCIAL MEDIA & ONLINE CONTENT



FACEBOOK  
facebook.com/  
AviationPros



TWITTER  
@aviation\_pros



LINKEDIN  
linkedin.com/groups/  
1763027



YOUTUBE  
youtube.com/user/  
AviationProsVideos

## ► Upcoming Events

### November 1-3

NBAA

Orlando, FL

### December 6-8

MEBAA Show 2016

Dubai, United Arab Emirates

### April 22-26, 2017

International Aviation Snow Symposium

Buffalo, NY

### April 25-27, 2017

GSE & Ramp-Ops Conference

Milan, Italy

### April 25-27, 2017

MRO Americas

Orlando, FL

### May 21-24, 2017

20th IATA Ground Handling Conference

Bangkok, Thailand

INTERNATIONAL  
AIRPORT  
**GSE**  
EXPO

### Rio All-Suite Hotel and Casino

Las, Vegas, NV

Oct. 18 10 a.m. - 4 p.m.

Oct. 19 10 a.m. - 4 p.m.

Oct. 20 10 a.m. - 1 p.m.

Visit

**www.GSEexpo.com**  
for additional details.

## BUSINESS BUZZ

## ► TOP NEWS

### Menzies to Acquire ASIG from BBA Aviation

Menzies, the logistics and support specialist providing services to the international airline sector, announces the proposed acquisition of ASIG, an aviation services provider and a leading independent fueling services provider, for an enterprise value of \$202 million from owner BBA Aviation.

Dr. Dermot Smurfit, chairman of Menzies, said: "This is a transformational deal for Menzies and will significantly increase Menzies Aviation's footprint globally while also adding fueling to our operations. The transaction will create one of the largest aviation services businesses in the world, doubling the size of our North American operations, while strengthening Menzies Aviation's service offering at major international gateways such as London Heathrow, San Francisco, Denver and Los Angeles. The Board is confident of realizing significant cost synergies following the acquisition and it is expected to deliver material enhancement in underlying earnings per share in its first full financial year of ownership."

ASIG is one of the largest independent providers of commercial airline services in the world. Headquartered in Orlando, FL, it currently has operations in 88 locations across seven countries and is one of the market leaders for into plane fueling and fuel farm management services in North America and the UK, where it also has ground handling operations in high-traffic airports as well as small and medium sized airports. For the year ended Dec. 31, 2015, ASIG achieved revenues of \$415.8 million (£272.0 million).

### Chicago Rockford International Airport Leases Warehouse to New Cargo Carrier

Chicago Rockford International Airport signed a new lease with ABX Air, an international airfreight company based in Wilmington, OH, as part of a cargo deal that will bring more than 50 mostly part-time jobs. A

Boeing 767 cargo jet will buzz in and out of Chicago Rockford International Airport each day beginning in September, and the freight operation will grow to two flights a day in October, three a day in November and up to five a day by the end of the year.

The air cargo firm is teaming with Pinnacle Logistics to provide freight-handling services on the ground. Pinnacle already has hired 54 people – mostly part-time package handlers and forklift operators and a few full-time managers – to handle the loading and unloading of freight that will come to Rockford by air and leave by truck.

For now, Pinnacle has a month-to-month lease for about half of the airport's warehouse – 32,000 square feet at a rate of \$5.50 per square foot, or \$14,667 a month. ABX Air will fly to Rockford seven days a week, with flights arriving and departing from the airport throughout the day and night.



### Vanderlande Unveils New Headquarters

Vanderlande has officially opened the doors to its new office building in Veghel. A formal ceremony was held in September, and a commemorative brick was laid in celebration of the event. The names of seven Vanderlande employees – who have each been with the company for more than 45 years – were inscribed on the brick.

The innovative structure is spread across eight floors, a ground floor and a basement, and covers an expansive 19,500m<sup>2</sup>. A number of the company's employee suggestions were implemented during the build, and consideration was given to ergonomic concerns, such as light, space and noise levels. It has been certified 'excellent' by BREEAM, highlighting its commitment to creating a sustainable future.

"Effectively, it was designed to be as comfortable as possible," says Vanderlande's CEO Govert Hamers. "Everyone I speak to





THE NEW WASP, INC.

# WASP *IS NOW* FAST

## *GLOBAL SOLUTIONS*



We're getting bigger and faster to serve you even better. **WASP** Inc. — manufacturer of the high-quality GSE you've used for decades — is now **FAST** Global Solutions. We grew our team and workspace by 60% last year, and we added \$12 million in advanced production equipment throughout 500,000 square feet of workspace. We're ready to partner with you at high speed.

See what else is new at booth **365** during the **International Airport GSE Expo**

*FIND OUT HOW THE WORLD'S LARGEST NON-POWERED GSE MANUFACTURER IS EVEN BIGGER... AND **FASTER!***

**www.FASTsolutions.com // GSEsales@FASTsolutions.com // 320-334-2868**

is excited and proud to work in such a spectacular office. It is a highly impressive structure, and will be a welcoming space in which to entertain our visitors and clients.”



### QA Cargo Adopts Cargo-XML

Qatar Airways Cargo has announced that it has become the first carrier to fully adopt, implement and integrate the next-generation messaging standard, Cargo Extensible Mark-up Language or Cargo-XML, in its core cargo management system – CROAMIS.

The Cargo-XML messaging is an initiative mandated by International Air Transport Association (IATA) as a preferred standard for electronic communication between airlines and other air cargo stakeholders such as shippers, freight forwarders, ground-handling agents, regulators, as well as Customs and security agencies.

IATA's Cargo-XML eliminates the constraints posed by the traditional Cargo Interchange Message Procedures (Cargo-IMP) standard and is designed to promote greater and seamless data interfaces. The new messaging standard, while providing better data quality, will also simplify the electronic data interchange between airlines and other air cargo stakeholders.

### New Customs Declaration at Amsterdam Airport Schiphol

Dutch Customs has teamed up with the Schiphol cargo community to launch a new simplified e-commerce declaration called VENUE.

VENUE has been designed to help shippers import and export items that are being purchased via e-commerce platforms – such as fashion, personal

care, and homeware – throughout the Union Customs Code transition period, which ends in January 2021.

“Together with Dutch Customs we are engaged in cooperating with stakeholders at the airport to find new ways of working which can further improve efficiencies,” said **Saskia van Pelt**, business development director, Schiphol Cargo.

“The air cargo market is changing and we are seeing a huge increase in e-commerce parcels. At Schiphol we are focused on ensuring we continue to provide a high quality, efficient service for our e-commerce customers and VENUE will help us to do just that.”



### Boeing Forecasts Demand in China for 6,810 Airplanes, Valued at \$1 Trillion

Boeing, China's leading provider of commercial airplanes, projects a demand for 6,810 new airplanes in the country over the next 20 years. Boeing released its annual China Current Market Outlook (CMO), estimating the total value of those new airplanes at \$1.025 trillion. China becomes the first trillion dollar aviation market in Boeing's forecast.

“As China transitions to a more consumer-based economy, aviation will play a key role in its economic development,” said Randy Tinseth, vice president of marketing, Boeing Commercial Airplanes. “Because travel and transportation are key services, we expect to see passenger traffic grow 6.4 percent annually in China over the next 20 years.”

Boeing predicts China will need 5,110 new single-aisle airplanes through 2035, accounting for 75 percent of the total new deliveries. Low-cost carriers and

full-service airlines have been adding airplanes and expanding new point-to-point services to cater for both leisure and business travel demand from a rising middle class in China and throughout Asia.

## ► NEW DEALS

### Semmco Appoints FL Technics as Distribution Partner for GSE

FL Technics, a global provider of integrated aircraft maintenance, repair and overhaul services, signed a cooperation agreement with Semmco, a UK-based manufacturer of ground support equipment and aviation access platforms. Under the agreement, FL Technics will act as Semmco's exclusive representative in 24 countries across Southeast Asia, Eastern Europe and the CIS.

FL Technics will exclusively supply Semmco's products in Myanmar, Laos, the Philippines, Cambodia, Nepal, Bangladesh, Bulgaria, Hungary, Slovakia, Latvia and Lithuania, as well as acting as company's agent and reseller in Russia and the CIS region.

Semmco products include: aviation access platforms, nitrogen gas generation systems, nitrogen & oxygen trolleys (fixed and demountable), wheel and brake changers, service carts, Cryo carts, plus products designed for Airbus A320 FAM, Boeing 737 NG/CL and other civil and military aircraft. For more information, visit [www.semmco.com](http://www.semmco.com).

### Golden Gate Capital Acquires Tronair

Golden Gate Capital, a leading private equity investment firm, today announced that it has acquired Tronair Parent, Inc. from Levine Leichtman Capital Partners. Tronair will remain headquartered in Holland, OH, and will



continue to be led by its current senior management team, including President and CEO Harley Kaplan. Terms of the



# ALL-IN-ONE GATE POWER SOLUTION



## JetLinkSys®

- Single System of Frequency Converter & Cable Handling Solution
- 400Hz, 28VDC, or 270VDC Outputs
- CE Mark, and CSA Certified
- Certified to UL 1012
- Bridge-Mounted or Fixed Installation Options
- Frequency Conversion Ranging from 20kVA to 180kVA
- Facilitates Cables up to 100 feet

**Join us at the GSE Expo in Las Vegas!**  
**Booth #1020**



Tel: +1-214-340-8600 or  
+1-800-527-1279

Sales@Unitronlp.com  
www.UnitronLP.com

transaction were not disclosed.

“Tronair has successfully differentiated itself through best-in-class engineering capabilities and a collaborative customer approach, resulting in innovative solutions that support safe and efficient aircraft ground operations. We are excited to partner with Tronair management as the Company continues to execute on its strategy to build the industry’s leading ground support equipment platform,” said Rajeev Amara, managing director at Golden Gate Capital. “Our investment in Tronair demonstrates our commitment to partnering with high quality aerospace and capital equipment businesses to turbocharge their growth and enhance their strategic relevance.”

Harley Kaplan, Tronair’s president and CEO, commented, “We look forward to working with Golden Gate Capital to continue our positive momentum in the marketplace – driving growth throughout our product portfolio by continuing to deliver value for our customers. With Golden Gate Capital’s operational expertise and financial support, we will be well-positioned to bolster our market leading position while continuing to deliver the high quality, innovative products and leading customer service for which we are known.”

Tronair, based in Holland, OH, is the global leader in the design, manufacture, and sale of ground support equipment for business, commercial and military aircraft. Tronair’s broad and innovative product line of GSE, comprised of over 1,500 products, is used by over 350 unique aircraft platforms.

### Phillips 66 Aviation Renews Five FBO Contracts



Phillips 66 Aviation announced that five of its fixed base operators (FBOs) have renewed contracts, signing on to continue providing Phillips 66 Aviation branded high-performance fuel to its customers.

**AAR Aircraft Services** – Forty years branded Phillips 66 Aviation: The full-service FBO supports Will Rogers World Air-

port (KOKC) in Oklahoma City, OK.

**City of Enid** – Eight years branded Phillips 66 Aviation: Servicing Enid Woodring Regional Airport (KWDG) in Enid, OK.

**Hays Aircraft** – Thirteen years branded Phillips 66 Aviation: Servicing Hays Regional Airport (KHYS) in Hays, KS. In addition to providing fuel services for both general aviation aircraft and the scheduled air carrier, Hays Aircraft has a contract to provide fueling services for military aircraft.

**Kansas City Aviation** – Nineteen years branded Phillips 66 Aviation: The full-service FBO offers many amenities at its Olathe, KS, (KOJC) location, including no ramp fees.

**Valley Airways** – Thirty years branded Phillips 66 Aviation: Valley Airways services travelers at Western Nebraska Regional Airport (KBFF) in Scottsbluff, NE.

### Jetex Awarded Official FBO and Handler for the MEBA Show 2016

Jetex Flight Support has been appointed as the official FBO and handler for the Middle East & North Africa Business Aviation Association (MEBAA) Show 2016, organised by F&E Aerospace on behalf of MEBAA at DWC, Airshow Site from 6 to 8 December.

“This agreement is a testament to the quality standards Jetex offers to their valued clients. We have been pleased to partner Jetex for the past two years to successfully curate some of the most significant business aviation shows within the MENA region, including the MEBAA Show 2014 and the Dubai Airshow 2015,” said Michele van Akelien, Managing Director of F&E.

Jetex will provide full flight support services for all business aviation flights operating from its newly-built VIP terminal at the Aviation District in DWC. Jetex will also offer bespoke FBO facilities for passengers and crew, in addition to customers and immigration services, visa arrangements, aircraft parking, and coordination of aircraft display areas at

the MEBAA Show 2016.

“We are thankful to F&E Aerospace and MEBAA for this opportunity to further strengthen our reputation as one of the leading general aviation service providers across the Middle East. Our skilled and friendly team of ground handlers and customer service professionals are dedicated to ensuring the best possible personalised services for all our valued clients,” said Adel Mardini, CEO and President of Jetex.

The Jetex Dubai FBO is a 24-hour facility, offering round-the-clock customs clearance catered specifically to private, business and government VIP travellers. Featuring dedicated executive passenger and crew lounges, Jetex is the first FBO in Dubai to be awarded the IS-BAH certification. The Jetex Dubai FBO offers a complete scope of services that includes all FBO and ramp services, in addition to concierge services for those seeking VIP transportation or hotel accommodations.

### Meridian Selects Epic Fuels to Supply West Coast Expansion

Epic Fuel announced that Meridian has selected the company as the branded fuel supplier for Meridian’s new fixed-base operations (FBO) at Hayward Executive Airport (HWD) in Hayward, CA.

The FBO features a newly constructed 6,300-square-foot FBO terminal and offices, a spacious 30,000-square-foot hangar, able to accommodate any corporate aircraft up to and including a Global Express and Gulfstream G650, and a 3.5-acre ramp. Additionally, Meridian will provide charter and management services, and eventually a Part 145 repair station and aircraft detailing at Hayward. Jet and avgas will be supplied by EPIC Fuels and the FBO will also accept the EPIC Card.

Meridian, which has a 50-year lease on the property, says that a second 12,000-square-foot terminal, two 40,000-square-foot hangars and an additional seven acres of ramp space will be added in the near future.





**ELECTRIC  
DIESEL  
GASOLINE  
CHARLATTE**

# Textron Takes on the GSE Market

Rhode Island-based company acquires TUG, Douglas and Premier. What does this mean for you?

*By Jen Bradley*

**T**extron Inc. has entered the world of ground support equipment in a big way and with a strong global presence. The names TUG, Douglas and Premier are not new to this industry, but combined under the Textron umbrella, the three companies are the foundation of Textron GSE, a new umbrella for the Ground Support Equipment (GSE) business of the Rhode Island-based manufacturer of products as diverse as Cessna and Beechcraft airplanes, Bell Helicopters, and a multitude of other well known goods across a variety of industries.

"Textron's goal is to provide customers with

innovative products and services," says Matt Chaffin, vice president and general manager, GSE for Textron Specialized Vehicles Inc., a division of Textron headquartered in Augusta, GA, that, in addition to the aforementioned GSE brands and products, also manufactures a range of vehicles.

## The package deal – for GSE

Two years ago, Textron purchased TUG Technologies Corp. which produces air conditioners, tow tractors, air starts, baggage tractors, belt loaders, ground power units and heaters. Then, Douglas Equipment's 90 employees were brought into the





# LESS TIME, **LESS** FLUID

OPTIMIZE YOUR DE-ICING



## ELEPHANT<sup>®</sup> BETA

*The Elephant<sup>®</sup> Beta de-icer provides the shortest spray distance and the largest operating range suitable for all commercial aircraft including A380.*

### MAJOR BENEFITS:

- » Reaching longer and higher
- » Reduced fluid consumption
- » Reduced minutes per operation
- » Reduced fuel consumption
- » Reduced CO<sub>2</sub> emissions

INTERNATIONAL  
AIRPORT  
**GSE**  
EXPO

VISIT US OUTSIDE AT 1812  
AT THE RIO, LAS VEGAS  
**OCTOBER 18-20, 2016**

COMPANY  
**VESTERGAARD**  
Visit [www.vestergaardcompany.com](http://www.vestergaardcompany.com)



Textron family to continue their work in manufacturing towbarless and conventional aircraft tractors, as well as runway friction measurement systems. In May of this year, Textron also acquired deicer manufacturer Premier Engineering & Manufacturing of Marinette, WI, keeping its previous owner as director of operations and 50 employees on staff.

"We're starting to wrap a bow around what we're doing in the GSE industry, and want to send the message that we're bigger than TUG, bigger than just Douglas and bigger than just Premier," says Chaffin.

That "bow" will be made public at the upcoming International Airport GSE Expo in Las Vegas, when Textron GSE's launch is formally announced and the brand consolidation made known to the GSE industry leaders.

Brad Compton, vice president of global sales at Textron GSE, says it's exciting to be a part of this segment in Textron's history. He says Textron GSE is a "mother ship" with well-known and proven brand names, now

offering more solutions in one phone call and single point of contact.

"The customer will be excited," Compton adds. "Pick a major airline. No matter where they are in the world, we can offer them 70 percent of what they need. For them, they're not calling multiple people and we are there. We're close to every operation they may have in terms of support, which is key."

### Commitment to continued quality

"Unless you paid attention to the newspapers, you might not have even known this occurred," Chaffin says. "The vehicles all say TUG, Douglas or Premier and will continue to."

Then why the merger? Chaffin says it's to create a single touchpoint for the customer of any Textron GSE company. Whether for equipment, parts or even training, he says one phone call will be able to meet all those needs.

Textron's global presence is also a huge factor in this equation, Chaffin says,

explaining that Textron is located in more than 25 countries through sales, service and manufacturing facilities.

"We want to leverage that," he explains. "We want to build off the synergies that network provides, to be able to have parts available in strategic areas around the world, so we can better serve the region that's buying."

Compton agrees, saying that Textron GSE now offers customers a global reach, not only with strong shipments, but closer proximity to them with factories and service centers. He also says that the existing TUG, Douglas and Premier brand quality is there, calling it the "bread and butter of the bloodline."

While customers may be wondering what will happen next, Compton feels Textron GSE is strong enough to carry this forward, and that customers should feel confident that it (and their favorite GSE providers) will be around for a long time.

"We focus on quality, but also on letting our customers know we won't build a few units and then go away," he says. "This is a





WORKS OVERTIME. NEVER STOPS FOR WATER.



NexSys® batteries are virtually maintenance-free and never require watering, greatly reducing labor costs associated with having to locate and track equipment. Plus, you can avoid the risk of over-watering and spilling that can damage equipment or the airport ramp. Combining both advanced design with robust materials, NexSys batteries are built to withstand vibration and maintain capacity in extreme temperature environments. Now you can fast charge even faster than flooded batteries and optimize your fleet's productivity with this sealed, minimal-gassing solution from EnerSys®.

Get the full story at [www.enersys.com](http://www.enersys.com)



Phone: +1 (407) 240-0909  
[www.allenenergy.com](http://www.allenenergy.com)

Visit Booth #1130



volatile industry and we will ride the waves with it. With these brands, we have the flexibility to do that and offer multiple solutions. We're committed to supporting them."

Chaffin says Textron recognizes aviation is a worldwide industry. "We want them to know TUG is a part of Textron GSE, which has the ability to be across the globe with service and products, providing solutions to our customers wherever they are," he explains.

"This is good for the industry by leveraging our Textron resources: the people, locations, capital and knowledge base," Chaffin adds. "We plan to push the GSE industry forward and take it to another level."

## The future of GSE through Textron

As this new project moves forward, Chaffin says Textron GSE is focused on three main product goals: safety, energy efficiency and productivity. "There's a constant drive for improvement, both in the products and processes used to build and manage them," he adds.

A new product is being introduced soon, called "Smart Sense," that will attach to belt loaders and prevent the belt loaders from colliding with an aircraft or anything else the belt loader approaches. Chaffin says Textron's engineers were able to take the current design with some enhancements

and develop this new product that will control the belt loader through sensors. This addresses safety.

Then, to look at fuel energy efficiency, the M7 electric tractor is now certified to operate in Europe too. It will be at the October Ground Support Expo for industry leaders to view. This is also a TUG product.

To develop new products, Chaffin says the Textron team meets with their customers, observing how they use their equipment on a daily basis and then working to make improvements where possible.

Compton says the company is looking to support the 70 percent of products and services ground support personnel can already get through them, and then close that 30 percent gap. He says that can be done through an innovative team approach, which is only accomplished when working side-by-side with their customers.

"It's a unique playground where you're turning around aircraft," he says. "We've got to partner with them to help them do it faster, but also as safe as possible. And to do that, we have to be close to the operation. Each is different. Southwest is different than Emirates. Emirates is different than British Airways, and so forth."

## The Textron team approach

Chaffin says the bottom line of the Textron GSE formation is customer care. "We want



to be there when a mistake happens, they've hit something or damaged something and need help," he says. "Airports can't afford downtime."

Chaffin refers to a recent meeting with a large air mail carrier's local shop in Atlanta. "I was impressed with how these employees understood the business impact of not being able to receive an airplane, unload all the packages, reload the airplane with new packages and then get that airplane out again on-time," Chaffin says.

When he went back to the air mail's corporate executives, he impressed upon them that their employees were commendable for truly comprehending the business impact of airport efficiency. "The equipment they purchase from us plays a vital role in that," Chaffin says. "We will be there to help them find more innovative ways to accomplish the tasks they need to, be more productive, or do it in a manner that is safer for all, including the aircraft, ensuring they never miss a shipping window."

Last but not least, there has to be a passion for this industry. Chaffin says that over the years, it's become his. He believes the people that make it successful are hard workers, especially the GSE on-the-ground experts.

"They need products to work exactly how they want it, when they need it, and that gives me the energy to make sure we can meet those demands through Textron GSE," he concludes. **GSW**

### ▶ ABOUT THE AUTHOR:

Jen Bradley, owner of Bradley Bylines, is an aviation writer based in East Troy, WI. She may be reached via her website at [www.bradleybylines.com](http://www.bradleybylines.com).







## A Great Ground Support Team Starts with Reliable Equipment



**LAV  
SERVICE**



**PALLET  
DOLLY**



**REFUSE**



**POTABLE  
WATER**



**LUGGAGE**



**FUELING**

Your world demands strength, quality, and service in which you can depend on and trust each and every day. Par-Kan understands that your customer's experience starts with what happens on the ground and assures them timely departures and arrivals.

Par-Kan is continuously improving its products in order to satisfy a constantly changing world and an increased demand in ground support equipment performance. You can count on Par-Kan to deliver quality products on time out of one of our five manufacturing facilities across North America.

**CHECK US OUT AT BOOTH # 1045  
INT'L AIRPORT GSE EXPO, OCTOBER 18-20, 2016**

**Par-Kan Company LLC.   Silver Lake, IN   800-291-5487   [www.par-kan.com](http://www.par-kan.com)**

# Cuba Service Brings Big Questions

Airlines are restarting service from the U.S. to Cuba for the first time in 50 years, but questions remain about demand and how airports will be impacted.

By Joe Petrie

**W**ith geopolitical relations quickly evolving in the western hemisphere, some U.S. airports will become beneficiaries to these changes.

U.S. to Cuba air service is set to begin again as the final relics of the Cold War start to come down.

Michael Boyd, president of Boyd Group International, says the present demand for Cuban travel is relatively unknown, but one thing is certain – in coming years it's going to be “a whale of a destination.”

“We think Cuba could be a mini version of what happened in China where 30 years ago you couldn't walk down the street without getting shaken down by a red guard, but now today, you can't walk down the street without getting hit by a BMW,” he says.

Airlines service from the U.S. to Cuba will start up by the end of the year due to an agreement signed by the federal governments of both countries in February. The agreement allows for

up to 20 roundtrip flights per day between the U.S. and Havana, and up to 10 daily roundtrips between the U.S. and each of Cuba's nine international airports.

In June, the U.S. Department of Transportation (DOT) approved the applications to provide service to Havana to Alaska Airlines, American Airlines, Delta Air Lines, Frontier Airlines, JetBlue Airways, Southwest Airlines, Spirit Airlines and United Airlines.

In July, the DOT announced the services would originate from Hartsfield-Jackson Atlanta International Airport (ATL), Charlotte International Airport (CLT), Fort Lauderdale-Hollywood International Airport (FLL), Houston George Bush Intercontinental Airport (IAH), Los Angeles International Airport (LAX), Miami International Airport (MIA), Newark Liberty International Airport (EWR), John F. Kennedy International Airport (JFK), Orlando International Airport (MCO) and Tampa International Airport (TPA).

Destinations from the U.S. into Cuba include Jose Marti International Airport in Havana; Sierra Maestra Airport in Manzanillo; Frank Pais International Airport in Holguin; Santa Clara Abel Santamaria Airport in Santa Maria; Antonio Macoa Airport in Santiago de Cuba; Jamie Gonzalez Airport in Cienfuegos; Juan Gualberto Gomez Airport in Matanzas; and Ignacio Agramonte Airport in Camaguey.

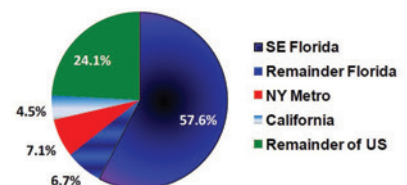
JetBlue announced it would send its first flight to Cuba on Aug. 31 from FLL at a cost of \$99.

When the company did an analysis about



**Miami International Airport has added 108 self-service passport control kiosks to its facility in recent years.**  
Miami-Dade Aviation Department

**Cuban-American Distribution**





# 400 Hz Ground Power Solutions



Reliability

Quality

Performance

Long Life

Great Value

## **KATO Engineering and MCM**

Celebrating a 25 year partnership  
providing innovative and reliable solutions  
for your 400Hz power support needs.

## **MCM 400 Hz System Supplier**

MCM proudly features Kato motor generators  
for 400 Hz central systems in all the assembly  
facilities of the US's largest commercial aircraft  
manufacturer, major airports and military  
installations in the US and around the world.



## **Kato Engineering™**

To discover more about the power solutions you want, stop by  
**GSE Expo Worldwide MCM Booth #333**

Cuban travel potential, Boyd says there was a demand for travel.

A projection showed 850,000 potential passengers to Cuba on an annual basis, but he calls it conservative due to the makeup of the country and the potential for tourism. However, until the nation has enough political changes to make drastic changes to the market, it's unlikely the tourism demand will be immediate.

"There's so much there that it's a place that people are going to keep coming back to," he says. "There's a lot of stuff happening there."

"It's also very close. You can practically see it from Key West, so it's very easy for people to get to."

Some people have stressed concerns about the infrastructure in Cuba to handle U.S. flights, but Boyd says it's not necessarily a concern as airports have built out

runways and many of them with modern terminals.

There also have been concerns about security issues, but Boyd says the rest of the world has continued traveling to Cuba despite the ban from the U.S. and they have not had any issues.

### Questions on Initial Demand

Boyd says the makeup of the initial travelers to Cuba are likely to be Cubans and those who are more adventure travelers. Despite media reports of people wanting to build factories in the country, he says there will not be any business travel to the nation as the government doesn't want foreign investment. Traffic will be entirely inbound to the nation as well, given Cubans not only can't leave, but can't afford to leave.

"It's entirely inbound traffic just like

## CITIES GETTING AIR SERVICE TO CUBA

Atlanta  
Charlotte  
Fort Lauderdale  
Houston  
Los Angeles  
Miami  
Newark  
New York City  
Orlando  
Tampa

## AIRLINES OFFERING SERVICE TO CUBA

Alaska Airlines  
American Airlines  
Delta Air Lines  
Frontier Airlines  
Jet Blue Airways  
Southwest Airlines  
Spirit Airlines  
United Airlines



## We Specialize in the **GREENEST** Aircraft Deicers On The Market

Visit Us At The GSE Expo Oct. 18-20  
In Las Vegas, Booth #915



### GS Series Deicers

Single Engine Design  
Engine Runs at Constant Speed  
Lowest Emission Heater on the Market  
Meets California BTU Emissions Requirements



INTERNATIONAL  
**GSE**  
EXPO

Ground Support Specialist • 662-342-1412 • [www.gssonline.com](http://www.gssonline.com)

AviationPros.com10017370

it was in China in 1975," he says. "If you wanted to get outbound, you had to hijack a MiG to get out of town."

One of the biggest issues with the service will be the initial demand.

Also, the vast majority of Cuban immigrants live in Florida, with half of the population in Miami-Dade County alone.

Boyd says its important airlines pursued these routes to get them now, but he doesn't anticipate a lot of people transferring in places like Charlotte to get to Cuba for the time being.

He says airlines are also planning on running bigger planes like A320s into Cuba, so they're going to be under pressure to make the routes work, which means at least 1.3 million passengers need to travel to Cuba per year.

"After the first six months, I think a lot of them are going to pull back on these operations," he says.

Jonathan Keane, head of aviation for Accenture Travel, says even with the potential for growth in the Cuban market, airlines will still need to keep the routes in line with current standards that make them profitable. Flights will still need a 75 percent load factor and they will still need to be tightly organized.

Creating new service to an emerging mar-



ket means challenges with infrastructure and customer experience, which Keane says continues to evolve.

Keane says the service could serve as a catalyst for the two nations and building interconnectivity, but it will be interesting to watch given how fast the service is being developed.

Alaska Airlines will have flights from Los Angeles International Airport (LAX) to Cuba, but Boyd says he questions how the airline will fill seats now, but notes it was still important for the airline to pursue the route.

In 2015, there were 3,000 specialized flights between the U.S. and Cuba, Boyd says, and only five of those originated from west of the Mississippi River.

"They will really need to stimulate the growth," he says. "Will there be a lot of connecting traffic in Charlotte? I don't think so, but southeast Florida will have service out the Whazoo."

Airlines getting routes to Cuba have "a license to print money," in the long-term, Boyd says, as the country will continue evolve.

## Preparing Airports for the Unknown

FLL was awarded the most flights to Cuba by the DOT with about 122 going to various cities on the island per week. While there's a strong Cuban population in the metro area, there's little idea about what's going to actually happen in terms of need and demand.

"We haven't had service there, there's no data out there and no other markets like this," says Steve Belleme, business development manager for the airport. "We've talked to the carriers and they're not quite sure how to address this or how it's going to shake out."

Between FLL and Miami International Airport (MIA), there will be 31 flights per day from southeast Florida to Cuba, so there's no projection if they can fill the planes, Bellame says. JetBlue had run charters from FLL to Cuba a few years ago from the airport that were pretty full, he says, adding it was only one flight per week.

"Some of this, talking to JetBlue is a lot of times based on the possibility of connectivity from people coming down from the

Midwest to go to Cuba," he says. "I think the airlines are looking to a certain extent to be serving more than the local market."

Greg Chin, communications director for the Miami-Dade Aviation Department, says MIA already handles an average of 16 daily

charter flights to and from Cuba for a total of 907,263 passengers in 2015, which makes Cuba one of its 10 busiest international markets. Passengers to/from Cuba grew 30 percent in 2015 year over year and that growth rate has continued in 2016.



**Visit Us At International  
Airport GSE Expo  
Booth #301**



## Keeping planes in the air starts with better communication on the ground.

Contact David Clark for rugged, reliable communication solutions to enhance the safety and efficiency of your ground support operations.

Call **800-298-6235** (508-751-5800 Outside the USA) or visit **[www.davidclark.com](http://www.davidclark.com)** for more information.



[WWW.DAVIDCLARK.COM](http://WWW.DAVIDCLARK.COM)

**Made In USA**



© 2016 David Clark Company Incorporated  
© Green headset domes are a David Clark registered trademark.

[AviationPros.com/10017163](http://AviationPros.com/10017163)

Overall passenger traffic at MIA has grown 24 percent since 2010, with eight percent growth in 2015 alone.

"In the last five years, MIA has prepared for projected growth with improvements such as: opening a new 66-lane passport clearance facility; adding 108 self-service passport control kiosks and 24 Global Entry kiosks; being the second U.S. airport to offer Mobile Passport, an app that helps speed U.S. and Canadian citizens through the clearance process; and being the first U.S. airport to partner with CBP in a pilot program that allows the majority of its passengers arriving from abroad to clear passport control and exit the Customs area without a second inspection by CBP officers after



**Mobile Passport helps speed U.S. and Canadian citizens through the clearance process.**  
**Miami-Dade Aviation Department**

collecting their luggage," he says. "Thanks to these improvements, more than half of our international passengers now receive expedited passport screening electronically, and MIA has the capacity to handle continued passenger growth."

FLL is rushing to prepare all entities for the unknown amount of service about to start by the end of the year. Bellame says U.S. Customs and Border Patrol officials need to figure out how to handle an increase in processing flyers from Cuba, how to fit the extra flights into the airport and how to fit the planes at the terminal.

The airport has six international gates, but due to an extensive construction project,

that will drop to five when service starts before an eventual five additional gates open sometime in 2017.

Nancy Suey Castles, public relations director for LAX, says that Los Angeles World Airports (LAWA) officials are very pleased LAX will be part of this resumption of scheduled air service to Cuba. The Greater Metropolitan Los Angeles area is among the top-10 places in the U.S. for Cuban-Americans by population size, so there is great interest locally for nonstop service to Cuba for family, academic, cultural, tourism, entertainment, sports, business and trade purposes.

American Airlines began a once-a-week charter flight in December that runs on Saturday's and success on this route reflects this great local demand, she says.

"Because LAX is already serving Cuba, albeit once a week with a charter flight, airport operations are not expected to be significantly affected," she says. "Federal inspection of international arriving passengers is well-established at LAX, as well as with the weekly charter flights by American. Alaska Airlines' lease gives them several preferential gates at Terminal 6, where they already operate several international flights, mostly to Mexico."

In terms of the actual number of daily international flights, Suey Castles says Alaska Airlines would be considered the busiest international airline at LAX. If Alaska requires additional gates to accommodate new flights to Cuba, they will let the airport know.

"LAX is an 'open port,' we don't allocate slots," she says. "So, if new flights are operated by permitted airlines, we're confident that LAX will be able to address any additional needs the airline may have and accommodate the new flights."

Sun Country also was awarded charter flights to Cuba, which will run from Minneapolis/St. Paul International Airport (MSP).

"Sun Country hasn't announced its plans for the approved Cuba service yet, but from an airport standpoint, we're ready when they are," Patrick Hogan, director of public affairs and marketing for the airport says. "In fact, we have four new common-use aircraft gates coming on line at Terminal 2, where Sun Country operates, this October."

Southwest has never flown internationally through FLL, Bellame says, so the airline needs to know the procedures at the facility and the airport also needs to plan for any unknowns with Cuban infrastructure challenges.

"You know, I worked for an airline about a million years ago that had Cuba service and every night you never knew when the flight was going to come back," Bellame says. "Every night there could be problems like ground handling problems or whatnot. There's a lot of unknowns and even going in the middle of the day, there are a lot of snags with the infrastructure and it could come back and all of a sudden it's two hours late and in a congested area, which created operations issues."

Bill Peacock, consultant for Robinson Aviation Inc., who is the former director of air traffic for the FAA, says Miami Center will take on the main workload of the new Cuban traffic. Airports that could see an impact on service due to the new traffic could include Key West International Airport (EYW), Miami-Opa Locka Executive Airport (OPF) and Naples Municipal Airport (APF).

"We're not taking any special precautions at this point," he says. "We're going to be watching the traffic mainly at Key West, Opa-Locka and Naples. There's a lot of corporate jets coming in and out of Naples with a lot of wealthy people and some of those folks might want to go to Cuba, so we'll be watching those airports and seeing if we need to take action."

Peacock says there are a lot of unknowns with opening up air service with Cuba, because it's not something that has been done a lot before. It was done at one time, so he says it really just involves updating procedures and protocols.

"The folks over at Miami Center and in Cuba have a lot of common challenges and already talk to each other routinely when flights are flying over Cuban airspace," he says. "We have a working relationship with Cuba already, so it's not we're starting from scratch." **GSW**

Joe Petrie is editor-in-chief of *Airport Business* magazine.



Visit us at the GSE Expo,  
booth number 200.

KUBOTA ENGINES FOR  
GROUND SUPPORT EQUIPMENT



## A terminal should run like clockwork. So should your GSE.

When there isn't a minute to waste, Kubota makes every second count. Whether you choose a diesel or spark-ignited model, the industrial strength and solid reliability of Kubota engines can stand up to harsh weather and heavy loads while minimizing downtime and maintenance costs. Power new products or repower your used equipment. Keep it all in motion with the most reliable engines in the world.



Learn more at [KubotaEngine.com/GSE](http://KubotaEngine.com/GSE)

INTERNATIONAL  
AIRPORT  
**GSE**  
EXPO

**Kubota**

THE ENGINE OF SUCCESS

# Are You Taking Responsibility For Safe and Effective ULD Operations and Handling?

The September issue of *Ground Support Worldwide* included an article on unit load devices (ULD) highlighting some of the key issues associated with this subject and emphasised that the primary function of ULD is to provide flight safety through the correct restraint of cargo during flight. The article also mentioned the increased scrutiny by the regulators in the aftermath of cargo loading related crashes. The problem, though, is that airlines are on the hook for a number of factors they have little to no control over.



By Bob Rogers

Airlines today often find themselves between a rock and a hard place, on one hand they have very little control over the manner in which their ULD are being handled and operated, yet on the other hand they risk being sanctioned by the aviation authorities for failing to ensure that the aircraft is loaded in strict accordance with the Weight and Balance Manual which, from a ULD point of view, means that only airworthy ULD that have been properly built up make it onto the aircraft.

There are also commercial issues here; nobody is very keen to reject a pallet load of cargo at the door of the aircraft because the ULD is found to be in a non-airworthy condition, the temptation is to turn a blind eye. To be fair to the ground handlers, today's large wide body aircraft carry more than double the number of ULD than aircraft such as the A300, A310 and 747-100, all being loaded during the same rushed turnaround and probably with fewer people, isn't this an accident waiting to happen?

It would be inappropriate to single out any particular party to be at fault here, as the roots of this particular situation extend in many different directions and involve different parties,





# Your profitability depends on delivery.

*Trust your equipment to the global leader.*

BETA is your supplier of industry-leading hydrant equipment. With partnerships across the globe, we can work directly with you or through sub-assembly partners.

- Cut fueling times by 50%
- Avoid downtime with around-the-clock technical support
- Get the equipment you need, when you need it while lowering inventory costs



***"BETA produces European quality at a good value that just works."***

BERNHARD, SHELL OIL COMPANY

## THE BETA DIFFERENCE

- 30+ year track record of turning fuel into profit for major oil companies
- Designs proven to lower maintenance costs
- Highest flow rates in the industry improve efficiency
- Modular design lowers up-front cost of shipping tanks and chassis
- On-call network of local and global support providers
- Industry-leading turnaround times for custom orders



Call for available inventory or to discuss custom orders. (336) 342-0306 / [betafueling.com](http://betafueling.com)





▲ Good quality ULD storage at T3 Heathrow

and for changes to be made it will require a coordinated and industry-wide willingness to address the subject.

First of all, it is no secret that the highly competitive ground handling industry environment has enabled airlines to achieve lower and lower handling rates, and of course in such a situation there is little incentive to invest in ULD infrastructure and ULD training, both of which are essential for safe ULD operations. This is not to say that every airline takes this approach, nor is it to say that every ground handler or cargo terminal is deficient in either infrastructure or training or both, but it is probably fair to

## Power Stow Rollertrack Conveyor Work Smarter



### Benefits of the Power Stow:

- Cost-effectiveness
- Faster turnaround times
- Fewer body injuries
- Fewer aircraft and baggage damages



See a live demonstration  
at the international airport  
GSE Expo Las Vegas  
October 18-20, 2016  
at booth 724

For more information and video demonstration: [www.powerstow.com](http://www.powerstow.com)

AviationPros.com/10296974



say that the industry average falls far below acceptable levels. The counterpoint to this scenario is that ULD owners are spending in excess of \$300 million USD every year on generally unnecessary repairs, not to mention the cost of aircraft damage, delays etc.

### How do the airlines fit into this equation?

Well, in addition to extracting unrealistic handling rates, it is also probably fair to say that after years of outsourcing much (if not all) of their ULD handling and operations to third parties, most airlines have lost the knowledge of what constitutes proper ULD handling. Indeed this situation gets worse as more people retire from this industry.

We must add into this rich mixture both technology and industry trends. Technology in the form of lighter ULD is a trend driven by the airlines' need to reduce dead-

weight in the aircraft, both for fuel burn and range reasons. Today's typical large wide-body aircraft such as a 787-900 is carrying 1600 Kg of ULD "tare weight" requiring 60+ Kg of fuel over a 10 hour flight or 25 tons over a typical year's operation. While ULD designers, of course, do their very best to maintain durability while reducing weight, nevertheless a lightweight ULD will not respond very well to being mishandled by forklifts or dropped off of a dolly. Surely it's in the long term interests of both airlines and ground handlers that new technologies such as lightweight ULD can be successfully introduced, delivering lower costs to airlines and perhaps improved rates to ground handlers?

This might appear to be a rather gloomy outlook, what's it going to take to trigger some significant changes to the way things are being done today?

Fortunately some help is already in place; back in 2010, IATA repositioned ULD within the IATA Cargo area and allocated a significant increase in resources. This action resulted in the publication of the IATA ULD Regulations (ULDR) in January 2013, certainly the "go to" source of information for any organisation working with or around ULD. The ULDR defines the responsibility of and provides a foundation for the service providers, and through standardisation, facilitates the development of training materials. And talking of training, or the lack of training, as raised in the previous article there is a serious misconception that the folks who load and dispatch ULD day in and day out do not require training. Today this has become a Catch 22 situation, the handling industry gets by without training and so the training industry sees no reason to provide convenient ULD courses, so

# OPTIMAL COOLING AND POWER AT THE AIRCRAFT

HOBART 2400  
POWER COIL

HOBART  
3400 PCA

ITW GSE is a strong and reliable partner with deliveries of more than 80,000 units to customers world-wide. We monitor the market trends and provide world-class know-how.

ITW GSE **HOBART**

[www.itwgse.com](http://www.itwgse.com)

It's all about connections



nobody gets trained... round and round we go. IATA has taken the important step to expand their Accredited Training School (ATS) scope to include ULD training in recent months. This is a huge step forward as the ATS system can provide training in local language at convenient locations and also is now offering

◀ **Temperature controlled container damaged by poor handling**

five-day ULD "Train the Trainer" courses for organisations who intend to set up ULD training capability.

ULD industry group ULD CARE is also not sitting still. During Q3 2016, this organisation will launch a book, "ULD Explained," which is targeted at the "ULD novice" or for that matter the person who may have worked with ULD for many years but who has never had access to any written instructions, relying instead on word of mouth advice. ULD CARE is also in the process of launching a ULD Code of Practice, a concise and simple to understand document that it is hoped the industry will adopt as a standard for ULD operations wherever they take place.

And, the "ULD conversation" is slowly expanding its range, reaching out the freight forwarders, airports and indeed any organisation that has direct or indirect involve-

MATERIAL HANDLING \ AERIALS \ SPECIALTY EQUIPMENT \ PARTS \ SERVICE \ RENTALS

## WITH 750 TRAINED TECHNICIANS, IT'S LIKE HAVING AN ENTIRE TEAM AT YOUR SIDE.

No matter the job, our technicians come with the biggest technical support network dedicated to maximizing your uptime. That's just one of the many reasons why we are proud to be the nation's largest independent material handling and equipment rental company. To find an Equipment Depot location near you, visit us at [EQDepot.com](http://EQDepot.com).



EQUIPPED TO SERVE  
**EQUIPMENT  
DEPOT**

[AviationPros.com/12265250](http://AviationPros.com/12265250)



ment with ULD, it will need everyone to become more aware of the importance of ULD to a sustainable airline and air cargo industry before change will really happen, and change is certainly needed!

Readers may imagine that the ULD scene is pretty static, after 40+ years what more is there to come from such an apparently simple device? This would be incorrect, to mention just two aspects. The first is the tremendous growth in the transport of pharmaceuticals by air, requiring very exact temperature control. The active Temperature Controlled Containers (TCC) that these days can often be seen around airports are extremely costly and contain sophisticated cooling, heating, power and control systems. TCC require both proper attention to their operation as well as careful handling if they are not to be damaged. The second is the whole subject of Fire Containment

Covers and Fire Resistant Containers. These devices are designed to be able to contain Lithium Battery fires for a period of six hours, enabling the aircraft to get safely to an airport – without such devices, the flying time after fire detection is measured in minutes not hours. FCC and FRC are already in service with some airlines as part of a Lithium Battery Fire Risk Mitigation Process, with other airlines in the pipeline, thankfully there have not been any major incidents with Lithium battery fires in the past couple of years, but the risk continues to be as high as ever.

The air cargo industry needs to be able to carry perishables and Lithium batteries in a safe and efficient manner, and to do so requires the ground handling industry to raise their game when it comes to working with the special ULD that are required for such shipments.

We hope these two articles on ULD will have provided readers with some useful insights into the world of ULD. Next time you are out on the ramp and see a dolly train going by on its way to the aircraft or are beside a cargo terminal and see a load of stored ULD perhaps, having read these articles, you may give them a second glance and ask yourself, are those ULD airworthy, or are they stored correctly? **GSW**

#### ► ABOUT THE AUTHOR:

**Bob Rogers** has spent most of his working life in Asia Pacific, resident in Hong Kong and for many years running the Asia Pacific operation of Nordisk Aviation Products. Mostly retired from a demanding "day job," these days he remains actively involved in promoting and supporting a wider understanding of ULD through his involvement with IATA and ULD CARE.



**Oct 18 - 20**  
**Booth - 431**



**Worldwide Leader in Aircraft Refuelers**



**Nov 1 - 3**  
**Booth - 4406**



**Ask About Our Leasing & Rental Options**



**913-653-8102**



[skymarkrefuelers.com](http://skymarkrefuelers.com)



[sales@skymarkrefuelers.com](mailto:sales@skymarkrefuelers.com)

AviationPros.com/11174155

# LEANING THE AIRCRAFT GROUND HANDLING PROCESS

Taking a lean management approach can help streamline procedures for a more efficient operation.

*By Mario Pierobon*

**T**he 'Toyota production system' (TPS) is perhaps the most successful managerial concept to have developed in the second half of the 20th century so much so that it has, to a large extent, set the base for international quality management system requirements epitomised in the ISO 9000 series of standards. TPS, whilst originating from the domain of manufacturing, applies equally well to the service industry where it can be applied to generate operational efficiencies to the benefit of the various stakeholders, be them external, e.g. the end user, or internal, e.g. other parties within a same company that depend on a particular service to be delivered to them.





quate recipient of lean management strategies. In this article we shall identify some opportunities for additionally leaning up the aircraft ground handling process and offer some food for thought to aircraft ground handling managers to implement change management initiatives.

“What a customer does is to approach a supplier with a request for a product or service with certain specifications, and when an organisation applies lean management, what it does is to look at things backwards and come up with the most efficient way to achieve the desired outcome cutting off any type of waste,” says Christopher Laba, a lean management consultant with several years of experience in cargo operations. “The crucial word for lean is ‘waste,’ everything that an organisation does not need. According to lean management thinking, there are three types of tasks and processes in an industrial or service setting with regard to waste: those which add value to the outcome, those that must be accomplished but do not add value ‘per se’ and those that are absolutely not necessary and must be eliminated.”

## Passenger handling

The handling of passengers at the gate in the terminal area is a service which is normally delivered by aircraft ground handling companies. So far, the most common passenger boarding procedure is to board premium passengers, reduced mobility passengers and parents with infants first and then the rest of the passengers. According to Laba the passenger boarding process can be made a really ‘lean’ – or efficient – experience.

“To abide with the requirements for a quick turnaround process airlines, and ground handling companies want to avoid the situation whereby cues increase the duration of boarding because of passengers with an allocated seat towards the front of the cabin blocking the way to passengers seating towards the rear of the cabin,” he says.

Especially applicable to low cost carriers, there are other models – which have not yet become mainstream – to make the boarding process more efficient, such as clustering and boarding passengers according to their seating area in the cabin, normally from the rear to the front.

## Baggage handling

A significant potential for inefficiency exists in the aircraft ground handling process concerning the need to offload bags in case of a passenger’s non-show at the gate.

“When a passenger’s bags are in the plane, the passenger must also be on board for security reasons. Only once passengers are accepted for boarding at the gate can then bags be loaded, because you are confident they are boarding, and you need not offload the bags from the plane,” points out Laba.

Whereas in the past it was more common to offload bags directly from the cargo compartment in case of non-shows, technology in baggage recollection areas is making it increasingly possible to load bags nearly at the same time as the passenger boards the plane.

“In the baggage recollection area you have bag containers or carts waiting and bags scanned, the scanner gives you a green or red colour code, depending on whether the passenger has been accepted for boarding or not. You need a certain time to prepare the bags for loading onto the plane; this can be shortened by using ULD containers for carrying cargo hold bags,” says Laba.

## Cargo handling

A ‘lean’ solution for cargo operations concerns the positioning of containers in the cargo hold.

“Take, for example, a cargo flight from one point to another with an intermediate stop on the way. Containers destined to end destination need not be offloaded during the intermediate stop and should be arranged in the compartment so to allow the offload only of those destined to the intermediate stop,” Laba recommends.

“Low cost carriers tend to have a lot of spare cargo hold capacity because their passengers carry few hold bags, they would be happy to sell this as freight space provided that cargo containers are ready for loading upon the arrival of the aircraft without compromising with their ‘quick turnaround time’ requirement,” says Laba. Despite the additional revenue opportunities arising from selling cargo as a by-product, low cost carriers still have yet to fully exploit this benefit.

‘Lean management’ is an alternative formulation of the ‘Toyota production system’ that is being more commonly used in current management thinking; the main concern of lean management is to consider a production – or service process – and try to ‘lean’ it, that is to say to streamline it; waste has to be eliminated, and only necessary tasks have to be performed to achieve the desired outcome – namely customer satisfaction. The aircraft ground handling process, knowingly or unknowingly, is already a very lean process in that significant efficiencies are present, such as the contemporary accomplishment of multiple aircraft servicing tasks at the same time. However, there is always room for improvement – indeed continuous improvement is part of lean management – and the aircraft ground handling industry per se in an ade-

## Cabin cleaning

In the case of short haul planes with no crew changes, a possible solution for the optimisation of resources is a practice whereby the cabin is cleaned by the cabin

attendants during the stop.

"This solution only works, however, if the carrier has a simple catering concept (e.g. small snacks and drinks only) because there is not a significant cleaning effort required.

Clearly this does not apply to larger aircraft deployed over long haul routes," says Laba.

Sometimes aircraft are delayed on arrival, and in order not to cause an onward delay, the cabin cleaning service can be made shorter; this is another 'lean' management technique: the hovering of the cockpit and of the crew rest area, for example, can be skipped, without compromising the quality of service for the airfare paying passengers.

"Equally, for long haul services, the bedding of the crew rest area can be removed and fresh linen positioned for crews to install themselves at a later point in time during the flight. These solutions might save a few minutes to the cleaning crew and contribute to prevent, or at least contain, the delay," says Laba.

## Mapping and resource planning

One of the things a lean management professional does with processes is mapping them: whatever he or she observes is mapped, together with who goes where and for how long.

"The lean professional maps every single step, one by one, to see how they interact. The result of the mapping exercise serves also for resource planning purposes, in terms of both time, manpower and equipment," says Laba. "A company adopting lean management must also have in place backup plans: what happens if the plane comes in late and still must leave on time? A lean organisation sets its backup plans to accomplish the tasks with a different trade-off between time and manpower, e.g. instead of five cleaners for 30 minutes it adapts its plans to 10 cleaners for 15 minutes."

## Safety and lean management

Safety is an important part of lean management, in that safety has to be part of management consideration when implementing lean management initiatives.

"Opportunities exist to make an operation quicker but not necessarily safe. A best safety practice, such as the positioning of stairs at an altitude that accounts for the adjustment of the aircraft's altitude as it is offloaded and loaded, classifies as one of those processes that must be implemented,



**WHAT'S IN A NAME?**

OVER 156 YEARS OF COMBINED  
GROUND SUPPORT EXPERIENCE.  
AND A LEGACY OF INNOVATION,  
SERVICE AND SUPPORT THAT  
KEEPS THE WORLD MOVING.

**TEXTRON GSE**  
GROUND SUPPORT EQUIPMENT  
*Pushing Forward*

©2016 TUG Technologies Corporation. All rights reserved.

**DOUGLAS > TUG > PREMIER**

AviationPros.com/10017675

Visit Us At Intl Airport GSE Expo Booth #738



a customer requirement to ensure passengers' and crew members' safety as well as the physical integrity of the aircraft, but that provides no direct value from a lean management perspective. Security is another function that provides no direct value, but that nevertheless must be accounted for in the process and its optimisation," says Laba.

There is a concept in lean management that, according to Laba, also can be used for safety performance improvement; this is called 'poka yoke,' which in Japanese means 'inadvertent error prevention.' 'Poka yoke' are solutions that constrain operators' behaviours and are designed into a process to prevent the incorrect operation of equipment by users. Whilst the concept originates from a need to prevent operators' errors for efficiency purposes, it also can be used to frame safety behaviours by means of setting out only one way to perform a certain task. Laba highlights how already the fittings of an aircraft's fuel tank, air conditioning, potable water service and waste water service panels are already different to prevent the connection of the wrong piece of ground support equipment. More 'poka yoke' can be thought of with the support of human factors experts as the industry attempts to standardise its procedures to some common industry standards.

## Harmonised effort

Leaning up the aircraft ground handling process requires a harmonised effort in the awareness that the ground time of an aircraft for servicing can be shortened only up to a certain point. The aircraft ground handling process is made of several tasks that may be performed simultaneously but each has a given duration.

"The shortest a turnaround can be reduced to is the duration of the longest individual servicing task, such as, for example, the loading of fuel. Provided the applicable safety precautions are taken, this can be accomplished with passengers on-board, there is no sense to speed up other parts if these longest parts cannot be additionally reduced," concludes Laba. **GSW**



### ▶ ABOUT THE AUTHOR:

**Mario Pierobon** is a safety management consultant and content producer. He currently is working on a research project investigating aircraft ground handling safety. You may reach him at [marioprnb@gmail.com](mailto:marioprnb@gmail.com).

**Continental**  
The Future in Motion

# The Sky's the Limit

Take your GSE fleets tire performance to new heights with the ContiRV20 Velocity from Continental.

The ContiRV20 is the first pneumatic industrial tire to combine all the characteristics to make ground support equipment successful at what they do: long-lasting durability, suitability for high average speeds, and excellent comfort. Now you can reduce your GSE fleets operating costs, while increasing its reliability.

**The RV20 Velocity From Continental.**  
**Why Compromise when you don't have to?**

[AviationPros.com/10018554](http://AviationPros.com/10018554)

Visit Us At Intl Airport GSE Expo Booth #432

# Ramp Hazards

The most successful organizations are a result of collaboration and cooperation. In other words; it is the people that make the difference and a well versed ground services team will prevail overcoming the challenges predicted for our industry and ensuring continued safety and security with the increased number of predicted aircraft operations.

*By Jim Sparks*

**S**afe operation of aircraft while on the ground is a shared responsibility. The cockpit crew is charged with maneuvering the aircraft to and from the departure/arrival area on to or off of the active runway. This should be accomplished with a high level of awareness for potential hazards. There are of course certain other activities occupying crew member attention during ground operations including communicating with ground control or their flight operations department regarding special needs or instructions and there are always the pre- or post-flight checklists to attend to. Nevertheless they do still need to

report irregularities with paved surfaces, defective or broken taxi lights and most anything else that could be perceived as a potential hazard. Several technological marvels including a pilot-controlled tug are under development to allow aircraft engines to be started after the aircraft is prepositioned for takeoff. Other significant achievements in preventing runway incursions have been forthcoming including Runway Awareness and Advisory System (RAAS) which improves the awareness of the flight deck crew to outside activities.

U.S. Department of Transportation's Bureau of Transportation Statistics (BTS) reported in 2015,



Photo courtesy of Avfuel



U.S. based and foreign airlines serving the United States carried an all-time high of 895.5 million system wide (domestic and international) scheduled service passengers with expectations of again breaking the record in 2016. Both Boeing and Airbus have issued industry reports projecting the world's aviation fleet will double in size within the next 20 years. These forecasts do not include business or general aviation but significant new aircraft deliveries are anticipated in these markets as well.

## Evolutions with technology

Handling the new along with the existing fleet is only part of the challenge faced by those involved in support activities. Evolutions with technology has mandated adaptations in how we conduct routine activities. Many commercial airports have implemented infrastructure changes to handle the newer super jumbo airliners such as the Airbus A380 with a maximum takeoff weight of 1,268,000 pounds while general aviation facilities have increased runway, hangars and ramp capabilities to support long-range business aircraft. A growing concern glob-

ally is the ability to implement a capable and competent workforce to handle the expanding fleet. Ground service technicians often have a very diverse range of duties depending on their aviation affiliation. Frequently those involved in airline operations specialize in one area such as refueling where those in service of the general aviation industry may perform everything from concierge to cleaner. In all cases an appropriate knowledge level is essential.

## International Standards

The International Air Transport Association (IATA) Safety Audit of Ground Operations (ISAGO) program is an internationally recognized and accepted system for assessing the operational management and control systems of an organization that provides ground handling services for airlines (the "Provider"). ISAGO is based on industry-proven quality audit principles and structured to ensure a standardized audit with consistent results.

The technical content of the ISAGO Standards and Recommended Practices (GOSARPs) are under continual review and maintenance by industry experts comprised

of operational, safety, security and quality specialists from airlines, regulatory authorities and various other industry entities. Special care is taken to ensure a regionally diverse membership and over the long term, IATA will continually review and update to ensure material is current with the needs of industry. The complexity of support equipment and the hazards involved in the ground handling of aircraft requires technicians to have significant knowledge of proactive as well as reactive procedures used in aircraft servicing, taxiing, run-up, use of ground support equipment and maintaining a safe environment for aircraft operations.

## The Cost of FOD

One of the biggest contributors to aircraft damage is foreign object debris (FOD) and according to fodprevention.com, FOD can cost the aerospace industry up to \$12 billion per year. The direct cost for damaged parts adds up to \$4 billion plus indirect costs include flight delays, fuel expenses and court awarded damages.

The U.S. Federal Aviation Administration (FAA) and International Civil Aviation



Photo courtesy of Avfuel

Organization (ICAO) require a daily, daylight inspection of airplane maneuvering areas and removal of FOD. In addition to performing these inspections at the beginning of the day or shift, personnel on the airside should look for FOD during their normal shifts. Ongoing construction requires more frequent inspections. It may even be necessary to assign dedicated personnel to continually inspect for FOD during major construction activities. Flight crews should report to air traffic control and station operations any FOD they observe on runways and taxiways. Airlines and airplane handling agents should designate individuals to inspect gate areas prior to airplane movement to and from the gate.

Maintaining control of FOD includes using several methods: Sweeping using mechanized devices or by hand in areas where significant FOD hazards exist, magnetic bars either pulled behind vehicles or

dragged by ground personnel. Rumble strips used in areas dedicated to vehicular traffic are a known contributor to loosening or dislodging pieces or parts and when used in areas where aircraft movement occurs, inspections for debris should occur frequently and regularly. The FAA has investigated FOD detection technologies, and has set standards for several systems that have proved effective including radar detection, electro-optical including visible band imagery and low light cameras.

### Other Hazards

FOD is only one of the many hazards to be reckoned with by aircraft service providers. Risks occur with most ground operations and include mechanical as well as electrical hazards, extreme noise levels and intense lights can cause distractions combined with loss of concentration and subsequently, situational

awareness will be degraded. Considering many of the activities required for dispatching or recovering an aircraft take place outdoors, contending with Mother Nature can be a significant challenge. Various forms of precipitation and temperature extremes wreak havoc on an unprotected human body and protective attire can sometimes complicate otherwise simple tasks. Recognizing proper work wear is essential as those tasks with working around flammable fluids or gasses can ill afford to have an article of clothing produce an electrical spark.

Electrostatic discharge (ESD) is another prevalent threat and with the increasing use by aircraft manufacturers of composites and acrylics the likelihood of an ESD event during aircraft servicing is possible. A failure of static bonding tabs used to create a path for electron flow from an acrylic windscreen to the surrounding aircraft structure can

**Goldhofer** **SCHOPF**



INTERNATIONAL  
AIRPORT GSE EXPO  
18-20 OCTOBER 2016,  
LAS VEGAS, NEVADA

At any airport, efficiency and reliability are what count. These two factors receive maximum attention in the design and engineering of all Goldhofer and Schopf aircraft towing tractors. A minimum maintenance requirement is the key to maximum availability and robust engineering the guarantee for long service life. Choose a tow tractor from the Goldhofer Group for the most economical solution on the market.

Aircraft Tow Tractors  
Cargo Tow Tractors  
Aircraft Recovery Systems

[WWW.GOLDHOFER.DE](http://WWW.GOLDHOFER.DE)  
[WWW.SCHOPF-GSE.COM](http://WWW.SCHOPF-GSE.COM)



As technology advances **adaptability is the key to success** and understanding when changes should be made to **achieve specific goals** is important but not necessarily making changes just for the sake of change.

result in the windshield becoming a charged capacitor while the aircraft is in flight. An unaware technician tasked with cleaning the windshield during a quick turn may be the recipient of several thousand volts if precautions are not taken. Something as simple as pouring a cup of water on a windshield prior to touching can provide a discharge path for an electrostatic buildup.

Situations involving risk of exposure to hazardous chemicals or pathogens is another daily occurrence for those in aircraft servicing professions. Knowledge of selecting effective personal protective equipment (PPE) for specific jobs and use of safety data sheets (SDS) to proactively deal with task necessary materials is another critical element. Concerns over terrorism have escalated in recent years and aviation ground services personnel, even though not in the limelight, are on the front line when it comes to identifying potentially threatening individuals or effects in aircraft operating areas and although it may not be their task to challenge it, it is now an essential responsibility to contact appropriate authorities.

## Education and Cooperation

Job knowledge is an ever evolving factor in aviation support professions. As technology advances, adaptability is the key to success and understanding when changes should be made to achieve specific goals is important

but not necessarily making changes just for the sake of change. Mastery of human factors such as the "FAA Dirty Dozen" are essential for support personnel to minimize incidents and accidents related to ramp and other aircraft operating area activities. The known and identified factors impacting human performance, include; fatigue, lack of knowledge, pressure, stress, lack of assertiveness, awareness, lack of teamwork, distractions,

poor communications, complacency, norms and lack of information.

The most successful organizations are a result of collaboration and cooperation. In other words; it is the people that make the difference and a well versed ground services team will prevail overcoming the challenges predicted for our industry and ensuring continued safety and security with the increased number of predicted aircraft operations. **GSW**



### ► ABOUT THE AUTHOR:

**Jim Sparks** has been maintaining aircraft for almost 40 years with the majority of the time involving Business Aviation activities. Jim's endeavors have placed him on six of the seven continents contending with numerous situations from routine flight dispatch to critical AOGs. His career includes maintainer, avionics/electrician, educator, tech rep and director of aircraft maintenance. In addition to other activities, he is engaged with ASTM assisting in the global development of criteria defining the Next Tech for NEXTGEN. You can reach him at [sparks-jim@sbcglobal.net](mailto:sparks-jim@sbcglobal.net).

## FOD\*BOSS - FOD GONE



- ✦ **Unbeatable performance**
- ✦ **Removes nuts, bolts, washers, stones, sand**
- ✦ **No motors, vacuums, magnets**
- ✦ **Sweep widths 8', 16', 24' / 2.4m, 4.8m, 7m**
- ✦ **Efficient and fast - up to 30mph / 50kph**
- ✦ **Works on all surfaces - wet or dry**
- ✦ **Low cost, portable, reliable**
- ✦ **Maintenance free**
- ✦ **Easy to use**

Photo courtesy of NASA

[fodboss@aerosweep.com](mailto:fodboss@aerosweep.com) or visit [www.fodboss.com](http://www.fodboss.com)

This product is subject to one or more of the patents and/or patents pending as listed at [www.aerosweep.com](http://www.aerosweep.com)

**DISTRIBUTED IN THE U.S. BY MYSLIK, INC.** ☎ 303.697.9692  
[WWW.MYSLIKINC.COM](http://WWW.MYSLIKINC.COM) | [bmyslik@myslikinc.com](mailto:bmyslik@myslikinc.com)



[AviationPros.com/10287496](http://AviationPros.com/10287496)

Visit Us At Intl Airport GSE Expo Booth #351

# What is IATA Resolution 753?

By Philip Heacock

**R**esolution 753 on baggage tracking comes into effect in June 2018. The full details of Resolution 753 are available on the IATA website but, put simply, it says that 'IATA members shall maintain an accurate inventory of baggage by monitoring the acquisition and delivery of baggage.

## What does IATA Resolution 753 mean for airlines?

- IATA members have committed themselves to:
- Demonstrate delivery of baggage when custody changes
  - Demonstrate acquisition of baggage when custody changes
  - Provide an inventory of baggage upon departure of a flight
  - Be capable of exchanging these events with other airlines as needed

This part of the IATA compliance, which would allow interoperability between airlines, is being looked after by the Passenger and Airport Data Interchange Standards (PADIS) Board. PADIS is governed by Passenger Services Conference Resolution 783 to develop and maintain Electronic Data Interchange and XML message standards for passenger travel and airport-related passenger service activities.

In addition to requiring airlines to demonstrate the delivery and acquisition of bags, it also specifies three key checkpoints where this should happen – aircraft loading, arrivals inject and transfers

inject. Taking effect from June 2018, the Resolution is mandatory for all IATA airline members.

## What is the aim of Resolution 753?

The aim is to reduce the number of lost or delayed pieces of baggage by keeping track of it at every stage of its journey through the use of intelligent tracking capabilities. This will lead to a better customer experience and at the same time reduce the costs involved in tracing, retrieving and delivering missing or delayed bags. It will also reduce baggage fraud.

When a passenger checks in for a flight, a bag source message (BSM) is generated, which includes the date, flight number, destination, registration number and a unique barcode – this is typically referred to as an IATA license plate. The barcode on the tag is checked against a computer database of departing flights and set for delivery to the correct terminal and gate.

Following the security check, the baggage moves through the airport system on a series of conveyor belts or tray (tote) conveyors until it reaches the correct loading bay. Prior to being loaded onto the plane, the unique bar code is scanned or otherwise registered to make sure that the bag has reached the correct flight before being sent on its way.

Research has found that airlines which have a good system in place for keeping track of passengers' baggage throughout this process have significantly less mishandling incidents than other airlines.

Courier companies have been tracking the whereabouts of parcels throughout their delivery journey for years and now, with the standardization of systems in an airline's existing technology infrastructure, airlines will be able to do the same thing with passengers' baggage.

## What does IATA Resolution 753 mean for airports?

By 2018, IATA member airlines will need to ensure that the airports they work with have the necessary IT systems and infrastructures in place to be able to support them in complying with Resolution 753. This means that all airports (existing or new) will need to assess their baggage handling infrastructures and fill in any gaps where necessary.



Photo courtesy of Beumer Group



While baggage is handled by many different parties throughout the process, one thing they all have in common is the Key Performance Indicator that they have committed to in order to provide the best possible service for their passengers.

IATA Resolution 753 will help enhance the registration of baggage and the collection of accurate information, which not only reduces mishandling, but also helps to speed up reconciliation and flight readiness for departing flights. The end result is information to help measure performance against service level parameters.

According to Resolution 753, airlines bear the ultimate responsibility for delivering the correct bag to the correct passenger, so they will have to ask airports and ground handlers to make various technological and system features available to them to meet the Resolution's requirements.

Although the airports, in theory, can turn compliance into a competition parameter, there is also an underlying business case for saving money.

Once Resolution 753 has taken effect, it will drive down the number of reports of lost baggage, especially the fairly high percentage of reports which are made while baggage is still being transferred to arrival reclaim while the passenger is reporting it as missing. Bags will be recorded at arrival reclaim, thus demonstrating that the bag really did arrive in the arrival baggage hall after being removed from the aircraft. The scanning and subsequently documented receipt of arriving baggage will play an important part in the airport driving down the cost of making baggage reports, not to mention the cost of running the lost bag procedure after the report has been filed. Furthermore, the airport will have more

cost transparency and better know who to charge for the cost of tracing and retrieving lost baggage if it does go missing.

### How can IATA Resolution 753 be implemented and what are the minimum requirements?

As a minimum, the resolution requires some level of manual scanning, but automated solutions also should be considered. The main purpose is simply to make sure that the bag has reached its destination and is reconciled with its rightful owner at the right time.

Bags will need to be tracked by either automated readers or staff using mobile handheld devices. Other technology such as Global System for Mobile (GSM) communications/Global Positioning System (GPS)-enabled devices, Radio-Frequency



**TIMSAN**  
www.timsan-gse.com  
timsan@timsantr.com

**Istanbul / Turkey**  
+90 216 527 42 70

Identification (RFID) and beacons could also be used.

There are several options, which are already widely used at aircraft loading and transfer inject but rarely seen at the arrivals inject:

- **Manual scanning** – can be done without an automated baggage handling system, but requires extensive staff resources and handheld terminals. Every item of baggage must be handled manually and the process can be slow.
- **Laser Scanning of Bag Tag** – this is a widely used Automatic Tag Reading (ATR) technology found across most automated baggage handling systems, although it cannot guarantee 100 percent readability. Because barcoded tags are so easily damaged during handling, their readability is almost always reduced by the time the bag arrives at a destination. The automated laser barcode scanners may not be able to read the bag tag number and it will then have to be diverted to a manual check, which takes additional time when connecting.
- **The Automatic Tag Reading** technology can be complemented or replaced by cameras. This type of Optical Character Recognition (OCR) technology and Video Coding System (VCS) are widely used in the parcel industry and OCR and VCS software can help to identify the flight numbers and airport codes. The integration of a VCS into the outbound Baggage Handling System (BHS) allows bag source information to be encoded while the bag remains in motion within the main BHS. This saves valuable time by ensuring that the baggage flow is not interrupted, in addition to freeing operations staff from manning a fixed Manual Encoding Station position. An optional Optical Character Reader can also be integrated at server level as complementary technology to minimize the number of no-read tags. For Resolution 753, cameras can be installed on all arrival and transfer belts in the airport for non-readable barcodes to be processed remotely from a central VCS coding room. One video coded scanning system can resolve bag tag reading for an entire facility, potentially including multiple airlines.

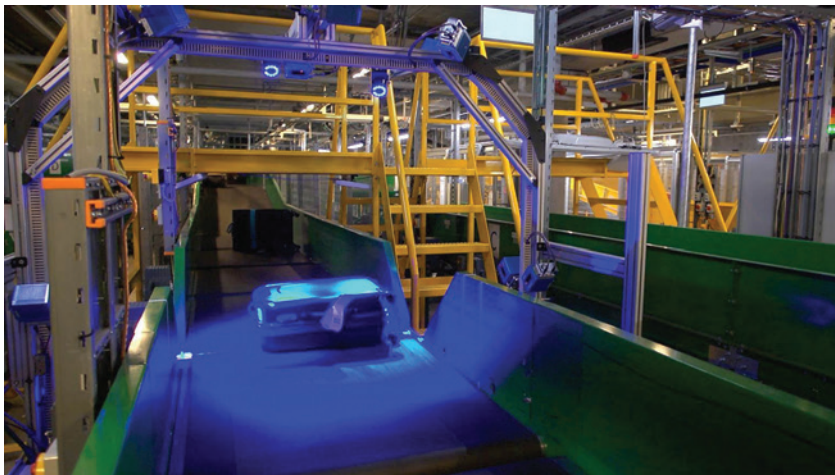


Photo courtesy of Beumer Group

- **RFID** – this includes RFID chips containing electronically stored information embedded in a tag and they offer very high readability, almost 100 percent with very few 'no reads'. RFID is similar in concept to bar coding, but instead of a printed tag with static information that requires line of sight scanning, it contains a dynamic, application-specific integrated circuit (ASIC) which can be read at, and/or written to, every step along the chain. It does not require line of sight scanning and is therefore quicker. In addition, if airlines follow the IATA Recommended Practice 1740c, this will ensure the compatibility of the technology with airline data systems for RFID tags to be used in the interline baggage handling environment. RFID tags are superior in this regard, but the main barrier to their use has always been cost – there is a higher cost per tag – but while airlines would have to pay for it, airports would also be the main beneficiary.

RFID tags have already proved successful on transfer baggage because the 'read rate' is higher. They are still readable even if crumpled or wet and the price for a tag can be justified by the reduction in baggage having to be routed for manual encoding.

Resolution 753 may boost the use of hybrid paper bag tags with both an RFID antenna and a barcode; or an alternative would be the use of permanent RFID tags, which are either permanently embedded in the suitcase or permanently attached as a tag which the passenger always attaches to their bag when flying. As airports and airlines modernize their baggage processes, this is

likely to be the next big thing in baggage handling advancements. Major international airports have already carried out this type of upgrade and now utilize this type of technology.

## Where to install the equipment

By 2018, all airports will need to establish if they have the appropriate infrastructure in place to support the requirements of Resolution 753.

When considering how to demonstrate the delivery and arrival of bags at the three specified places – aircraft loading, arrivals inject and transfers inject – there are a number of scenarios to consider:

- **Arrivals unload/inject** – The main challenge here will be to find a solution that fits all airlines' needs, especially if half the airlines serviced by the airport choose RFID while the other half settle for manual scanning. Two parallel systems will need to be set up to manage both sets of baggage.
  - **Transfers inject** – Most airports are already supported by Automatic Target Reader solutions (ATR), Manual Encoding Station (MES) – for manual encoding if an automatic baggage tag reader cannot read the baggage barcode tag – and Baggage Reconciliation System (BRS) technology.
- For efficient transfer of baggage, the future lies in sharing data to make it easier to anticipate possible risk and then target it for reduction or elimination. Transfer baggage monitoring software will enable baggage handlers and operators to detect



potential problems, allowing positive action to be taken to ensure that the bag reaches the flight, or is available to be loaded onto the next available flight. The system displays detailed information about selected flights and transfer connections and shows flights with the most critical connection times at the top of a priority list.

• **Aircraft loading** – This is already supported by Automatic Tag Reader (ATR) technology and a Baggage Reconciliation System (BRS). Some airlines scan as late in the baggage handling process as directly in the hold (bulk baggage), which is the last change of custody for departing baggage.

## Physical challenges in airport buildings

Another aspect of Resolution 753 is the physical challenge that lies in the infrastructure at airports where the conveyors

or claim carousels might not be designed for attaching scanner arrays. Many older airports are not designed with these requirements in mind and so additional infrastructure will be needed to accommodate the new equipment.

The implementation of IATA Resolution 753 promises to bring benefits to everyone involved – airlines, airports and passengers – because accurate information about the whereabouts of baggage not only reduces mishandling complaints, but also can help to speed up reconciliation and flight readiness for departing flights and help measure performance against service level parameters.

Although IATA Resolution 753 is primarily the responsibility of the airlines, there will be no quick-fix solution for airports wanting to upgrade their systems. Cooperation between airlines, handlers and

airports is essential to ensuring that every party involved shares the responsibility of making the new regulations work and equally benefits from their implementation.

Airlines will have to consider using more advanced technology such as cameras to help the airports read the information and airports may have to invest in more sophisticated scanner systems, as well as other necessary IT and controls upgrades.

This cooperation is also most likely to be fruitful in other areas. The enhanced tracking and tracing of bags should lead to more transparent processes where problem areas and bottlenecks can be identified. This will make it easier to pinpoint process areas in need of improvement. **GSW**

► **ABOUT THE AUTHOR:**  
Philip Heacock is vice president of airport controls integration for Beumer Group.



## TRULINK® WIRELESS INTERCOMMUNICATIONS SYSTEM

Clear and reliable wireless communications increasing operational safety and intelligibility even in the most challenging, high-ambient noise environments.

Visit us @ International Ground Support Expo  
exhibit #230 to learn more.



© Telephonics | [www.telephonics.com](http://www.telephonics.com)

[AviationPros.com/11320301](http://AviationPros.com/11320301)

# Revealing the “Sources” for Safety Information

By Dr. Bill Johnson

Readers of *Ground Support Worldwide's* sister publication *Aircraft Maintenance Technology (AMT)* magazine and other FAA colleagues occasionally inquire about how I stay current on trends and news related to aviation maintenance and other aviation safety matters. I always take such questions as a compliment because I try hard to keep my “finger on the pulse” of current aviation maintenance news. This article offers a few categories and specifics of my “sources” most of which are readily available to you. The word “transparency” applies here. There are no secrets when it comes to safety.

## Select the Source

You must be careful of information overload. Readers must decide what is most important for them. Borrowing a term I learned from a former FAA Associate Administrator, Nick Sabatini, “... if everything is important then nothing is important.” That means you must set a priority on where to obtain consistent, timely, and reliable information.

► **Figure 1.**  
**AviationPros**  
**and Aircraft**  
**Maintenance**  
**Technology.**  
**AviationPros.com**



Look for sources matched to your industry segment. For example, if you work in an MRO, look for the MRO info from organizations like the Aeronautical Repair Station Association (arsa.org) or the Aircraft Electronics Association (aea.net), and other industry groups. If you are a GA person you might watch Aircraft Owners and Pilots Association (aopa.org) or the National Business Aircraft Association (nbaa.org).

You can get a mix of large and small aviation operations by signing up for the print and digital media at Aviation Pros (aviationpros.com) and

receive daily information from *Ground Support Worldwide* and *AMT* magazines. Again, be selective about your sources. Then, read them daily, weekly or monthly.

## The Internet is our Information Friend?

It's all there. Just open a browser and go. The last time I searched “aviation maintenance” I had 13 million hits on Goggle. “Human factors” gave 21.6 million hits. Obviously, you must be selective regarding information from the web. Not only is the web comprehensive, it is also low cost. Low cost usually means that you must do a lot of the work to find the precise information that you want and need.

When maintenance and human factors is a primary concern then I recommend the FAA website (humanfactorsinfo.com). That URL takes you to the FAA maintenance human factors website, which has a 20+ year legacy of FAA and other maintenance human factors documents.

Humanfactorsinfo.com is only one example of an FAA website. The public FAA homepage is faa.gov. That site provides you with most of the same information that FAAers use. It also has a means for you to enroll in an email system to keep you abreast of a variety of government and commercial aviation safety news.

The Curt Lewis & Associates website (curt-lewis.com) is a comprehensive information source. The



► **Figure 2. FAA Maintenance Human Factors Launch Page.**  
**Humanfactorsinfo.com**



site permits you to sign up for the daily aviation safety email push. The system uses something called a “crawler” that reads and combines news from around the web. The Curt Lewis emails provide access to newspapers, magazines, websites, and other sources of aviation safety information. It is a “must-have” information source.

SKYbrary (Skybrary.aero) is an international site that has the goal of being “a single point of reference for aviation safety knowledge.” It also has an email push for you to receive immediate information targeted to your interests.

When one makes lists, as provided in this article, it is impossible to cover everything. There are many free databases that permit you to “mine” for the information specific to your interests and requirements. Many are easy to navigate including, but not limited to: the National Transportation Safety



Board (ntsb.gov); the NASA Aviation Safety Reporting System (asrs.arc.nasa.gov); or the Bureau of Transportation Statistics (rita.dot.gov/bts/home).

## Excellent Industry Print Sources

I appreciate the low and no-cost magazines targeted to industry personnel, including you. Of course, *AMT* Magazine is one of those. Its advertisers want you to have the information so everyone wins when you subscribe. Other sample trade magazines on my list include *Airport Business*, *Ground Support Worldwide*, *Civil Aviation Training Magazine*, and other great industry publications. I like these magazines because they are very up-to-date. The publication time is extremely fast, meaning that you are usually reading articles that were written in the past 30 days. These magazines are targeted to the specific industry segment



▲ **Figure 3. Civil Aviation Training Magazine.**  
Halldale.com

CONNECT WITH US:  

# FORD C6 REPLACEMENT

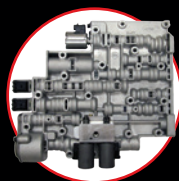
## BOLT-IN SOLUTION

The PCS 4LC6 includes a 100% factory new GM 4-speed transmission equipped with a bellhousing, torque converter, and extension housing that replicate a Ford C6.

- Same overall length allows use of the existing driveshaft and drum brake
- Existing flexplate and shifter can also be utilized
- Abuse protection valve body included

## ABUSE PROTECTION

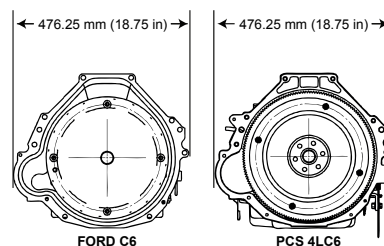
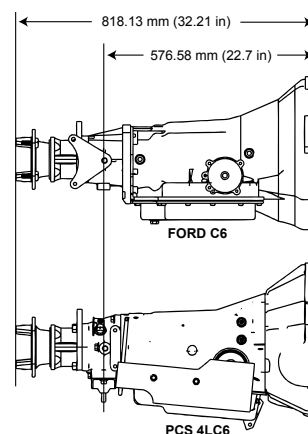
The abuse protection valve body was designed specifically for GSE markets to protect the transmission and vehicle against user errors such as shifting into the opposite direction while moving and shifting from neutral at high engine RPMs.



PH: +1 (804) 227-3023  
SALES@POWERTRAINCONTROL.COM  
POWERTRAINCONTROLSOLUTIONS.COM



## FORD C6 AND PCS 4LC6 COMPARISON



TO LEARN MORE, PLEASE VISIT US IN BOOTH #305 AT THE 2016 GSE EXPO.

AviationPros.com/12254080



▲ **Figure 4. FAA's subscription glossy magazine.**  
FAA

and usually offer very applied advice. These are not usually "theory" magazines written by and for Ph.D.s (not counting me).

In addition to maintenance and human factors I am always interested in training. The *Civil Aviation Training Magazine*, by Halldale Publishing, keeps me abreast about training for all aspects of aviation. I must admit that my feline-loving spouse was particularly proud when I wrote articles for *CAT Magazine*.

### More Print and Media Sources (Credit Card Required)

My position demands that I have as much current information as possible. For that reason I personally subscribe to print and media sources like *Aviation Week* and *Space Technology* ([AviationWeek.com/awst](http://AviationWeek.com/awst)). I have read *AvWeek*, without interruption, for over

35 years. The *Aviation Week* site offers a subscription only Aviation Week Intelligence Network and also Aviation Daily. FAA is a corporate subscriber to many of these services. *Aviation Week* has a print and media product dedicated to MRO, named Inside MRO ([aviationweek.com/inside-mro](http://aviationweek.com/inside-mro)).

Another excellent paid source is *Flight International* ([flightglobal.com](http://flightglobal.com)). This magazine, as you would expect, has a broad international range of topics and a variety of additional print and digital information products.

Generally speaking, the paid subscription magazines have less advertising than the free ones. Their ads are geared to buyers of airliners, engines, or avionics. I like the advertisements, for large as well as small products and services. It shows me how MROs differentiate themselves or how air framer and powerplant manufacturers compare their new products.

## CHALLENGER 280

The workhorse for B787 and A350



For further information: +49(0)611 - 880 88-0 . [www.trepel.com](http://www.trepel.com)



If you want to avoid all advertising then try government publications. For example, the FAA publishes a very nice glossy color magazine. The FAA *Safety Briefing* is available from the U.S. Government Bookstore (bookstore.gpo.gov/products/sku/869-084-00000-0). It can be downloaded (free) from the FAA website (www.faa.gov/news/safety\_briefing). I like the magazine because it always has a timely and relevant message from a key FAA executive, usually the Director of the Flight Standards Service. It is an applied magazine with news and advice to pilots as well as aircraft maintenance technicians.

## Information from Industry Groups and Professional Societies

Industry trade associations and professional societies can keep you updated on safety. The magazines and websites, like the Aeronautical Repair Station Association (ARSA) or the Aircraft Electronics Association (AEA) are excellent. Such memberships are generally aimed at your employers but individuals can join at reduced rates. They also provide information, like the Avionics News from AEA, that can be downloaded to non-members. I belong to groups like Flight Safety Foundation (flightsafety.org); the Human Factors and Ergonomics Society (HFES.org), the Royal Aeronautical Society (aerosociety.com), the International Society of Air Safety Investigators (ISASI.org), and the Aircraft Owners and Pilot's Association. The combination of information from these organizations helps ensure that I know what's going on in safety.

## And Follow the Procedures from the Manufacturers and Your Company

It would be remiss not to mention the No. 1 cause of events/incident. That is: "Failure to Follow Procedures." I have never seen an accident report that said the operator or maintainer did not look at enough websites or read enough professional aviation magazines. To ensure continuing safety and efficiency use the manuals, work cards, and checklists. Be sure the information is current. As far as you being current, Dr. Bill suggests that you borrow some of his sources.

## Other Information Sources – Be Careful

Again, you must consider your information source. You should understand the culture and context before you follow the advice. One pilot told me that his mother (or father) told him that when he went to work that he should be careful and not "fly too fast or too high." That may be good advice but too slow and too low is another problem. A human factors presenter told me that his "Broadway" uncle told him to "break a leg" at his next speech. He jumped off the stage and end up with a fracture. Be sure that you understand the colloquialisms! **GSW**



### ▶ ABOUT THE AUTHOR:

**Dr. William Johnson** is the FAA Chief Scientific and Technical Advisor for Human Factors in Aircraft Maintenance Systems. Johnson is a member of the Human Factors Advisory Group to the European Aviation Safety Agency (EASA).

## Revolutionizing GSE leasing and asset management.



*Looking for ways to make doing business easier and more profitable? Then you'll want to take a closer look at Xcēd.*

Xcēd Aviation Services is a single source provider of flexible GSE financing and customized asset management services, including:

- Single investor financing
- Short- and long-term lease financing
- Short- and long-term rentals
- Used GSE trade-ins
- Sale and leaseback
- Buying and selling inventory
- Equipment refurbishment
- Refurbishment financing

We're also experts at uncovering hidden assets, which allows us to provide a wide range of incremental asset management service... services most banks and other lessors simply can't or won't offer.

# XCED

AVIATION SERVICES

A Sasser Family Holdings Company

www.xcedaviation.com

425 North Martingale Road,  
8th floor  
Schaumburg, Illinois 60173  
844.213.9233  
solutions@xcedaviation.com

Now Servicing the  
U.S. and Canada.

AviationPros.com/11535271

Visit Us At Intl Airport GSE Expo Booth #306

# Trial By Ice

Salt Lake City Department of Airports overcomes challenges to successfully launch one of the nation's first comprehensive end-of-runway deicing programs.

By Al Stuart, Rob Millar

Last December, during a storm that dumped 9 inches of snow on the airfield, Salt Lake City International Airport (SLC) launched a comprehensive end-of-runway deicing program, an initiative 10 years in the making. Under the program, all nine of the airlines serving SLC transitioned from airline-controlled deicing pads in the central terminal area to large common-use deicing pads near the ends of three major runways.

The Salt Lake City Department of Airports (SLCDA) operates SLC and had multiple reasons for decentralizing deice operations:

- Greater airfield safety. Constructing deicing pads at the end of runways would decrease congestion at aircraft exit/entrance ramps and gates.
- Improved out-to-off times. Having the deicing pads as close to runways as possible would reduce the need for secondary deicings and get planes on the runways faster.
- Room to expand. SLC is planning a new terminal complex and needed the space occupied by the current deicing pads for the new concourse.
- Increased sustainability. New deicing pads would allow for more efficient collection of glycol runoff to meet current and anticipated environmental regulations.
- Traffic growth and changes in fleets. Pads would

support growth in carrier and cargo operations and planes of various sizes, including 747-sized aircraft.

## Program is ambitious and robust

This past winter, three of the pads opened: 34L, 34R and L. A fourth deicing pad, 16L, is scheduled to open on time and as planned this fall.

At full buildout, SLC's end-of-runway deicing program will feature six pads (three on the north end of each runway and three on the south ends), supporting taxiways, roadways and utility infrastructure. The new pads and taxiways include independently controllable centerline lighting for marshaling aircraft into each deice position and a sophisticated glycol/stormwater runoff collection system.

The program also includes up to four deice support buildings, each with a deice control center, glycol storage, mixing and dispensing equipment, deice vehicle parking, office space and break facilities for deicing crews.

SLC is among the first U.S. airports to develop and successfully implement a comprehensive deicing program. However, as expected, implementation of the ambitious program was not without its challenges.



## Weather patterns change

In 2008, the SLCDCA hired HNTB Corp. as primary engineering consultant for all aspects of the end-of-runway deicing program. HNTB collaborated with airport engineering and operations, FAA air traffic control and Delta Air Lines to set design criteria for each pad's size, the number and size of aircraft it would support and its location on the airfield.

HNTB issued 13 technical memos summarizing evaluated concepts, discussions, decisions and recommendations for major project elements. As part of the evaluations, HNTB completed shadow and line-of-sight studies from the existing air traffic control tower to confirm satisfactory viewing of the new runway-end facilities and to confirm the aircraft being deiced at the end-of-runway facilities would not interfere with protected airspace and services.

Based on the data collected, HNTB produced computer simulations of various airfield operational scenarios and runway departure flows to optimize the location, size and layout of each deicing pad.

The SLCDCA began the 2015-16 deice season confidently – with a set of expectations based on nearly a decade's worth of research, simulations, data mining, design, construction and information from other airports, but some aspects of the plan, such as the weather, would remain unpredictable.

The new pads were modeled for both north-flow and south-flow runway operations. Since north flow is by far the predominate operational condition for winter operations at SLC, the first three pads were constructed on the south ends of the runways to support north flow operations. But during the first year of pad operations, most of the storms came from the south instead

of the north. The unusual shift in weather pattern presented problems, as the airfield did not yet have deice pads at the north end of any runway.

It was anticipated that the L pad, the first pad constructed, would see the heaviest use, but because SLC operated in an unusual south flow, the L pad was the least desirable that first winter.

The lesson is that it's important to periodically review assumptions to ensure they still are valid and to understand there may be some situations that simply cannot be predicted.

## The basic premise of the single-provider program changes

While the pads and deice control facilities are designed to accommodate multiple deice providers, the modeling and simulation con-

# Simple Complexity



**GLOBAL**  
GROUND SUPPORT

540 East 56 Highway • Olathe, KS 66062  
globalgroundsupport.com • 913.780.0300

MIDAS is a telemetry system that allows anyone with approved access to view live data on any of their deicing trucks with any Internet-connected device. This advanced telemetry system can be purchased on new vehicles or retrofitted on any manufacturers' equipment. MIDAS monitors performance, location, surface areas, aircraft ID's, operators and more.

MIDAS  
TELEMETRY





Photo courtesy of HNTB

firmed that a single-provider, common-use program would create the most efficient, safest deicing environment. Based on that, the SLCDCA asked all air carriers to participate in the program. For some, it was a hard sell.

“With anything new, you have to adjust and adapt,” said Jon Beplay, Salt Lake City station manager for Southwest Airlines. “Having a third-party provider deice our planes meant we would lose some control over out-to-off times.”

Delta, SLC’s largest carrier, opted to continue its own in-house deicing program. The remaining air carriers, including Southwest Airlines, were required to contract with Integrated Deicing Services. The SLCDCA still believed both deice providers could share common-use pads. However, because of congested taxiways, the 34R pad was IDS’ primary pad until approximately 8:30 a.m., at

## Airport Construction & Maintenance Solutions



**We offer a full line of innovative products to meet FAA Advisory Circular standards.**

- Aerocade™ Low-Profile Airport Barricades
- Safe-Hit® Certified Airport Taxiway Markers
- Yodock® 2001 & 2001MB water-filled barricades to delineate work zones for construction and maintenance



**TRINITY**  
**HIGHWAY**  
**RENTALS**

[trinityhighwayrentals.com](http://trinityhighwayrentals.com)

**888.496.3625**

[AviationPros.com/12074727](http://AviationPros.com/12074727)



While the goal of common-use pads with a single deice provider has not been fully realized, the program has been a success because of compromise. All stakeholders found ways to make the program work through a blend of common-use and airline-controlled facilities.

## Mid-season audit reveals slightly longer out-to-off times

In addition to regular meetings, the SLCDA held a program audit halfway through the first deice season. The meeting gave stakeholders an opportunity to express their concerns, talk about their experiences and be heard.

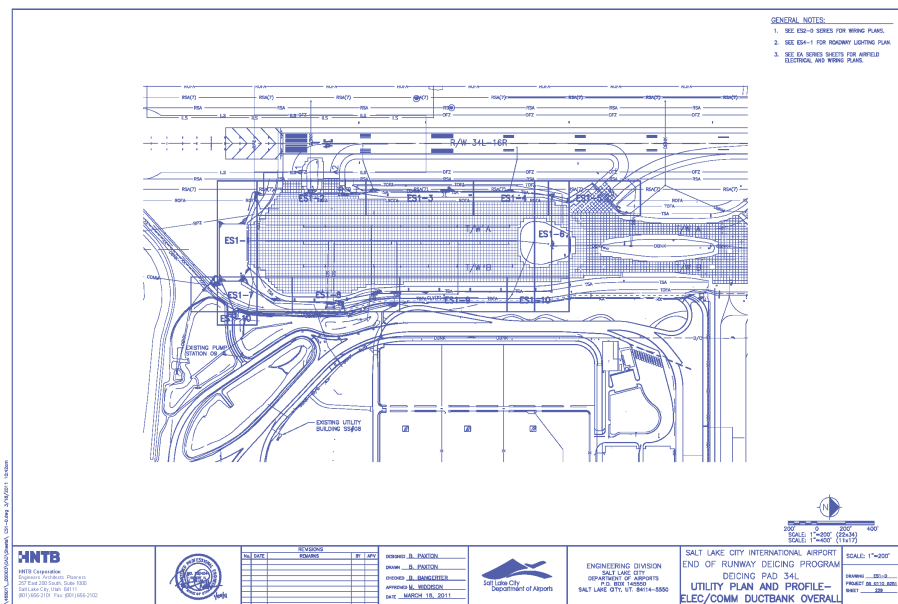


Photo courtesy of HNTB

**Mallaghan®**  
Innovation for Aviation

**innovation for aviation**

**Ground Support Equipment**

**MALLAGHAN HEADQUARTERS**

69 Coalisland Road  
Dungannon,  
Co. Tyrone  
Northern Ireland  
BT71 6LA

Tel: +44 (0) 28 8772 3444  
Fax: +44 (0) 28 8772 7194  
Email: [sales@mallaghanGSE.com](mailto:sales@mallaghanGSE.com)  
[www.mallaghanGSE.com](http://www.mallaghanGSE.com)

**WITH OFFICES IN**

London  
Berlin  
Dubai  
Singapore  
Shanghai  
USA

For more information please visit our website:

**[www.mallaghanGSE.com](http://www.mallaghanGSE.com)**



Several airlines reported improved block and arrival-at-the-other-end times. The discouraging news was out-to-off times (the time from pushback to departure) were longer by an average of one minute compared with the last three deicing seasons. The overall average out-to-off time was 37.1 minutes, with Delta reporting an average 38.2 minutes and IDS clocking in at 35.3 minutes.

The root cause of the increase was the congested taxiway leading to Delta's deicing pad, which blocked other aircraft from accessing other deicing pads. Under the new system, planes queued up at the deice pad. Before, the airlines would hold planes at the gate until a deice pad was available.

"Push-to-off times weren't prohibitively longer, but they were longer than before the new deice pads," Beplay said. "As time went

on, we saw improvement. This year, Delta Air Lines will hold planes short of the deice pad, so the taxiway is not blocked. Based on this new solution for managing congestion, we are optimistic efficiency will continue to increase going into the new season."

Last winter being the first year of the new deicing program, it wasn't known if the longer out-to-off times were typical for end-of-runway pads. Having no previous-year



**Smith Transportation Equipment (STE)** is the leading manufacturer of High Lift Catering/Cabin Service Units in the United States. Founded in 1994 and located in Byhalia, MS, just 20 miles southeast of the Memphis International Airport, STE is dedicated solely to the **design** and **manufacture** of high lift vehicles for the airline industry.

## Latest News

With the opening of an additional 35,000 sq ft facility, including TWO state-of-the-art paint booths, we are now able to offer IN STOCK High Lift Units!

**IN STOCK: STE MH 18 x 21 Wide  
Body Catering Units**

Contact Claire or Logan 662-838-4399 for more information!

VISIT US at [www.smithgse.com](http://www.smithgse.com)



AviationPros.com/12251430



data from which to make comparisons, all stakeholders agreed to reframe that first winter as a benchmarking season and began collecting the appropriate data. This winter, the SLCDCA will be able to compare year-to-year statistics.

## First season confirms a broad definition of success

By January, just one month after official launch, the end-of-runway program was running very well and the SLCDCA was able to place several marks in the win column:

- The airport's deice operations had been consolidated.
- The previous deicing pads were decommissioned, clearing the way for expansion.
- Secondary deicings were eliminated.
- Congestion was improved.
- Greater sustainability was achieved with a sophisticated glycol collection system.
- Actual time on the deicing pads was as predicted. Once aircraft were on the pads, the deicing process was smooth and efficient. Aircraft were moved expeditiously to their assigned departure runways after deice.
- What's more, both providers were committed to the program's success. Delta Air and IDS agreed to manage the deicing pads, freeing SLCDCA operations managers for other tasks.

Going into the second season, the SLCDCA and all stakeholders have the advantage of experience. But, the landscape of the deicing program will continue to evolve with the opening of the fourth deice pad. The new fourth pad will present an opportunity for improved deice operations and a challenge as everyone learns how to incorporate it into operations.

The SLCDCA accomplished what it set out to do after many years of planning, negotiations, design, construction and coordination. It has set the stage for safe, efficient deice operations, future growth and environmental responsibility at Salt Lake City International Airport. **GSW**

### ► ABOUT THE AUTHORS:

**Al Stuart**, AAE, is superintendent of airport operations for Salt Lake City Department of Airports. **Rob Millar**, P.E., serves as project manager for HNTB Corporation, a national infrastructure solutions firm. Special thanks to Doug Harris, airport operations manager, and Treber Andersen, airport operations superintendent at Salt Lake City Department of Airports for their contributions.

## Portable, Fast and Efficient Nitrogen Charging



Infinitely adjustable  
pressure source to ensure use  
of commercially bottled nitrogen gas down to  
a residual pressure of 7 bar.

Charge gas pressures to 500 bar or higher.

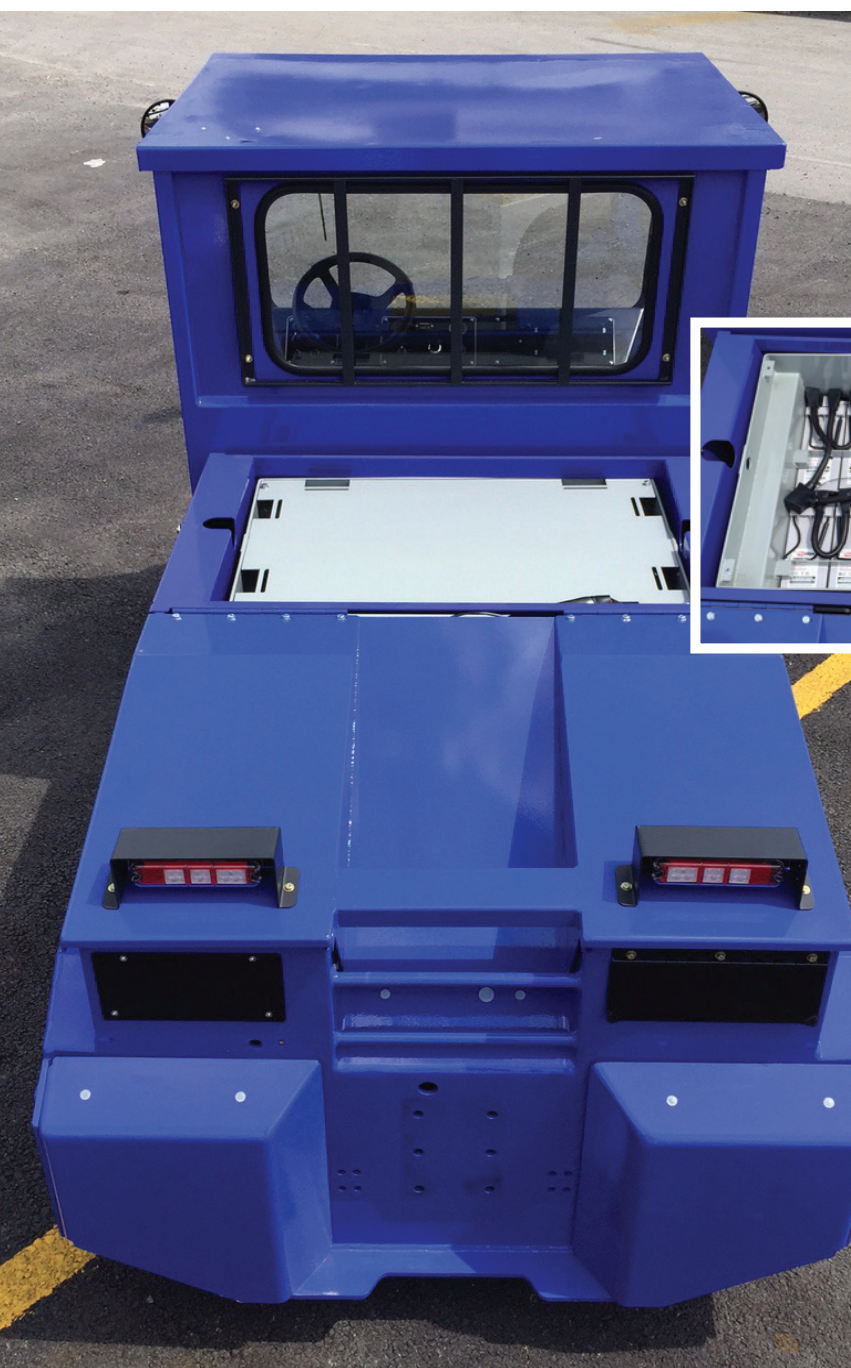
Powered by compressed gas.

**Haskel**  
an Accudyne Industries brand

[haskel.com](http://haskel.com)

AviationPros.com/10018391

# Southwest Airlines Goes Electric with Lead Batteries for its Baggage Tractors and Belt Loaders



Southwest Airlines recently embarked on an 18-month, multi-city trial of NexSys batteries from EnerSys that feature proprietary TPPL technology and a virtually maintenance-free design with

no watering requirements. With no need for watering, the maintenance demands and risks

associated with flooded lead acid batteries are eliminated, freeing up ground crews to focus on other tasks.

**D**espite the cost and environmental advantages of battery-powered ground support equipment, most baggage tractors and belt loaders in operation still rely on diesel power. Southwest Airlines, however, is moving quickly in the other direction. Living up to the “overall commitment to efficiency and the planet” cited in the company’s “triple bottom line approach,” the Dallas-based carrier is converting its fleet of baggage tractors and belt loaders from diesel power toward greener, more efficient electric-powered solutions.

Reflecting that initiative, Southwest Airlines recently embarked on an 18-month, multi-city trial of NexSys batteries from EnerSys. Featuring Thin Plate Pure Lead (TPPL) technology, NexSys batteries offered Southwest Airlines an option for going electric, but one without the drawbacks of flooded lead acid batteries.



## Flooded lead acid battery limitations

In many airports, Southwest Airlines had already converted from Internal Combustion Engine (ICE)-powered baggage tractors and belt loaders to those powered by environmentally friendly flooded lead acid batteries. While these conventional flooded batteries provide inherent advantages over ICE options, they are not without limitations of their own.

Flooded lead acid batteries require watering at regular intervals – a maintenance-intensive task that's difficult to execute on even the best-run ramps. When many dozens of ground support equipment (GSE) vehicles are spread out over several acres, watering their batteries frequently enough can be quite a challenge. Unfortunately, under-watering or over-watering flooded lead acid batteries ultimately reduces their performance and cycle life.

Overwatering flooded lead acid batteries can lead to problems during charging. That's because ground crews won't know if a battery has been over-watered until charging begins, at which time the excess water will flow out of the battery. As most GSE vehicles undergo charging on the ramp, such spills can be a major headache for ground crews since airline and airport environmental departments must be notified. Charging under-watered flooded lead acid batteries can also present problems, as under-watered batteries can overheat during charging.

## TPPL technology advantages

In contrast to these limitations, NexSys batteries feature proprietary TPPL technology and a virtually maintenance-free design with no watering requirements. With no need for watering, the maintenance demands and risks

In fact, lead-acid batteries have a **99 percent** recycling rate.

associated with flooded lead acid batteries are eliminated, freeing up ground crews to focus on other tasks. NexSys batteries provide eco-friendly performance and have high recyclability thanks to the lead-acid-based technology. In fact, lead-acid batteries have a 99 percent recycling rate – far surpassing the sustainability of typical consumer recyclable products such as bottles (34 percent), aluminum cans (55 percent) and newspapers (67 percent) (per [www.epa.gov](http://www.epa.gov)).

Southwest Airlines was intrigued by these benefits, but equally impressed with a key

# Ground power's complicated. We're not.

## Questions?

We've got you covered.

**HONEST ANSWERS**

MCMENG.COM | 650.259.9100

**MCM**  
ENGINEERING

CELEBRATING  
**25**  
YEARS



advantage of NexSys batteries – their fast-charge capabilities enabled by TPPL technology. The positive and negative plates in the batteries are low impedance, highly corro-

sion-resistant thin plate grids manufactured from 99 percent pure lead. Their 99 percent pure lead plates also allow NexSys batteries to be fully charged in less than half the time

that flooded or gel lead acid batteries require. Ideal for opportunity charging, the batteries offer ground support crews the added flexibility to charge them during downtime between flights – with no long equalization charging required. The 99 percent purity level of the plates also allows the NexSys batteries to deliver high-energy throughput and up to three times the battery capacity per 24 hours versus flooded lead acid batteries.

The fast and opportunity charging capabilities sounded promising, but Southwest Airlines management had initial concerns about charging compatibility – the NexSys batteries would have to work with chargers that were not from EnerSys. Todd Allen, owner of Allen Energy and the distributor working to supply the carrier with the TPPL batteries, assured Southwest Airlines management that they would. “Southwest was already using the latest generation of fast chargers,” Allen explains, “so charging incompatibility was not going to be an issue.”

The TPPL construction promised another key advantage for GSE usage – much better performance in low temperatures. That’s because flooded lead acid batteries and gel batteries alike can lose up to half of their capacity in cold weather environments. Convinced that the NexSys batteries would be well worth a try, Southwest Airlines gave the go-ahead for an extended test run.



## U.S. AIRMOTIVE GSE

YOUR ONE STOP SOURCE SINCE 1963

SERVING THE GSE INDUSTRY  
FOR OVER 50 YEARS



ATTACHABLE PLUGS  
AND RECEPTACLES



CRUSH PROOF  
LAV HOSE



LAV COUPLINGS  
AND FITTINGS



JET STARTER HOSES  
AND COUPLINGS



GSE  
PARTS



SAFETY  
PRODUCTS



WATER HOSES, COUPLINGS  
AND FITTINGS



A/C CABLE ASSY  
WITH NOSE



GSE  
PRODUCTS



FULLY WELDED  
PCA HOSE

MIAMI, FL  
305.885.4992  
sales@usairmotivegse.com

WWW.USAIRMOTIVEGSE.COM

LOS ANGELES, CA  
310.327.8407  
paula@usairmotivegse.com

AviationPros.com/10017906

Visit Us At Intl Airport GSE Expo Booth #464



"The **TPPL** technology at the heart of these batteries is **helping** us facilitate our move away from diesel power, and we expect that it will help us **save money** in the process."

### Putting TPPL batteries on trial

The trial began in early 2014, and took place simultaneously at Phoenix, Dallas and Los Angeles International Airports. EnerSys outfitted a fleet of electric baggage tractors and belt loaders with 72-volt NexSys TPPL batteries. A wireless battery monitoring and data collection system was also installed on each vehicle to record a range of battery operating information, including voltage levels and depth of discharge.

After 18 months, the NexSys batteries had performed as promised, with no charger compatibility problems, maintenance concerns or durability issues. By the summer of 2015, Southwest Airlines awarded EnerSys a contract to supply the batteries for its entire fleet of new and replacement baggage tractors and belt loaders – well over 1,000 vehicles in all.

"We are in the process of converting 60 diesel bag tractors at the Phoenix Sky Harbor International Airport and have installed NexSys batteries at Chicago Midway, Dallas/Fort Worth, Los Angeles, San Francisco and several other airports," explains Larry Laney, Southwest Airlines director of maintenance. "The TPPL technology at the heart of these batteries is helping us facilitate our move away from diesel power, and we expect that it will help us save money in the process." **GSW**

*This article was provided by EnerSys.*

# TOWBARS!

You need 'em, we've got 'em! Available for business, regional, commercial and military aircraft.



+1 208-378-9888 | [www.aerospecialties.com](http://www.aerospecialties.com) € €

[AviationPros.com/10016920](http://AviationPros.com/10016920)

Visit Us At Intl Airport GSE Expo Booth #1012



Hydraulics International, Inc.  
OXYGEN & NITROGEN BOOSTERS

## INCREASE PROFITS Gas Boosters provide up to 40% MORE FILLS

Primary use for filling or topping off...

Onboard Oxygen Bottles • Struts • Escape Chute  
High Altitude Low Opening (HALO) • Life Rafts • Tires

Even if your source gas pressure drops below 300-PSI



### 2G SERIES Electric Driven

- 5000-PSIG rated
- 15 SCFM discharge rate
- Quiet, only 60 dba
- No belts or pulleys
- 2-Stage and double acting configurations



### 5G SERIES Air Driven

- 5000-PSIG rated
- 36 SCFM discharge rate
- Portable
- Single acting, double acting and 2-stage configurations



### HIHPG1 SERIES Air Driven

- Two (2) bottle hand truck
- Fits bottles 9.3" in diameter and 51" in height
- Accommodates single / double acting and 2-stage configurations
- Automatic shutoff safety valves



### HYDRAULICS INTERNATIONAL, INC.

9201 Independence Ave., Chatsworth, CA 91311 USA  
(Phone) 818.407.3400 | (Fax) 818.407.3428

[www.hiigroup.com](http://www.hiigroup.com)

HYD-3865.3



Made in the U.S.A.



## HERCULES Harlan Global Manufacturing LLC

The Harlan Hercules is currently available in a 16,000- to 20,000-pound drawbar. Future line expansion will have these available in 12,000- to 25,000-pound drawbar. This heavy-duty unit is in use all over the globe and will take care of towing requirements for aircraft up to a B-737.

[AviationPros.com/10026348](http://AviationPros.com/10026348)



## ALL-PURPOSE VEHICLE Lift-A-Loft Corporation

The Lift-A-Loft APV (All-Purpose Vehicle) is designed to withstand the demands of a hectic ramp environment. The APV can be configured in several different versions, such as high speed tow, lavatory/potable water, maintenance lift, catering truck, crew van, ambulatory lift and many more applications.

[AviationPros.com/10027483](http://AviationPros.com/10027483)



## CONVENTIONAL AND ELECTRIC PUSH BACK TRACTORS

### Aeroservicios USA Inc.

Aeroservicios USA carries all lines of pushbacks from the smallest to the biggest GT-110 or towbarless Expediter 160. We also carry different lines of used Lektro Electric towbarless tractors. All reconditioned (100 percent operational) or overhauled (adapted to new condition 0.00 hours).

[AviationPros.com/12259395](http://AviationPros.com/12259395)



## CHALLENGER 700 Trepel Airport Equipment GmbH

The CHALLENGER 700 is a conventional aircraft tractor that is capable to handle pushback, repositioning and maintenance towing of all widebody aircraft including a fully loaded Airbus A380. The mechanical lock-up clutch of the new generation of power shift transmission reduces fuel consumption when moving at higher speed. The liftable power-pack compartment minimizes downtime of the tractor and reduces maintenance costs.

[AviationPros.com/10280367](http://AviationPros.com/10280367)



## AIRCRAFT TOWING TRACTORS Douglas Equipment Ltd.

A complete range of towbarless and conventional aircraft towing tractors for handling all aircraft up to and including the A380, offering airlines and ground handling companies significant opportunities to reduce their operational costs and improve their operational efficiency.

[AviationPros.com/10026898](http://AviationPros.com/10026898)

## 140 TOW LOW PROFILE PUSH BACK TRACTOR NMC-Wollard Inc.

140 has 8,000 to 14,000 lbs. DBP ratings. It's a low profile, multi-purpose tow tractor with a low center of gravity—ideal for corporate, regional jet and FBO duties. Model 140 is also well established in pushback and cargo hauling applications, and it has features similar to the model 100. It can be customized with many factory-installed options. Model 140 can be powered with gas, Diesel, LPG or CNG.

[AviationPros.com/12228925](http://AviationPros.com/12228925)



## ELECTRIC TOW TRACTOR AERO Specialties

The Eagle Tugs eXL-16 Electric AWD/AWS Commercial Aircraft Tow Tractor features utilitarian characteristics that are unrivaled on the ramp. Capable of towing 115,000 pounds, the eXL-16 front-operated, three-seat tug features an 80V AC electric drive motor. Environmentally friendly power for all-weather towing, the eXL-16 will safely meet your towing requirements.

[AviationPros.com/10775848](http://AviationPros.com/10775848)



## CT5G BAGGAGE TRACTOR

### Charlotte of America

The CT5G comes with a choice of two gas engines – either a Ford four-cylinder, 2.5-liter engine or a four-cylinder, 2.8-liter engine from Zenith Power Products LLC – or a Deutz diesel engine. A Paillard axle is in front and an AxleTech axle in back.

[AviationPros.com/10818003](http://AviationPros.com/10818003)







## TA277 AXLE

### AxleTech International

AxleTech is introducing the TA277, a new rigid axle for baggage and cargo tractors with short wheel bases. The TA277 axle is a replacement for the time-tested TA267 axle model and features a quieter and stronger differential, full-floating axle shafts, and an all-new wheel-end design. The TA277 is the next generation axle of an industry standard with the intent to raise market expectations by reducing downtime and total cost of ownership.

[AviationPros.com/12261823](http://AviationPros.com/12261823)



## ELECTRIC TOW TRACTOR

### JBT AeroTech, Jetway Systems

The JBT AeroTech B400e electric pushback tractor is designed to handle all RJ's and narrow-body aircraft including the B757. Outstanding features include an 80-volt AC electrical system, single maintenance-free motor and controller, and a rear-mounted 930 Ah battery providing two shifts worth of pushbacks before recharging.

[AviationPros.com/10027424](http://AviationPros.com/10027424)

# LIFT-A-LOFT

## GROUND SUPPORT EQUIPMENT



Disabled Passenger Lift



Maintenance Lifts



High Speed Tow Vehicles



Ambulatory Lift Truck



GSE Fuel Trailers

[www.liftaloft.com](http://www.liftaloft.com) • 765-288-3691

MADE IN AMERICA



[AviationPros.com/10017535](http://AviationPros.com/10017535)

Visit Us At Intl Airport GSE Expo Booth #1037



If it's not a  
**Genuine  
ColumbusJack**  
part, it  
shouldn't  
be part  
of your  
**Columbus  
Jack.**

Contact Our  
Spare Parts  
Department  
Today!



**ColumbusJACK | Regent**

GLOBAL SUPPLIER OF GROUND SUPPORT EQUIPMENT

"The Strength of Experience"

614.443.7492

[sales@columbusjack.com](mailto:sales@columbusjack.com)

[www.columbusjack.com](http://www.columbusjack.com)

## ▶ ALTERNATIVE DRIVE TECHNOLOGY

### MULAG Fahrzeugwerk GmbH

The MULAG GSE product range offers customers a good choice of innovative concepts, such as hybrid drives, LPG or CNG drives and fuel cell drives that are all suitable for reliable application on the apron and provide just the edge of technology advantage that is needed for a future-oriented ground handling concept.

[AviationPros.com/10756699](http://AviationPros.com/10756699)



## ▶ SPARK IGNITED ENGINES

### Kubota Engine America Corp

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

[AviationPros.com/12242542](http://AviationPros.com/12242542)

## ▶ EXTENDED TOWING TRACTOR

### Bliss-Fox Ground Support Equipment

The Bliss-Fox F1-150 aircraft pushback and extended towing tractor is designed in Australia for both pushback and extended towing of fully laden aircraft from 110-182 tons. This tractor suits pushback and towing on A321 and B737 aircraft. With power to spare, the all-new F1-150 features a 138-hp diesel engine with 125.6kN of draw bar pull.

This modern styled, unique tractor is available as a standard 11-ton base model with options for air-conditioning and ballast up to 18 tons of total tractor mass.

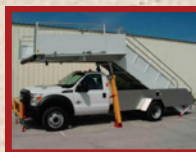
[AviationPros.com/10363230](http://AviationPros.com/10363230)



## MORE THAN 20 YEARS OF QUALITY GSE PRODUCTS!



### NARROW BODY TO WIDE BODY STAIRS



### LAVATORY AND WATER SERVICE CARTS & TRUCKS

### MAINTENANCE LIFTS

### BELT LOADERS



METAL PRODUCTS, INC.

300 INDUSTRIAL AVENUE 3  
FT. PIERCE, FL 34946  
PHONE: (772) 595-6386 / FAX: (772) 595-6389  
EMAIL: [phoenixgse@earthlink.net](mailto:phoenixgse@earthlink.net)  
WEBSITE: [www.phoenixgse.com](http://www.phoenixgse.com)

[AviationPros.com/10117661](http://AviationPros.com/10117661)

Visit Us At Intl Airport GSE Expo Booth #714



## ▶ MB4 TOW TRACTOR

### NMC-Wollard Inc.

Model MB4 has a 16,000 lbs. DBP rating. A short wheelbase and 4-wheel steering make the MB4 highly maneuverable. The tractor features a turbocharged 6-cylinder Cummins QSB 6.7 engine coupled to a 6-speed automatic Power shift transmission. Drive axles have 45% limited slip differentials for maximum traction.

[AviationPros.com/12228930](http://AviationPros.com/12228930)





## FOUR-WHEEL STEER TRACTOR

### SCHOPF Maschinenbau GmbH

This conventional, four-wheel drive and four-wheel steer tractor is suitable for all wide-body aircraft presently in service. Equipped with fully automatic transmission, SCHOPF's heaviest and best-selling tractor is the world's market leader. The F396 E can handle all pushbacks and towing over middle-distances, ensuring smooth-running apron operation.

[AviationPros.com/10824164](http://AviationPros.com/10824164)

## TE.208 BAGGAGE/TOW TRACTOR

### Charlotte of America

The TE.208 baggage/tow tractor is a battery-powered, four-wheel towing vehicle with enough power to provide a superior alternative to a full-size baggage tractor for those operations that don't require one. The unit is a compact highly maneuverable vehicle, which allows easy access to the operators compartment with good front and rear visibility. A low center of gravity provides excellent stability. There are currently over 1,000 of these units operating in the field today. The unit is capable of a top running speed of 9 mph (14.4 km/h) when empty with a drawbar pull of over 1,100 lbs. (499 kg). The operator's compartment contains all the controls and indicators necessary to drive the unit including foot-operated accelerator pedal, directional lever, keyless power switch, light switch and horn switch. The battery connector is located for convenient power disconnects.

[AviationPros.com/12017864](http://AviationPros.com/12017864)



## UNIBODY FRAME CONSTRUCTION

### Taylor-Dunn Manufacturing

Available with multiple engine packages to meet various environmental conditions. The unit is equipped with steel unibody frame construction for durability and reliability. The unit has excellent steering capability and maneuverability.

[AviationPros.com/10027737](http://AviationPros.com/10027737)



## AVEREST POWERFUL SOLUTIONS FOR YOUR ELECTRIC GSE

Visit us at Booth #1104 at the International Airport GSE Expo



Electric GSE Solutions for Aviation  
Proud supplier of the following brands:

**Deka**  
BATTERIES

**PosiCHARGE**  
Aero/Aviation

**Flow Rite**

**FLUX**

**AMETEK**

Battery Monitoring Technologies

**WWW.AVEREST.BIZ**

[AviationPros.com/12231044](http://AviationPros.com/12231044)

[www.juniper-liverpool.com](http://www.juniper-liverpool.com)



The Juniper 2x25 gallon Universal Wash Rig washing the T56 engines on a P3 Orion using our P3 Orion spray ring with adjustable nozzles. Spray ring part no. (JMP/T56/D/1847/C200)



The Universal Rig, left  
(JMP/HER/D/1144/C600)



Tel: +44(0)151 733 1553  
Email: [gse@juniper-liverpool.com](mailto:gse@juniper-liverpool.com)

[AviationPros.com/10017984](http://AviationPros.com/10017984)



## CARGO, BAGGAGE TRACTOR SCHOPF Maschinenbau GmbH

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

[AviationPros.com/10027541](http://AviationPros.com/10027541)

## WIRELESS COMMUNICATION SYSTEM FOR PUSHBACK OPERATIONS

### David Clark Company Inc.

Series 9900 Wireless Systems for pushback operations are designed to provide ground crews with enhanced mobility and situational awareness without being tethered to the aircraft or pushback apparatus. Pushback operations are handled with greater efficiency and turnaround time at the gate is improved. The Series 9900 System can be configured for a single user (tug operators working alone with no wing walkers) or as a three-position system to facilitate communication between the tug operator and wing walkers. Rugged, reliable system components include pushback gateway and interface cord for connecting to the aircraft service panel, noise-attenuating headsets and belt stations.

[AviationPros.com/12033689](http://AviationPros.com/12033689)



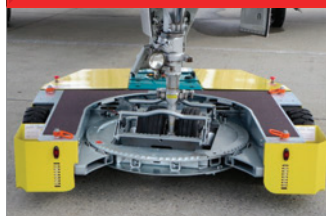
## TRADITIONAL PUSHBACK TRACTORS TLD

TLD has been manufacturing GSE for more than 50 years. Manufacturing tractors capable of serving regional jet to super jumbo jets, TLD has a tractor to serve any market. Featuring a variety of different configurations and options, TLD can make a tractor that will thrive in even the most challenging ramp conditions.

[AviationPros.com/10363123](http://AviationPros.com/10363123)



## Remote Operated Aircraft Tugs



## Revolutionary & Patented 360° Rotating & Nose Gear Lifting Technology

**Rugged & Reliable  
Universal & Easy to Use  
Up to 40% higher Hangar  
Space Utilization**



**+1-904-217-0496 • [www.tna-aviation.com](http://www.tna-aviation.com)**

[AviationPros.com/12139156](http://AviationPros.com/12139156)

## WE OFFER SOLUTIONS FOR GROUND SUPPORT EQUIPMENT



GSE manufacturers Representations

\*HOBART\* TRILECTRON\* J&B AVIATION\* \*AIR-A-PLANE\* HARLAN \*CLARK\*  
\*JBT AEROTECH\* FMC\* AP MANUFACTURING \*TUG\* DAVCO\* S&S\* CLYDE\* \*WASP\*  
\*ISCAR GSE\* TESCO\* TRONAIR\* ARVICO\* LIFT-A-LOFT\* TLD\* LANTIS\* ACE\* NORDCO\*



USA Miami: +1 305 888 0189  
Toll Free USA: +1 877 473 2669  
COL. Bogotá: +57 (1) 344 1380  
COL. Medellín: +57 (4) 609 5833  
Rep. Dominicana: +1 829 999 6290

• Replacement Parts  
• Equipment: New & Used  
• Electronic Repairs

Cualquier asesoría también en español

Buy parts on-line:

**SGS on line store**  
[www.gs-exp.com](http://www.gs-exp.com)



[AviationPros.com/10017767](http://AviationPros.com/10017767)





## ▶ NORTHWESTERN/ WOLLARD MODEL 140D PUSHBACK TRACTOR

### Planet GSE - A Division of GSE Logistics

Northwestern/ Wollard Model 140D Pushback Tractor has a low profile design. Powered by a Perkins 4.236 diesel engine, it features an automatic transmission, dual rear wheels.

[AviationPros.com/10963961](http://AviationPros.com/10963961)



## ▶ MANEUVERABLE TUGS

### Mototok America LLC

These tugs offer 100 percent visual control around the aircraft. No knocks. No collisions. No towbars. And optimum use of limited space. Mototok aircraft tugs are capable of maneuvering a plane's nose a few millimeters away from a hangar wall and, above all, quickly and efficiently prepare all other aircraft or helicopters in the hangar for their next duties.

[AviationPros.com/11706293](http://AviationPros.com/11706293)

## ▶ ELECTRIC TOW TRACTOR

### Nandan GSE Pvt. Ltd.

Nandan GSE is proud to present the 2015 Latest version of its most popular Electric Baggage Tractor. They are designed to tow baggage carts from the airport terminal building to the aircraft and vice-versa. They are also used in out-door areas when environmental considerations have to be taken into account. Additional features can be found at the link below.

[AviationPros.com/12216242](http://AviationPros.com/12216242)



# **LEKTRO**

Since 1945

**The Original Aircraft Tug**



**Models Ranging**  
**15,000 to 280,000 lbs.**

- **Electric**   • **Towbarless**   • **Certified**
- **Universal**   • **Easy to Use**
- **Simple to Maintain**   • **Rugged**

**www.LEKTRO.com**

**1-800-535-8767   1-503-861-2288**

**sales@lektro.com**

[AviationPros.com/10017652](http://AviationPros.com/10017652)

Visit Us At Intl Airport GSE Expo Booth #845

## FOR SALE IMMEDIATELY! BRAND NEW! NEVER USED!

### GLOBAL 8300 DEICER

Only 49 miles on truck and 8 minutes on the burner!  
Never put in service!



Call 415-576-9007  
[marc@vogelequipment.com](mailto:marc@vogelequipment.com)

# VOGEL EQUIPMENT

[AviationPros.com/12098308](http://AviationPros.com/12098308)



## ELECTRIC TOWBARLESS TUGS

### Tronair Inc.

Tronair offers environmentally friendly electric towbarless tugs. Models include the JP30, JP75 and JP100 with towing capacities of 30,000 pounds, 75,000 pounds and 100,000 pounds, respectively. Move your units safely and efficiently with these rugged, compact and maneuverable units.

[AviationPros.com/10775871](http://AviationPros.com/10775871)

## HIGH SPEED CARGO TRACTOR

### Eagle Tugs a Tronair Company

Eagle Tugs was the originator of the Bob Tail high-speed cargo tractor more than 40 years ago and is still the leader today.

Eagle Bob Tails can tow cargo up to 90,000 pounds. (40,823 kilograms).

[AviationPros.com/11191672](http://AviationPros.com/11191672)



## MB-2 AIRCRAFT TOW/PUSH TRACTOR

### Prime GSE

The MB-2 is a 53,000-pound towing and push back tractor with all-wheel drive and all-wheel steer, a Cummins 5.9 diesel and auto transmission. It is fully refurbished.

[AviationPros.com/10856349](http://AviationPros.com/10856349)



## PUSHBACK/TOW TRACTOR RENTALS

### Davin Inc.

Davin Inc has various size pushback tractors available for long- and short-term leasing.

[AviationPros.com/10177563](http://AviationPros.com/10177563)



### Statement of Ownership, Management, and Circulation (Requester Publications Only)

1. Publication Title Ground Support Worldwide	2. Publication Number 015-386	3. Filing Date September 15, 2016
4. Issue Frequency February, March, April, May, Jun/Jul, August, September, October, November, Dec/Jan	5. Number of Issues Published Annually 10	6. Annual Subscription Price Free to Qualified Subscribers
7. Complete Mailing Address of Known Office of Publication (Street, City, County, State, and Zip+4) SouthComm Business Media, LLC 1233 Janesville Ave PO Box 803 Fort Atkinson, WI 53538-0803		Contact Person Debbie Dumke  Telephone (920) 563-6388
8. Complete Mailing Address of Headquarters or General Business Office of Publisher SouthComm Business Media, LLC, 1233 Janesville Ave, PO Box 803, Fort Atkinson, WI 53538-0		
9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor		
Publisher (Name and Complete Mailing Address) Missy Zingsheim 1233 Janesville Ave, PO Box 803 Fort Atkinson, WI 53538-0803		
Editor (Name and Complete Mailing Address) Alex Wendland 1233 Janesville Ave, PO Box 803 Fort Atkinson, WI 53538-0803		
Managing Editor (Name and Complete Mailing Address)		
10. Owner (Do not leave blank. If the publication is owned by a corporation, give the name and address of the corporation immediately followed by the names and addresses of all stockholders owning or holding 1 percent or more of the total amount of stock. If not owned by a corporation, give the names and addresses of the individual owners. If owned by a partnership or other unincorporated firm, give its name and address as well as those of each individual owner. If the publication is published by a nonprofit organization, give its name and address.)		
Full Name SouthComm Business Media, LLC	Complete Mailing Address 1233 Janesville Avenue, Fort Atkinson WI 53538	
11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or more of Total Amount of Bonds, Mortgages or Other Securities. If none, check here. <input checked="" type="checkbox"/> None		
Full Name	Complete Mailing Address	
City Paper, LLC	1233 Janesville Avenue, Fort Atkinson, WI 53538	
Decision Media, Inc.	1233 Janesville Avenue, Fort Atkinson, WI 53538	
Chris Ferrell	1233 Janesville Avenue, Fort Atkinson, WI 53538	
North American Equity Investors, Inc.	1233 Janesville Avenue, Fort Atkinson, WI 53538	
Tom Schiff	1233 Janesville Avenue, Fort Atkinson, WI 53538	
Solidus Company, LP	1233 Janesville Avenue, Fort Atkinson, WI 53538	

12. Tax Status (For completion by nonprofit organizations authorized to mail at nonprofit rates). (Check One)  
The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes:

- ☐ Has Not Changed During Preceding 12 Months  
☐ Has Changed During Preceding 12 Months

13. Publication Title Ground Support Worldwide	14. Issue Date for Circulation Data Below September 2016	
15. Extent and Nature of Circulation	Average No. Copies Each Issue During Preceding 12 Months	No. Copies of Single Issue Published Nearest to Filing Date
a. Total Number of Copies (net press run)	12788	12562
b. Legitimate Paid and/or Requested Distribution (By Mail and Outside the Mail)		
(1) Outside County Paid/Requested Mail Subscriptions stated on PS Form 3541. (Include direct written request from recipient, Internet and e-mail requests, subscription paid copies, and exchange copies.)	4022	4695
(2) In-County Paid/Requested Mail Subscriptions stated on PS Form 3451. (Include direct written request from recipient, Internet and e-mail requests from recipient, paid subscriptions including normal rate subscriptions, exchange requests, subscription paid copies, and exchange copies.)	0	0
(3) Sales Through Dealers & Carriers, Street Vendors, Counter Sales, and Other Paid or Requested Distribution Outside USPS Through the USPS. (e.g., First-Class Mail)	4228	4212
(4) Requested Copies Distributed by Other Mail Classes	0	0
c. Total Paid and/or Requested Circulation (Sum of 15b(1), (2), (3), and (4))	8251	8907
d. Nonrequested Distribution (By Mail and Outside the Mail)		
(1) Outside County Nonrequested Copies stated on PS Form 3541. (Include Sample copies, Requests Over 3 years old, Requests initiated by e-Postcard, Bulk Sales and Requests including Association Requests. Names obtained from Business Directories, Lists, and other sources.)	3993	3343
(2) In-County Nonrequested Copies stated on PS Form 3541. (Include Sample copies, Requests Over 3 years old, Requests initiated by e-Postcard, Bulk Sales and Requests including Association Requests. Names obtained from Business Directories, Lists, and other sources.)	0	0
(3) Nonrequested Copies Distributed Through the USPS by Other Classes of Mail (e.g., First-Class Mail, Nonrequestor Copies mailed in pieces of 10% Limit mailed at Standard Mail or Package Service Rates)	0	0
(4) Nonrequested Copies Distributed Outside the Mail (Include Third-Class, Trade Shows, Conferences, & other sources)	298	14
e. Total Nonrequested Distribution (Sum of 15d(1), (2), and (3))	4291	3357
f. Total Distribution (Sum of 15c and e)	12542	12264
g. Copies Not Distributed	247	298
h. Total (Sum of 15f and g)	12788	12562
i. Percent Paid and/or Requested Circulation (15c / 15f x 100)	65.8%	72.6%
16. Electronic Copy Circulation		
a. Requested Electronic and Paid Electronic Copies	6,049	6,196
b. Total Requested and Paid Print Copies (Line 15c) + Requested/Paid Electronic Copies (Line 16a)	14,300	15,103
c. Total Copy Distribution (Line 15f) + Requested/Paid Electronic Copies (Line 16a)	18,591	18,460
d. Percent Paid and/or Requested Circulation (Both Print & Electronic Copies) (16b divided by 15f x 100)	53.9%	57.7%

17. Publication of Statement of Ownership for a Requester Publication is required and will be printed in the October 2016 issue of this publication.

18. Signature and Title of Editor, Publisher, Business Manager, or Owner

Terri Pettit, Director, Audience Development

September 15, 2016

I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including civil penalties).



# ALBERTH AVIATION

NBAA  
Orlando  
Booth# 2739

TOOLS & EQUIPMENT DESIGNED BY MECHANICS FOR MECHANICS

## Spanner Socket Kit



Available  
for  
Gulfstream  
and Global  
Express

- Low profile allows for single-person use
- Easy alignment w/attached flashlight in site holes
- Includes socket, flashlight, & no-flex breaker bar head

Tire Cage • Bottled Water Cart • Lav  
Cart • Wheel & Brake Dolly • Tooling

## Oxygen Fill Adapter



- 3 in 1 tool: Fill port connector, wrench, screwdriver
- Spring-loaded retractable socket driver
- Secure removal of service port nut without stripping
- Assures tight seal before servicing oxygen

20 years

www.AlberthAviation.com • 832.934.0055

AviationPros.com/10016971

# YOUR GSE SHIPPING EXPERTS



Experience You Can Depend On

www.AirOceanPros.com

714-377-5933 | Sales@AirOceanPros.com

AviationPros.com/10018518

Visit Us At Intl Airport GSE Expo Booth #801



**FORTBRAND**  
SERVICES INC  
www.fortbrand.com

516 576-3200

info@fortbrand.com

SALES RENTALS LEASING FINANCE CONSULTING

### AIRCRAFT TOW TRACTORS

TLD TMX-350-28 (61,000 lbs GVW)  
TLD TMX-150-16 (35,000 lbs GVW)  
Tug GT50H (60,000 lbs GVW) w/GPU

### BAGGAGE TRACTORS

TLD JST-25, gas  
Harlan HTA50, diesel

### DEICERS

Premier MT43P21-ABS, closed bucket, forced air  
Premier MT43P21, open bucket  
FMC Tempest, open bucket  
Global 2100, closed bucket, forced air

### AIR STARTS

TLD 270 PPM  
TLD 180 PPM

### PASSENGER STAIRS

Phoenix Metal PAS200 wide body  
Stinar SPS-2513

### CONVEYORS

NMC-Wollard TC-888, diesel

### HEATERS

Air-A-Phone 5050, diesel  
Coldbuster Mark IV, gas

### AIR CONDITIONERS

TLD 802 115-ton w/heat  
TLD 804 65-ton w/heat  
TLD 302 24-ton w/heat  
Trilectron DAC200 20-ton

### GPU

TLD 90Kva & 120Kva  
TLD 90Kva/28V dual output  
Hobart 4400 90Kva/28V dual output  
JetGo 550Mti-RJ 28V  
Hobart JetEx 6D 28V  
Hobart JetEx 7D 28V

### LAVATORY TRUCK

Phoenix Metal Products TL600

FOR SALE OR LEASE

AviationPros.com/10017302

Visit Us At Intl Airport GSE Expo Booth #450



All of that equipment on the tarmac...



Come see us in  
booth #1149.  
INTERNATIONAL  
AIRPORT  
GSE  
EXPO

We fix it!



763-259-0206 | www.GlobalAviationServicesLLC.com

AviationPros.com/10018172

# SATELLITE SPECIALIZED TRANSPORTATION, INC.



EXPERIENCE AND EXPERTISE IN YOUR GROUND SUPPORT SHIPPING NEEDS

Satellite Specialized Transportation Inc. provides truck load, LTL, flatbed, containers, van, over dimensional loads, stretch trailers, air-ride, double drops, rigging, tarps, multi-axle, removable goosenecks, forklift, crane, power only, ocean freight, tarps, hazardous materials, emergency services, refrigerated vans and much more.

Providing Reliable Service for 25 Years

Bend OR - 800-578-8956 - Sales  
Sedona - AZ 800-292-0955 - Sales  
Medford OR - 800-578-0955 - Sales  
www.Satellitetrans.com

AviationPros.com/10018510

# OTTO Connect

powered by MULTIVOICE,

Hands-free  
wireless  
intercom  
system

**OTTO**  
Expect Excellence.

www.ottoexcellence.com



AviationPros.com/12238278

Visit Us At Intl Airport GSE Expo Booth #224

## HIGHLIFT TRUCK Stinar Corporation

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

[AviationPros.com/12103312](http://AviationPros.com/12103312)



## 8800 SERIES LEKTRO, Inc.

LEKTRO's 8800 series is the workhorse of FBOs and militaries worldwide. With a towing capacity of up to 120,000 lbs and a low-profile, sit down operation, the 8800 series will tow virtually every regional airline, long-range business jet or military fighter out there.

[AviationPros.com/10025896](http://AviationPros.com/10025896)

# Mercury GSE

## Ground Support Equipment

[www.mercurygse.com](http://www.mercurygse.com)

for current stock of air starts, bag tugs, beltloaders, bobtails, crew and passenger stairs, gpu's, loaders — main and lower deck, tow tractors and other items.

**SALES LEASE RENTAL APPRAISAL**

## WE BUY SURPLUS GSE

PH: (562) 653-0654 FAX: (562) 653-0665  
E-MAIL: [dtaylor@mercurygse.com](mailto:dtaylor@mercurygse.com)  
12519 Cerise Ave., Hawthorne, CA 90250

[AviationPros.com/10017592](http://AviationPros.com/10017592)

## MIGHT-E TRUCK Canadian Electric Vehicles

This electric powered utility vehicle has customized bed options. Offering, an on-board battery charger and solid state speed controller, powered by a 72V, 225 Ah battery pack and an 16 or 35 hp AC motor, the zero emission vehicle has a field adjustable top speed of up to 25 mph.

[AviationPros.com/10027317](http://AviationPros.com/10027317)



### AEROSERVICIOS USA INC.

- Sells, rents and leases used and new Ground Support Equipment.
- Provides GSE to general, commercial, cargo and private aviation, ground handlers, airports, airlines, FBOs and other businesses worldwide.
- Reconditions or Overhauls all types of GSE.

### AEROSERVICIOS IN NUMBERS

- 21 years+ in business
- 400+ customers
- 40 countries
- 9,000+ units sold
- Main and Auxiliary Shop of 143,000 sq. ft. located at the Miami International Airport Area.
- 3 acres of equipment storage
- 100+ full-time skilled mechanics



3750 NW 49 ST, Miami, FL 33142  
Phone: 305-637-3040 | [info@aeroservicios.com](mailto:info@aeroservicios.com)

[AviationPros.com/10016926](http://AviationPros.com/10016926)

Visit Us At Intl Airport GSE Expo Booth #510

# YOU KNOW US WELL



Typical ECM we design and build to monitor and control vehicle functions.



Ford C-6 Mechanical Trans-Stop.

Safety Systems & Controls has protected Airline GSE for over 20 years with our Patented Trans-Stop mechanical shift inhibitors. Let us help you make your newer electronically controlled equipment smarter which includes top travel speed limiters, access control, idle control, electronic shift inhibitors, ignition interlocks, zone speed control and more.



[www.loadingzonesafety.com](http://www.loadingzonesafety.com)

713-465-8839

[AviationPros.com/10017728](http://AviationPros.com/10017728)

Visit Us At Intl Airport GSE Expo Booth #259



**DAVIN Inc.**SALES, LEASING,  
FINANCING

## CONTACT:

David Zschunke  
DavinGSE@att.net  
95 Crooked Hill Road,  
Commack, NY 11725  
www.DavinGSE.com

**EQUIPMENT AVAILABLE**

(Contact us if you need equipment not listed here!)

Aircraft Pushback Tractors  
Passenger Stairs  
Baggage Carts  
Pallet Container Dollies  
Aircraft Air Conditioners

Aircraft Deicers  
Tow Bars  
Catering Trucks  
Potable Water Trucks  
Ground Power Units

Belt Loaders  
Lavatory Trucks/Carts  
Airstarts  
Aircraft Heaters  
Tugs & Bobtails

Visit: [www.Davin-Inc.com/Equipment](http://www.Davin-Inc.com/Equipment) for a list of available equipment

Use us for your GSE needs



- Electronic Repair
- Equipment and Training
- Replacement Parts

(305) 888 01 89  
(305) 851 81 44  
Cualquier asesoria  
tambien en español

GPU • ASU • ACU • LOADERS • ENGINES  
BAGGAGE TRACTORS • BELT LOADERS  
TRANSMISSIONS • RAMP ACCESSORIES  
www.SGSequipment.com

**ALBERTH  
AVIATION**

GROUND SUPPORT EQUIPMENT

832-934-0055 • [www.AlberthAviation.com](http://www.AlberthAviation.com)**ADVERTISE HERE**

Contact Michelle Scherer for advertising information:  
Phone: 800-547-7377 ext. 1314 • E-mail: [MScherer@AviationPros.com](mailto:MScherer@AviationPros.com)

**SCHWEISS**

**DOORS**

**HYDRAULIC —OR— BIFOLD**

ONE-PIECE DOORS STRAP LIFT DOORS

507-426-8273

**SCHWEISSDOORS.COM**

**QUALITY USED  
& REBUILT GSE**

Current Equipment Available for Purchase or Lease

**FMC TRUMP 2000II— Aircraft Deicer**

Mounted on a Ford 700 Chassis, V-8 Gasoline Engine with Automatic Transmission, 4 Million BTU Heater.

- 1,400 Gal. Type I & 600 Gal. Type IV tanks.
- Good Operating Condition!

\$53,000

**Ford F350— Super Duty Maintenance Lift**

- 1998 Tesco Model 5020 Maintenance Lift
- 2,500lbs. deck capacity
- Unit has 5,500 miles
- 5,384 engine hours.

\$24,900

**2008 NMC Wollard Pushback Tractor**

A low profile, dual purpose, and low center of gravity tow tractor, ideal for corporate and regional jet applications. An 8,000 to 14,000 DBP tow tractor has proven itself in many corporate and regional jet applications.

- Ford 300, Gasoline Powered Engine
- Ford C-6, 2008 Model with ONLY 3,446 HOURS

\$32,999

**Hobart GPU 60KVA**

Hobart products are engineered to meet the growing requirements of the next generation airports and aircrafts. Low profile, combined with standard automotive-type steering, provide superior visibility and maneuverability in congested ramp areas.

- Specifications:
- Cummins Diesel Engine
- Trailer mounted with tow bar and park brake
- Power Cord and Aircraft plug
- Low oil pressure shutdown
- Electronic governing system

\$19,750

**662-342-1412****WWW.GSSONLINE.COM****Ground Support Specialist**

GSA Contract Number: GS-30F-038BA

**EMR** LOGISTICS INC.

www.ShipEMR.com

920 Bond Street / Suite 208 / Bend, Oregon 97701  
Toll free: 855.811.1080 / Local: 541.550.7158 / Fax: 541.550.7138

MC# 847359 | DOT# 2478260 | SCAC# EMRO

**LAND • AIR • SEA**

For all your transportation needs.

CONTACT: **Joey Mazzone**  
GSE TRANSPORTATION SPECIALIST

TOLL FREE: 855.811.1080  
[Joey@ShipEMR.com](mailto:Joey@ShipEMR.com)

"Consider It Done."™



▲ Editor - Josh Smith  
jsmith@aviationpros.com  
920-563-1644

# It's a Pleasure to Meet You

Ground Support is a 'we' business, not a 'me' business. Let's work together to tackle the biggest issues facing the industry.

It is with great excitement that I introduce myself as the new editor of *Ground Support Worldwide*.



I'm eager to get to know all of you, and I intend to meet as many of you as possible during the International Airport GSE Expo in Las Vegas. I'm armed with new business cards and ready to shake some hands!

I have much to learn about the industry, but I'm told you are a friendly bunch willing to get me up to speed.

As I become acclimated with the world of ground support, I encourage you to reach out and call attention to the topics that mean the most to you. What challenges do you face on a daily basis? What steps have you taken to make operations smoother? What does the future of the industry hold?

Comments from you will help me identify the key issues affecting your busi-

ness so we at *Ground Support Worldwide* can generate articles and other content to help you succeed.

The simplest way to share your view is to email or call me. I can be reached at jsmith@AviationPros.com or at 920-563-1644. If you prefer to use social media, you can touch base with me directly on Facebook - [www.Facebook.com/GroundSupportWW](http://www.Facebook.com/GroundSupportWW), or connect with me on Twitter - @GroundSupportWW.

Or you can use any of the AviationPros accounts mentioned at the bottom of this page.

Let's work together to highlight the most important issues regarding ground support. Collectively, we can keep one another informed, working efficiently and succeeding.

## SOCIAL MEDIA & ONLINE CONTENT



FACEBOOK  
[facebook.com/AviationPros](http://facebook.com/AviationPros)



YOUTUBE  
[youtube.com/user/AviationProsVideos](http://youtube.com/user/AviationProsVideos)



TWITTER  
[@aviation\\_pros](https://twitter.com/aviation_pros)



LINKEDIN  
[linkedin.com/groups/1763027](http://linkedin.com/groups/1763027)

## MEDIA CENTER



What the DOT Discovered about Frequent Flyer Programs  
[AviationPros.com/12250001](http://AviationPros.com/12250001)

## TOP ARTICLE



TNA - Aviation Technologies  
A Division of Turville, Nielsen & Associates, P.A.

Study Examines Aircraft Tow Accidents  
[AviationPros.com/12260420](http://AviationPros.com/12260420)

## ONLINE PRODUCT GUIDE



SafeSmart Access Chock and Cone Trolley  
[AviationPros.com/12262014](http://AviationPros.com/12262014)



# THE POWER TO MOVE YOU

- *OEM approved*
- *For all your aircraft needs*
- *Towbar and towbarless*
- *Rugged and dependable*
- *Patented technology*



*Now under one roof*

**TRONAIR®**

[www.tronair.com](http://www.tronair.com)  
1.800.426-6301

**Jet PORTER**  
A TRONAIR COMPANY

[www.jetporter.com](http://www.jetporter.com)  
1.800.426-6301

**EAGLE**  
A TRONAIR COMPANY™

[www.eagletugs.com](http://www.eagletugs.com)  
1.800.671.0431

# ENGINE DISTRIBUTORS INC.



*YOUR Tier IV Solution*

Reliable • Durable • Clean • Green

*Engines That Are The Solution To Your Tier 4 Diesels.*



5-YEAR,  
5000 HOUR  
WARRANTY  
FOR THE  
GSE MARKET



## Ford Advanced Technology Engines.

Our line of LSI industrialized Ford engines are available and serviced through a Global Dealer Network.

Featuring a complete line of EPA and CARB Certified 1.6, 2.5, 3.7 and 6.8 L LSI Engines ranging from 20 to 200 hp. Available in Gasoline, LPG, CNG, Natural Gas and Dual Fuel. Secured Volumes, Longer Life Cycles, Dry Fuel and Flex Fuel Valve Trains – You Can Find It At EDI. Performance you can count on!

**Engine Distributors Inc.** 400 University Court • Blackwood, NJ 08012  
Phone: (856) 228-7298 or (800) 220-2700 • [www.edi-dist.com](http://www.edi-dist.com)