

MAINTENANCE/
SHOP
EQUIPMENT

MARCH 2016

Ground Support

WORLDWIDE

Supporting Aviation from the Ground Up

FLEET OF FINANCE

To lease or to own? Ground handlers, airlines and FBOs need to react to a changing marketplace swiftly to maintain their GSE fleets.



INTERNATIONAL

The Chance to Build a Better Ramp:

Are South American boom-build airports being designed to prevent the infrastructural constraints like those in the West that make ground damage more likely? Page 16

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

1.800.426-6301

Jet PORTER
A TRONAIR COMPANY

www.jetporter.com

1.800.426-6301

EAGLE
A TRONAIR COMPANY™

www.eagletugs.com

1.800.671.0431



Editor

Alex Wendland
920.563.1644 ▶ alex.wendland@AviationPros.com

Associate 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-lowe.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

Brett Ryden ▶ Publisher, Aviation Group

Lester Craft ▶ Director of Digital
Business Development

SOUTHCOMM BUSINESS MEDIA

Chris Ferrell ▶ CEO

Ed Teaman ▶ CFO

Blair Johnson ▶ COO

Eric Kammerzell ▶ VP, Technology

Curt Pordes ▶ VP, Production Operations

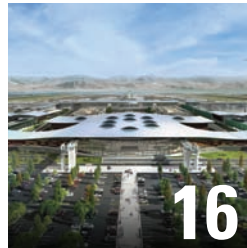
Subscription Customer Service
877-382-9187; 847-559-7598
Circ.groundsupportww@omeda.com
PO Box 3257 Northbrook, IL 60065-3257

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 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 so warrant any views or opinions offered by the authors of said articles.



▲ COVER STORY

10 Fleet of Finance:
To lease or to own? Ground handlers, airlines and FBOs need to react to a changing marketplace swiftly to maintain their GSE fleets.

► INTERNATIONAL/FEATURE

16 The Chance to Build a Better Ramp:
Are South American boom-build airports being designed to prevent the infrastructural constraints like those in the West that make ground damage more likely?

22 The Capacity Conundrum:
Reliable communication on the ramp is a safety imperative, not a convenience.

26 Delta's Other Fleet: The Science Behind Ground Equipment:
Delta Air Lines shares their GSE fleet maintenance strategy with *Ground Support Worldwide* including their Atlanta GSE maintenance facility.

► DEPARTMENTS

04 Business Buzz

29 Product Hangar

33 Classified Advertising

► COLUMNS

34 Editor's Note

SOCIAL MEDIA & ONLINE CONTENT



FACEBOOK
facebook.com/AviationPros



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



LINKEDIN
linkedin.com/groups/AviationProscm



YOUTUBE
youtube.com/user/AviationProsvideos

► Upcoming Events

April 5-7

MRO Americas

Dallas, Texas

April 20-22

GSE Buyers & Ramp Ops Conference

Istanbul, Turkey

April 23-27

NEC/AAAE International Aviation Snow Symposium

Buffalo, New York

May 3-5

NBAA Maintenance Managers Conference

Kansas City, Missouri

May 15-18

IGCH 19th Ground Handling Conference

Toronto, Canada

► Advertiser's Index

Advertiser	Page #
A T Juniper.....	30
AERO Specialties.....	23
Aeroservicios.....	32
Alberth Aviation.....	32
Columbus Jack.....	25
David Clark Company Inc.....	5
Engine Distributors.....	36
Fortbrand Services Inc.....	32
Global Ground Support.....	6
Gorman-Rupp Pumps.....	13
Hydraulics Intl.....	24
IATA.....	35
International Airport GSE Expo.....	20-21
ITW GSE J&B Aviation.....	31
Lektro.....	30
Mercury GSE.....	32
Par-Kan.....	31
Phoenix Metal Products.....	29
Premier Engineering & Manufacturing.....	9
Pro-Flo Industries, LLC.....	8
Rampmaster.....	28
Satellite Specialized Transportation Inc.....	32
Skymark Refuelers.....	17
Somerset Aviation Capital.....	32
Trinity Hwy Rentals.....	15
Tronair.....	2
U.S. Airmotive GSE.....	19
Xcēd Aviation Services.....	7

BUSINESS BUZZ

► TOP NEWS

Southwest Airlines Ground Service Employees Ratify Agreement

On February 19, Southwest Airlines' in-house ramp, operations, provisioning and cargo agents narrowly approved a tentative agreement that the airline reached with Union negotiators in late December. The Transport Workers Union (TWU) Local 555 reports that 50.4 percent of those who cast ballots voted in favor of the five-year contract agreement. The new contract includes employee wage increases and work rule improvements, while Southwest says they believe the agreement will enhance their competitive standing within the industry.



BBA Aviation Obtains Regulatory Clearance for Landmark Acquisition

The Department of Justice announced on February 4 has proposed an antitrust settlement with BBA Aviation for clearance under the U.S. Hart-Scott-Rodino Act for the acquisition of Landmark Aviation. As a result, completion of the Landmark acquisition is expected shortly. Under the terms of the regulatory approval, BBA is required to sell six FBOs: Westchester County Airport, New York; Washington Dulles International Airport, Virginia; Scottsdale Airport, Arizona; Ted Stevens Anchorage International Airport, Alaska; Jacqueline Cochran Regional Airport, California; and part of the Landmark facilities at Fresno Yosemite International Airport. In all, the FBOs up for sale contributed \$16.1 million of EBITDA in 2014.



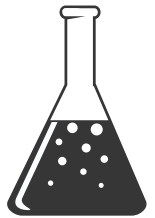
Mumbai Airport Will Fine Staff Found Littering

Mumbai International Airport management decided in January to penalize airport staffers who are found littering in the terminal or not maintaining it properly. The offenses listed in the Mumbai International Airport Limited (MIAL) compensation policy include fines for occupying passengers' seats, sitting on conveyor belts, slowing check-in queue by haphazardly placed queue managers and littering the terminal. The list also warned retail outlets of overcharging passengers and misusing baggage trolleys. The fines range between Rs100 and Rs500.



Rice University Development Finds Graphene Composite May Keep Wings Ice-Free

A thin coating of graphene nanoribbons in epoxy developed at Rice University has proven effective at melting ice on a helicopter blade. The coating may be an effective real-time de-icer for aircraft, wind turbines, transmission lines and other surfaces exposed to winter weather, according to a new paper in the American Chemical Society journal ACS Applied Materials and Interfaces. In tests, the lab melted centimeter-thick ice from a static helicopter rotor blade in a minus-4-degree Fahrenheit environment. When a small voltage was applied, the coating delivered electrothermal heat to the surface, which melted the ice.



Shuster Says Reauthorization Bill to Move Forward

Despite reports to the contrary from the Associated Press, U.S. Rep Bill Shuster, R-Pa., said his Aviation Innovation, Reform and Reauthorization (AIRR) Act will move forward while a short-term extension is used to fund the Federal Aviation Administration while the bill is debated.



Visit us at MRO Americas
Booth #3901



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** for more information.



WWW.DAVIDCLARK.COM

Made In USA



The short-term extension was thought by some to signal the end of the AIRR Act. Among a number of controversial provisions in the bill is the establishment of a private non-profit corporation to handle national air traffic control and remove approximately 30,000 employees from the government payroll. Shuster's involvement in the passage of AIRR Act has come under fire due to his personal relationship with Shelly Rubino, vice president for global government affairs at Airlines for America (A4A). A4A is the airline industry's lobbying arm.

Hactl handles Longines Masters horses for fourth successive year



Hong Kong Air Cargo Terminals Limited (Hactl) handled 64 of the world's most valuable horses in the lead up to the Longines Masters of Hong Kong. This year's Longines Masters, considered Asia's biggest and most prestigious equestrian event, was the fourth year the event was held in Hong Kong. As in 2015, the official carrier for the event was Emirates Airline, for which Hactl is the cargo handling agent in Hong Kong. Emirates transported the horses from Liege via Dubai World Central to Hong Kong, arriving on February 15. Hactl unloaded the horses in their air stalls and transferred them through its dedicated animal handling center before loading

them onto waiting horseboxes using special low-angle ramps to avoid injury. The entire operation, and the preparation of the Longines Masters equine competitors, was coordinated from Belgium by European Horse Services, one of the world's leading equestrian shipping agents. Hactl has handled the Longines Masters equine entrants in all its four years in Hong Kong.

Gas Thieves Take 1,000 Gallons From FAA, Kentucky Company



Kentucky State Police are investigating a string of apparently-related diesel fuel robberies that took place in early February in Eastern Kentucky. In two thefts in two weeks, 655 gallons of fuel, valued at around \$2,300 was stolen from the Fed-

Simple Complexity



GLOBAL
 GROUND SUPPORT WORLDWIDE

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.



AviationPros.com/10017340

eral Aviation Administration radar tower on Black Mountain near the Virginia state line, police said. On February 3, another 475 gallons valued at \$1,700 were taken from Forrest Products Incorporated in Harlan, Kentucky.

Teamster Mechanics Picket United Airlines



Hundreds of United Airlines mechanics protested the United Airline's contract offer by picketing outside key maintenance bases at the San Francisco, Houston and Orlando airports on February 19. Earlier that week, mechanics voted down United's contract proposal by 93 percent. Mechanics also voted overwhelmingly to authorize a strike. Over 9,000 mechanics at United are represented by the Teamsters Union, which will petition the National Mediation Board for a strike release.

Delta, Southwest Profit Sharing Reaches Record Levels



Delta Air Lines received their share of the company's \$1.5 billion profit sharing program earned in 2015 on February 12. The profit payout is the largest in the history of corporate profit sharing programs. Individual payouts equaled more than 21 percent of employees' eligible 2015 earnings.

Delta reported an adjusted pre-tax profit of \$5.9 billion for 2015



Southwest Airlines announced on February 11 that their profit sharing program will distribute \$620 million to eligible employees by April 29. The 2015 profit share is the largest in company history and more than the cumulative contributions over the program's first 25 years (\$559 million from 1974-1998). Over the four decades of profit sharing, Southwest's contributions will have totaled over \$3.4 billion—and more than \$1.4 billion for the past five years (2011-2015).

► PEOPLE

Justin Akinleye Returns to Eagle as Product Manager



Tronair's JetPorter Product Manager Justin Akinleye has been promoted to the same position across both the JetPorter and Eagle product lines. The move effectively together Tronair's newly formed vehicle product group by uniting JetPorter and Eagle. Akinleye served as Director - Global Operations at Eagle from 2008 until 2014 before accepting his previous position at Tronair.

► 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

► **NEW DEALS**

Bahrain awards baggage handling contract to Vanderlande

VANDERLANDE Vanderlande has been commissioned to sup-

ply baggage handling systems for Bahrain International Airport (BIA). The agreement is for the design, manufacture and installation of a system capable of processing 4,700 bags per hour. The announcement was issued by the Kingdom of Bahrain's Ministry of Transportation and Telecommunications (MTT), in cooperation with Bahrain Airport Company (BAC), and is part

of a major airport overhaul – the Airport Modernisation Program (AMP). The system will feature an early bag store with capacity for at least 600 items of luggage and eight reclaim belts. Upon completion, it will help to elevate BIA's infrastructure and services, and increase the airport's capacity to 14 million passengers a year.

Worldwide Flight Services Acquires Consolidated Aviation Services



Worldwide Flight Services announced on February 29 that the company completed the acquisition of Consolidated Aviation Services. Financial terms were not disclosed. CAS, headquartered in New York, serves over 250 airline customers. WFS, which was acquired by Platinum Equity in September 2015, operates at major airports in more than 22 countries on five continents. WFS serves 300 airlines globally, including the handling of four million tons of cargo and 50 million airline passengers per annum.

Dedienne Aerospace, Satair Group Partner for Sales in Middle East and Africa



Satair Group and Dedienne Aerospace have entered into an exclusive agreement that allows Satair to sell Dedi-



"The Future of Aircraft Refueling Equipment"

A leading supplier of used and refurbished aircraft refuelers and hydrant equipment, ProFlo Industries also offers full maintenance and refurbishment programs for your current equipment.



📍 2679 S. US Highway 23 Alvada, OH 44802

☎ +1 419-436-6008

✉ info@profloind.com

🌐 www.profloind.com

AviationPros.com/12070958

enne's GSE product line throughout the Middle East and Europe, as well as in select countries in southern Asia. The two firms will work together to create a marketing and sales strategy for the region. According to a release, Satair Group will organize visits to current and potential customers with Dedienne personnel remaining responsible for technical selling. In addition, Satair Group will promote Dedienne Aerospace's GSE products at exhibitions, handle all routine ongoing sales activities, customer order handling, invoicing and customer payment management.

JBT Corporation Awarded \$10 Million Order for Maintenance at Dallas - Fort Worth International Airport



JBT announced the award of a 5-year Mechanical, Electrical, Plumbing, Building/Structural, and Ramp Services (MEPS&R) Contract at the Dallas - Fort Worth International Airport, Terminal D valued at more than \$10 million. JBT will be responsible for providing round-the-clock maintenance service for the 2 million square foot terminal structure and its 31 passenger boarding bridges, 99 ticketing positions and Federal Inspection Facility. JBT has been supplying services to DFW since 2004. This is the third active maintenance service contract for JBT at DFW with other contracts in place for supporting Terminal E and the airport's administrative buildings.

Woodgate Aviation Joins Avfuel Network



Woodgate Aviation is joining the Avfuel network, operating out of its new

33,000 square foot hangar and office complex at Belfast International Airport. Ahead of its official opening, the hangar is already functioning at capacity, accommodating a variety of aircraft and carrying out maintenance work.

**MODEL MT65P21
"EXPRESS HEAT" DEICER**

The "Premier" Model MT65P21 "Express Heat" Deicer utilizes the Versalift Extended Reach Model VST6000 Aerial lift, providing 65' of working height. More important, the MT65P21 incorporates the *Premier* boom forward design to provide the maximum amount of reach off the front of the vehicle utilizing the rapid deploy down riggers. During mobile operations, side reach of 34' and vertical reach of 46' can easily be accomplished.

Premier
ENGINEERING & MANUFACTURING, INC.
Simple, Dependable and Affordable

"Express Heat" reliability, easy access maintenance, extend reach capabilities, and lowest cost of operation is why we are the "Premier" deicer manufacturer.

Tel - 715-735-6440, www.premier-deicers.com

AviationPros.com/10017675

FLEET

FINA

There are a number of factors affecting the current ground support industry, one primary factor that deeply impacts the bottom line for ground handling providers is how GSE equipment is being financed in today's market. Ground handlers, airlines, FBOs and GSE managers need to react swiftly to financing trends to maintain their GSE fleets.

By Justin Piot and Alex Wendland

OFF LEASE



▶ THREE LEASING OPTIONS

FAIR MARKET VALUE

Lessees put no money down and begin a monthly payment. At the end of the lease (generally three or five years), the lessee has a number of options:

- Purchasing the GSE outright
- Continuing on a month-to-month basis
- Negotiate a new lease

DOLLAR-OUT

This is basically a loan. The lessee owns the equipment after a three or five year lease

CONTRACT LEASES

Ground handlers are the general target for contract leases. The fast-paced nature of handling contracts means that handling firms need lots of equipment on ramps around the world in a matter of weeks, if not days. Those contracts can dry up just as quickly as they come in, so maintaining leases over the terms of contracts allows for easier operations. Additionally, ground handlers with existing contracts can use their lease agreements as a renegotiation tool with clients. Do they want new equipment or is the current GSE working as needed?

The ground support industry, like the aviation industry as a whole, runs on tight margins. To ensure success and profitability, airlines, airports, and ground service support providers must be at the top of their respective games and look at all costs intently.

As the aviation industry continues to grow and change, several trends have emerged that are impacting how ground support equipment (GSE) is being acquired and financed.

Increased Profits Equals Increased Pressure

Airlines are back to record profit margins. With this success comes much needed, significant capital expenditures into new equipment and technology to continue to maintain safety and efficiency due to previously deferred equipment upgrades.

“Cash is a big issue right now as the airlines continue to generate significant revenue,”

says Bill Banfield, national finance manager for the airport ground support equipment division at TCF Equipment Finance. “An all cash approach limits a customer’s flexibility in the future. This ‘feast or famine’ approach has failed in the past and forces companies to keep GSE well beyond its economic useful life. Operational parameters, government regulations, technology and a company’s financial situation can change. Incorporating flexibility into a fleet replacement strategy mitigates the unpredictable economic cycles that have plagued the airline industry in the past.”

As both airline travel increases and aircraft upgrades come to market, there is an increasing

expectation for service providers to operate and add the newest and most innovative equipment to their fleet.

To do this, many ground support providers are looking to equipment leasing, rather than purchasing, as a financial solution to support their requirements.

“I think definitely for handling companies, leasing is almost an absolute,” Neil Bennett, managing director at Somerset Aviation Capital, says. “You have to do it and I think there’s definitely a trend in that direction. It’s sort of the business model in Europe, but I think they’re learning the benefits here in North America.”

The fact is, ground handling equipment typically lasts 10 to 20 years and holds its value quite well. Because this equipment has such a long lifespan, longer financing terms can be arranged, which in turn means low monthly payments that can deliver consistency and peace of mind to ground services providers.

For example, Ohio-based Summit Funding Group recently worked with one of the world’s largest ground handling providers to provide \$20 million in financing for various types of ground handling equipment, including cargo loaders, deicers, push-back tractors, lavatory trucks, cargo dollies, electric belt loaders and re-fuelers, among others.

Summit’s client was bidding for new contracts, and needed to ensure that the most updated equipment was on hand. This strategy differentiated them from the competition, and put them in a position to service their potential contracts safely, reliably, and profitably.

“It all seems to come down to money, and what the monthly payment is, and I feel there’s a trend,” Bennett says. “It’s becoming more important to have use of the equipment at the lowest cost. That’s the key, and not ownership.”

While preparing their new contract bids, the client worked with Summit Funding to obtain quotes for leasing new equipment they needed over the next seven to ten years. Summit provided a monthly payment on various types of equipment, and the client was able to take that payment, add their target profit margin, and send their client a total fixed cost while bidding.

Through this strategy, Summit’s client is ensuring that they have access to the most updated equipment to service the contract, they’re preserving capital upfront, while also



protecting their profit margin for the entire life of each contract.

"You get contracts that require you to start fairly quickly," Bennett says. "There is no time to plan for capital expenditures. You can plan, and have a basic budget in mind for your expenditures, but in this industry, the airline industry, it's a completely moving target."

Alternatively, if a ground handling company decides to purchase their equipment outright, that company will face two challenges in the current market.

► First, they will need to deploy a great deal of capital from the start, which can constrain working capital and be challenging in such a tight-margin industry.

"On the short term position, they have cash on hand so the general thinking is, 'let's spend it.' They're not in a cash preservation mode," says Banfield. "Historically, when airlines had cash, they were buying down debt. Now, with cash flows reaching an all-time high, some airlines are purchasing all their assets and may not be looking at the big picture for the long term which is to understand the true cost of ownership over the lifecycle of an asset."

► Second, after several years, the equipment they purchase may become outdated, and often is not worth what they might have hoped. At that point, they are stuck with equipment that is obsolete, needs considerable maintenance, and is very expensive to replace.

As pressure increases to be equipped with the latest equipment, leasing continues to emerge as a flexible financial solution.

"When money is good, of course, people do tend to like to purchase outright," Bennett says. "Although that's a bit clouded because the money that they actually have in their bank account isn't necessarily theirs. It's their shareholders' money, and shareholders require a lot more profits than finance companies do."

Material/Technology Changes Prompting Increase in GSE Sales and Financing

Two new aircraft types have begun to emerge, the 787-9 and A350. Both are made of more composite materials than aluminum. While the new material will support better fuel efficiency and aerodynamics, the challenge

is that composite materials can be damaged more easily and it's difficult to detect if damage was done.

For ground support providers, this means that safety is more of a concern than ever before.

To be clear, it's understood that safety is always the priority, and all ground support providers seek to maintain a zero accident record.

As aircraft material changes, many in the ground support industry will find that new



PUMPS FOR FUEL TRANSFER

AVIATION REFUELING TRUCKS ■ GROUND SUPPORT FUELING STATIONS

Gorman-Rupp has been a part of accelerated aircraft fueling and defueling for over 50 years. We have been able to keep pace with technology and design in this ever-changing world of faster, more complex aircraft.

Our original designs have set the standard around the world with thousands of units operating in the field for virtually all major airline and fuel suppliers.

We offer a complete line of ground service pumps and related equipment, consisting of standard centrifugal and self-priming pump models, directional valves, educators and a host of other piping accessories.

Contact Gorman-Rupp today to see how we can fulfill all of your aviation fueling needs.

GORMAN-RUPP PUMPS
 P.O. Box 1217 ■ Mansfield, Ohio 44901
 PH: 419.755.1011 ■ FX: 419.755.1251 ■ grsales@gormanrupp.com

502 © Copyright, The Gorman-Rupp Company, 2016
 Gorman-Rupp Pumps USA is an ISO 9001:2008 and an ISO 14001:2004 Registered Company

GR
 GORMAN-RUPP
 PUMPS
The Pump People®

AviationPros.com/10208885



equipment is necessary to maintain that pristine level of safety.

For example, the newest cargo loaders are being equipped with pressure sensitive sensors that will indicate if too much force is being used while docked against an aircraft.

This may sound counter-intuitive, but new technology and new GSE can be a prestige investment, especially in the FBO arena.

"Presentation of an FBO is first and foremost, well, I suppose behind safety, of course, which falls right in line with buying new equipment," Bennett says. "So you get safety and you get presentation. That's what the FBO needs to present. It's a first-class operation dealing with private corporate jets."

The need for these new, specific technologies is driving a number of trends forward in the equipment sales and financing sector. For example:

► **OPERATING LEASES TIMED WITH SPECIFIC CONTRACTS** – Based on the equipment's long lifespan, ground handling equipment is easy to finance in a way that coincides with specific contracts. This is becoming increasingly popular among ground support companies. By arranging leases that align with specific contracts, a ground support provider will typically enjoy a very low monthly payment throughout the term, followed by the ability to either purchase the equipment at a later date or

walk away from the equipment free and clear if the contract is not renewed or a new contract is not yet in place.

► **INCREASED USED EQUIPMENT SALES** – Companies that own outdated equipment with a need to get the newest technology are increasingly looking for support in finding buyers of their older assets to make room for new equipment. Summit Funding can help ground handling companies locate these buyers and help provide financing or lease solutions to help move the old equipment out.

"Used sales are typically driven by operational demands and location," Banfield says. "If you have a very high demand area, it's not feasible to put used GSE there. It wouldn't make a lot of sense due to the unpredictable uptime. Conversely, if a location has only five to ten turns, it's hard to justify and warrant new equipment for that application."

► **MORE EQUIPMENT REFURBISHING** – Most all ground service providers that already own a large fleet of equipment try to maximize the life of their equipment. In order to do so, these companies need to refurbish their equipment to remain competitive and some of these new technology upgrades can be obtained during a simple refurbishment. For these situations, it's advantageous to finance a refurbishment, which gives the company

a stable monthly payment that they can expect, as opposed to a large up-front cost. This financing trend can help ground service providers to extend the life of equipment while also keeping their operating costs low.

Today's ground service providers are increasingly looking toward solutions like the above in order to acquire newer advanced equipment, refurbish older outdated equipment, or get rid of older assets all together.

New GSE Finance Options

In addition to an increase in equipment leasing, leases that coincide with contracts, and refurbishment financings, there are other GSE finance options of note for today's ground support providers. For example:

► **LONGER FINANCE TERMS** – While traditional equipment leasing was thought of as a short-term option, GSE equipment is increasingly being financed over longer periods of time, often from 7 to 10 years. By extending the length of these equipment leases, companies are able to spread out their capital expenditures, resulting in more stable expenses that can contribute to more consistent profit margins.

► **SEASONAL PAYMENTS** – Because some services within the ground support industry derive revenue seasonally, a new

way to approach GSE financing is to match the cash flows of the seasonality with the lease payments. For example, companies that offer deicing tend to draw all of their revenue within six months of any given year. The practice came into use in the early 1900s for the purchase of agricultural equipment. In 1923, the Agricultural Credit Act was passed providing short-term and intermediate credit. This method of “pay when you can” or, when it’s the most opportune time, was typically referred to as a “harvest plan.”

“Simply put, get the equipment and supplies you need today then pay when your cash flows are at their greatest,” Banfield says.

► **COST SAVINGS THROUGH FLEET RENEWAL**—GSE fleet operators actually require less equipment as new, more reliable GSE is added. Reliable fleets no longer need redundant equipment to serve as backups while broken GSE is in the shop.

“When a fleet goes from a preventive to a reactive maintenance strategy, they will exponentially decrease the operating cost per hour,” says Banfield. “That will add additional savings to the operating budget that will, hopefully, flow over to the CapEx budget. From there, the renewal and replacement cycle gets even better for the GSE arena.”

In the end, airlines, ground handlers and FBOs need new equipment. The method of acquisition is becoming increasingly irrelevant with the multitude of options available.

“It’s utilization of the asset that the end user

wants, not pride of ownership,” Banfield says. “I defy anybody to walk out on the tarmac and see somebody out there Turtle Waxing and Armor All-ing a tractor. It’s never going to happen.”

Overall, margins have increased, and the industry as a whole is reinvesting capital to make improvements. As this activity continues, ground handling professionals who stay on top of financing trends and make smart decisions with regard to how they acquire ground support equipment will thrive. **GSW**



► **ABOUT THE AUTHOR:**

Justin Piot is Regional Manager of the GSE Division at Summit Funding Group, an Ohio-based company that provides equipment lease and finance solutions to businesses across the U.S. and Canada. Founded in 1993, Summit Funding Group has originated more than \$2.5 billion in equipment lease and finance transactions to date. Contact him at jp Piot@4sfg.com.

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

888.496.3625

AviationPros.com/12074727

The Chance to Build A Better Ramp

The aviation boom is underway in South America: New airports and major expansions to existing airports are being built in Bogotá, Quito, Sao Paulo (GRU and VCP) and Rio de Janeiro (GIG); in addition to a new terminal under development in Santiago. Are these airports being designed to prevent the infrastructural constraints that make ground damage more likely and exist at many large airports in the West?

by Mario Pierobon

Airport infrastructure is often overlooked when considering the safety of the apron environment, and little can be done in the short term to change airport design. When airport projects do materialize, however, designers should engineer safety features to prevent aircraft ground damage, such as avoiding intersections between aircraft taxiways and lanes dedicated to ground support vehicles as well as reducing GSE traffic around aircraft.

According to David Stewart, head of airport development at the International Air Transport Association (IATA) new airports and major expan-

sions to existing airports in South America are being designed with close consideration to international standards regarding ramp layouts and GSE requirements as recommended by ICAO, IATA and other industry and regulatory bodies. "The new terminals in Bogotá, Quito, Sao Paulo and Rio de Janeiro and the new terminal under development in Santiago all adhere to international standards," Stewart says.

Santiago's Arturo Marino Benítez (AMB) airport represents one of the main airport infrastructure overhauls in South America. Nuevo Pudahuel is the operator of Santiago AMB and it acts as a con-



sortium integrated by Aéroports de Paris, VINCI Airports and Astaldi Concessioni; the consortium is building a 175,000 square meter new terminal. The new building, a USD 900 million investment, will increase the airport's capacity to 30 million passengers in 2020, a significant increase compared to the 17 million passengers travelling through Santiago airport in 2015; the traffic figure corresponds to a 7.2 percent increase on 2014, a growth rate which goes in line with Nuevo Pudahuel's projections.

Xavier Lortat-Jacob is the Chief Technical Officer (CTO) of Nuevo Pudahuel; he says that the consortium is currently focussed on the design of Santiago airport's new terminal and the infrastructure is being design taking into account resilience to future traffic evolution but also operational constraints and safety requirements. "The purpose is to promote the operational safety

policy that is driving our company and our parent companies in all of their worldwide airport projects. We recognise through our experience that risks are concentrated in the movement and parking area where ground handlers are working in close proximity around the aircraft. In order to reduce and avoid ground damage as far as possible we are of course intervening on airport infrastructure design but also on airport operations," Lortat-Jacob says.

Avoiding mix aircraft and GSE traffic

As part of the new airport development projects in South America efforts are being committed to avoid a mixed aircraft and GSE traffic on the apron, and specifically with the realisation of lanes for ground support vehicles that do not cross taxiways, possibly built underneath them.

"Within existing physical constraints airport expansions and certainly new terminal developments are being built to international standards," Stewart says. "Dedicated circulation lanes are integrated into the apron design and separate internal airside road networks are being included in the design of new airfield systems."

According to Lortat-Jacob the design currently under development of Santiago's airport expansion is providing a dedicated service road network, out of the taxi lane/taxiway clearance and the possibility to service the aircraft stands both from the front and from the rear. "This redundancy allows avoiding bottlenecks on the service road network and ensures smooth operations in the aircraft parking area. The service road network circles the passenger terminal area, providing for a two-way flow of vehicles without having to cross in the process

SKYMARK
REFUELERS

Worldwide Leader in Aircraft Refuelers

913-653-8100 | skymarkrefuelers.com | sales@skymarkrefuelers.com

AviationPros.com/11174155

a taxiway or taxi lane and reducing risk of ground damage.” Lortat-Jacob says.

Fixed ground support installations

Another consideration driving airport design for improved resilience against ground damage is the development of aircraft stands with fixed ground support installations that reduce GSE movements around aircraft and thus the likelihood of damage.

Cavotec is a manufacturer of ground support equipment, such as 400hz converters, PCA machines, utility and fuel pit system, used to service aircraft at contract gates, remote aprons and hangars. According to Gary Matthews, group market unit manager for aviation at Cavotec, the company has seen a rise in recent years of requests for fixed ground systems from Central and South America.

Wherever physically practical, fixed ground power and air conditioning units are being included as new aircraft parking stands are being developed. Generally the approach is to include these facilities as part of new and replacement air bridge installations, according to Stewart.

Lortat-Jacob notes that Santiago Airport is currently equipped with a fuel hydrant network servicing both contact and remote aircraft stands. In the future, all contact aircraft stands will also be equipped with 400hz converters and PCA in addition to the fuel hydrant system, he says.

Fixed ground support installations surely have a safety benefit, but are more expensive

to build. There is a need to justify a higher capital expenditure and due consideration must be given to when break-even can be reached. According to Matthews, environmental concerns, ease of operations, improved security, reduced ramp personnel, increased efficiency and productivity, reduced energy costs, rescued fleet costs, quicker turnaround times and reduced APU usage all need to be weighed in to justify capital expenditures.

In the experience of Santiago’s airport there are several considerations that must be taken into account in order to justify an investment: safety and regulatory requirements but also operational needs and efficiency. “The amount is pondered and assessed in a complex process ensuring that the best choice is made in terms of technology, resilience and safety,” Lortat-Jacob says.

“The cost/benefit analysis for the installation of fixed air/power differs by airport and also depends on the structure of airport charges which also tend to differ by airport. However, the payback is usually based on how the capital expenditure is depreciated over time” says Stewart.

The breakeven point depends on many factors including the number of gate, optimisation, usage, type of system, local energy costs, fuel costs, local ambient environment, according to Matthews.

Improving GSE utilisation

One additional solution – which is currently not very frequently implemented across the world’s big hubs – could be for airport

WHAT GOES INTO 21ST CENTURY INFRASTRUCTURE?

Santiago’s Arturo Marino Benítez (AMB) airport is the seventh busiest airport in South America: 17.2 million passengers passed through AMB in 2015, 60 per cent of Chilean air traffic. At the current growth rate, the airport’s one and only terminal, two runways and forty aircraft docking areas are insufficient to sustain development of the country’s main point of entry. The core objective consists of doubling actual capacity within five years; in 2020, the airport will be able to welcome over 30 million passengers.

Following the renovation of the current building, “Terminal 1” – which will be designated for domestic flights once construction is finished – and in the soon to be built “Terminal 2,” which will occupy over 175,000 square metres, Nuevo Pudahuel (the consortium involved in the redevelopment of the airport) will implement modern technologies to expedite the check in process and automated luggage screening procedures to lower waiting times. Nuevo Pudahuel is committed to digitalize the airport, and one of the first measures will be to introduce access to 30 minutes free Wi-Fi.

The increase in surface, services, and passenger flow will require an energy and sustainability strategy. Nuevo Pudahuel has invested \$60 million to cover the design, construction and operation of the project. Nuevo Pudahuel calculates that the new building will consume 35 per cent less energy than the current terminal, and will minimize the use of products or materials detrimental to the environment in addition to opportunities for the use of recycled materials.





operators to own ground support equipment (e.g. passenger buses) and rent them out to ground handling companies to improve asset utilisation and traffic patterns on the apron, and thus the likelihood of damage. Can this be a promising solution for South America?

Stewart believes that there are issues to consider about who is responsible for maintenance and possible damage to the equipment. "Where will liability lie and how will this be adjudicated? However if there is a strong business case that evaluates operational efficiency and a cost advantage then this could be considered as a potential option," he says.

Looking ahead

International standards are already in place to support safety and operational efficiency on airport aprons and taxiways, according to Stewart, and these are being complied as part of the major infrastructural (re)developments in South America. "The most effective way to ensure that these conditions are being met is to hire professional consultants with the appropriate credentials and experience during the design phase of a project and then be careful when weighing potential 'value engineering' savings. Safety should never be compromised," Stewart says.

The same remark is shared by Lortat-Jacob: "Airport design should be driven by best industry practices taking into account local particularities and room for future expansion. Therefore, the involvement of informed designers and experienced operators is essential in order to ensure the result shall be resilient to future practices," he says.

Andrew Price, head of airport operations at IATA, believes that a focus on the safety culture should be among the additional considerations to complement airport design to make the system more resilient to aircraft damage on the apron. "Having a no blame

culture for reporting accidental damage is important as the safety of the aircraft has to take priority over the allocation of fault. The second thing is keeping tarmacs clear

of debris to reduce FOD. Having a policy of 'pick it up and bin it' helps reduce this. Both items are simple, effective and cheap," Price says. **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.

NEW CRUSH PROOF LAVATORY DUMP HOSE

**You can Run over it,
Smash it or Drag it
and STILL USE IT!**

CRUSH PROOF LAV HOSE

WATER HOSES, COUPLINGS AND FITTINGS

LAV COUPLINGS AND FITTINGS

GSE PRODUCTS

GSE PARTS

ATTACHABLE PLUGS AND RECEPTACLES

AC/DC CABLE PROTECTOR COVER

JET STARTER HOSES AND COUPLINGS

NEW
FULLY WELDED PCA HOSE

SERVING THE GSE INDUSTRY FOR OVER 50 YEARS

HOSES: LAVATORY DRAIN-BLUE & POTABLE WATER-PCA-AIR/HEAT-JET STARTER
COUPLINGS FITTINGS AND CONNECTORS • CASTERS • WHEEL CHOCKS • DAVID CLARK
LAV METERS • PARTS FOR TUG • HOBART • TRILECTRON • PARKAN • FMC • CLYDE

CONVEYOR BELTS • SAFETY VEST • DIRECTIONAL WAND • TOW BARS • CARGO NETS
STRAPS • TIEDOWN RINGS • MATERIAL HANDLING AND MORE

U.S. AIRMOTIVE GSE
YOUR ONE STOP SOURCE SINCE 1963

MAIN FLORIDA OFFICE

P.O. Box 660474
Miami Springs, Florida 33266
Tel: 305.885.4992 Fax: 305.885.9537
Email: sales@usairmotivegse.com

CALIFORNIA SALES OFFICE

2110 Artesia Blvd. # B209
Redondo Beach, California 90278
Tel: 310.327.8407 Fax: 310.327.8439
Email: paula@usairmotivegse.com

www.usairmotivegse.com

AviationPros.com/10017906



IAEMA

INTERNATIONAL
AIRPORT
GSE
EXPO

**Ground
Support**
WORLDWIDE



**The only show dedicated to
ground support equipment**

Together is better. Two great shows become one.

We've been busy getting ready for the International Airport GSE Expo but are still missing one thing...You! International Airport Equipment Manufacturers' Association (IAEMA) and Ground Support Worldwide are joining forces to produce this not-to-be-missed event, which will bring the entire industry to Las Vegas, Nevada for three days of networking, opportunity and enjoyment.

Now is the time to make plans to join us for this ultimate gathering of GSE suppliers, equipment manufacturers and purchasers from around the globe!

For the 2016 show we anticipate:

- ✦ More than 200 exhibiting companies using 50,000 net square feet of exhibit space
- ✦ 2,000+ total attendees from all over the world
- ✦ A highly-qualified audience of decision-makers

Your competition will be there and you should be, too!

INTERNATIONAL
AIRPORT
GSE
EXPO

October 18-20, 2016

RIO ALL-SUITE HOTEL & CASINO

LAS VEGAS, NEVADA, USA

www.GSEexpo.com





The Capacity Conundrum

Will the GSE industry be able to keep up with the demand for mechanics as the Baby Boomers phase out?

By Rob Root

About 1 percent of American workers are automotive, auto body, diesel or heavy machine mechanics as classified by the Bureau of Labor Statistics (www.bls.gov). Ground support equipment (GSE) mechanic is a specialized skill not specifically classified by the BLS. Most GSE mechanics could check the box for all four of those classifications.

The Conundrum: Part 1

Americans born between 1949 and 1964 are considered Baby Boomers. There are 79 million of us and we've begun to enter retirement age. Google "baby boomer retirement rate" and the generally accepted number is 8000-10,000 per day. In other words, 80-100 mechanics per day will retire. The pipeline for replacing retiring mechanics today does not have thousands of students in it. GSE mechanics, with a unique skill set specifically oriented to the aviation ground support industry, will retire at a rate much higher than they will be replaced. Those who remain will be asked to be much more productive to keep up with the demand.

The Conundrum: Part 2

On the tarmac at Miami International Airport (MIA), the captain has announced a ground stop for Minneapolis (MSP). Air traffic control at MSP is managing 70 landings an hour and needs to get a little more space between arrivals. I'm on an A-320 with 149 other passengers. A bit of quick napkin math, assuming the average number of

passengers on those MSP-bound planes is 150, there are 10,500 travelers who will land at MSP in a single hour.

Those passengers have one thing in common. They have the same expectation about their travel experience:

- ▶ Their plane will arrive on time.
- ▶ While they are on the plane, on the ground, or in the air, they expect to experience a temperature-controlled environment and to be reasonably comfortable.
- ▶ There will be plenty of room to accommodate their carry-on bags and, if not, someone will take them and make sure they get to their final destination.
- ▶ If they dropped off a bag at the curb or at the desk inside, they expect their bag to arrive at the carousel of their final destination within a few minutes of their arrival in baggage claim, regardless of the number of stops and plane changes they've had during their trip.
- ▶ All of the above will happen regardless of weather conditions or air traffic.

All 10,500 people who land in MSP in that single hour expect 100% success and have no idea how complex the system delivering that experience is.

Each of those 70 planes will likely "turn" and head out to another destination. Each will land, pull up to the gate, unload, and get cleaned, restocked, reloaded and pushed back to take off.

When a plane lands and pulls up to the gate, equipment that GSE technicians maintain can impact the customers' expectations: The jet bridge or passenger stairs, including ADA compliant accessories, moves to the plane to safely allow the passengers to unload and load.

The lift truck carrying the cabin service crew moves to the plane and lifts up to gain access so the cleaning crew can then do its work.

The Air Conditioning Units on the ground start working to provide heated or cooled air for the cabin.

The catering truck moves to the plane and lifts up to gain access to the galleys so the crew can do its work.

The baggage tractors pull the baggage carts up to the plane to be loaded with baggage.

The belt loader pulls up to the plane to be positioned to unload the plane of its baggage and cargo.

The valet cart is positioned to collect carry-ons that won't fit in the overhead compartments. Bags from the cart are put on the belt loader too.

The water cart/truck pulls up to the plane to allow for water service of the plane.

The lavatory service cart/truck pulls up to the plane to allow for lav service of the plane.

The fuel truck/cart approaches the plane to begin the refueling process.

A different set of baggage carts are loaded under the airport with the bags headed to this plane.

Different baggage tractors move through the airport and collect all of the baggage that needs to be on this particular plane.

The jet bridge or stairs is moved away from the plane.

Using a Ground Power Unit, the pilot restarts the engines in preparation for departure.

Baby Boomer mechanics are **retiring** at the rate of **80-100 per day**. Those who remain will be asked to be **much more productive** to keep up with **demand**.

Tarmac Tough



You're in a tough business. You are responsible for servicing millions of dollars worth of aircraft at a moment's notice, in all kinds of weather. Equipment failure is not an option.

At AERO, everything we manufacture is proudly made in the U.S.A. and designed to go the distance. Our quality is one thing that you won't have to worry about.



+1 208-378-9888 | www.aerospecialties.com CE

AviationPros.com/10016920



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



Made in the U.S.A.

HYD-3865.3

AviationPros.com/10017435

A push back tractor then pushes the plane away from the gate area and out to the taxiway.

If necessary, the plane is deiced to prepare for take-off.

If your battery goes dead on your car or you get a flat tire or the car has some other mechanical failure, you, your passengers, and your possessions aren't going to get where you were going on time. If any of the mechanical touches of a plane's turn fail, just like your car, that plane and those passengers or their luggage aren't going to get to their destinations on time as expected.

Our company has about 200 GSE mechanics serving 65 airports. Each knows that any mechanical failure during any one of those 16 touches of an airplane's turn will directly impact the passenger experience. The culture required to be successful is one of quality maintenance done with a sense of urgency (a unique sense that is part of being in the aviation industry). We also must address ...

The Conundrum Part 3

GSE maintenance is complicated. As an example, each one of the planes must be pushed back from the gate area. Push back tractors come in two styles, conventional and towbarless, and are manufactured by more than 40 companies. Those 70 inbound

There **won't be fewer planes flying.**

There **won't be less cargo** being moved.

There will be **more work** and **fewer GSE mechanics.**

Will we be able to keep up with **demand?**

planes at MSP are CRJs, wide bodies, and narrow bodies. Sitting at the gate ready to make sure the plane is pushed on time will be a Douglas, Eagle, JBT, TLD, or Lektro brand, electric, gas, diesel or even hybrid push back. To add to the complexity, those push backs could be 5, 10, 15 or 20 years old. (They may actually have a carburetor, which is something baby boomers are familiar with but their children may have never seen, just like a cassette tape player, pager, or pay phone.) They don't teach this stuff at tech school.

How many of the assets used for those 16 touches of a plane's turn have similar variations? Fuel trucks, belt loaders, ground power units, air starts, catering trucks and more, all have wide variations and typically feature aging fleets. A retiring GSE mechanic possesses a virtual encyclopedia of tribal knowledge that is not readily passed along to his/her replacement.

The Capacity Conundrum

There won't be fewer planes flying. There won't be less cargo being moved. We can't replace the work force with self-service or self-checkout (which is becoming a norm in other service industries). There will be more work and fewer GSE mechanics.

The average American worker produces 6.5 hours of work in an average 8 hour day. The GSE mechanics in our company are measured and perform higher than that every day. They have to or those 70 planes

don't turn and those passenger expectations won't be met. Though over the past 12 months, we've added 50 new jobs (about four each month), we know that it is possible that 1% of our team (or two mechanics) will approach retirement age every day sometime in the near future. Finding replacements will be more and more challenging. The existing work force is approaching capacity.

To be successful, GSE maintenance companies must have a clear strategy to address the Capacity Conundrum. They must:

- ▶ Have a quality maintenance system that is auditable. Quality maintenance measurably impacts efficiency (yielding more productivity).
- ▶ Invest in training more deeply than ever before. Capture and share the tribal knowledge. The new technicians aren't going to come from the GSE industry, but they'll be more productive

if training exists to help them assimilate quickly.

- ▶ Apply Lean principles to the flow of the shop. GSE mechanics will be required to be more productive than the average worker.

Despite a 20 minute ground stop and flying dead into a 150 knot wind, my flight from MIA to MSP arrived on time. We pushed back from gate H17 flawlessly. While on the tarmac and in the air we were comfortable. The plane was clean, the snacks and beverages were available, and all of our luggage was accommodated. We arrived at G13 and our baggage arrived at the carousel just a few minutes after we did. It appeared, at least for this day, the work of the GSE mechanics had been successful despite 70 flights per hour. Will we be able to keep up with the demand? That is the conundrum. **GSW**



ColumbusJACK | Regent
GLOBAL SUPPLIER OF GROUND SUPPORT EQUIPMENT
"The Strength of Experience"

YOU choose
Columbus Jack/Regent
because our

- ✓ Service
- ✓ Quality
- ✓ Reputation

POP!

JOIN US at MRO 2016
Celebrate 80+ years of excellence
Enjoy a free BAG OF POPCORN on us!

www.columbusjack.com **MRO Booth 3509**



AviationPros.com/10134078

Delta's Other Fleet: The Science Behind Ground Equipment

From his office within earshot of pneumatic wrenches and the roar of departing jets off runway 27R in Atlanta, Curt Brooks, Lead Ground Maintenance Technician, along with his 265 colleagues, work around the clock to keep Delta's fleet of ground support equipment running in tip-top shape.

By Michael Thomas

We're the backbone to the operation," said Brooks, a 26-year Delta veteran. "The airplane is the equipment customers see and identify with, but [ground equipment] is the grease, muscle and guts behind the scenes that keep planes, bags and people moving around the airport."

Delta has a fleet of more than 103,000 pieces of GSE at airports around the world including everything from bag tugs and belt loaders to jetbridges, air starts and entire airport baggage systems. It's equipment large and small, complex and simple, and while it plays a less visible role than Delta's high-flying jets, this 'other fleet' represents the



Delta Air Lines

vast amount of equipment that makes a safe and reliable global airline operation possible.

And it's technicians in Atlanta as well as other Delta hubs and stations around the world who operate 24/7 to keep all that equipment – and the airline – moving. They perform preventative maintenance and unscheduled fixes on equipment before sending it back out on the line to help agents load cargo bins, push back aircraft, de-ice frosted jets and sort millions of pieces of luggage a year, among other functions.

Joe Fuqua, general manager – GSE management at Delta, is a 35-year ground equipment veteran and says keeping an extensive fleet of vehicles and equipment, scattered from Atlanta to Japan and in hard-to-reach destinations like Juneau, Alaska, means he and his colleagues are constantly evaluating operational needs, purchasing new equipment and working to keep existing equipment running smoothly.

“It’s a complex operation as we constantly work to fine-tune the GSE fleet and adjust to network changes and the broader upgauging of Delta’s [aircraft] fleet as well as adhere to local and regional environmental compliance directives,” Fuqua said. “But it’s a challenge Delta people have met and consistently excel at.”

Not so different than airplanes

Similar to Delta’s aircraft fleet strategy, the airline has been successful in finding a balance between new and used ground equipment to support the global operation. The value in a push-back tug, for example, is born largely in the steel structure of the equipment since a significant amount of weight is needed to push—and stop—a several hundred thousand pound aircraft.

Overhauling the engine, transmission and other components often proves far more cost effective over outright replacement, despite additional maintenance required to keep older equipment running. A new Goldhofer Super Tug, for example, can cost upwards of \$1.4 million.

For maintenance planners and technicians, staying on top of preventative and predictive maintenance has meant the successful execution of Delta’s GSE strategy—not unlike Delta’s aircraft maintenance program. On a belt loader, for instance,



Delta Air Lines

planners and airport agents carefully monitor usage time and require scheduled inspections every 250 hours—a monthly occurrence in hubs like Atlanta and Minneapolis where utilization is high.

“Preventative maintenance is the backbone of our maintenance program and ensures our customers, namely below-wing agents and aircraft maintenance technicians, have the vehicles and tools they need to perform their jobs effectively,” said Fuqua.

Across the system, detailed inspections mean leaks and faults, as a result of regular wear and tear, are fixed preventatively when possible.

“The better we can do on preventative maintenance, the fewer breakdowns we have in the operation,” he said. “That leads to a safer and more reliable operation for our employees and customers.”

The importance of that reliability is something Max Kling, a Delta ground maintenance technician whose team oversees the baggage system in Atlanta, knows very well. The system last year funneled more than 45 million bags along 35 miles of conveyor

belts. It’s the largest airline-run bag system in the world.

“Failure of the bag system isn’t really an option,” Kling said. Multiple built-in redundancies and an emphasis on predictive maintenance keeps bags moving, in some places, at speeds topping 500 feet per minute. Similar systems at Delta hubs in New York, Minneapolis, Detroit and others contributed to the movement of more than 126 customer million bags in 2015.

Electrifying GSE

Delta in recent years began an aggressive push to reduce emissions. Fuqua and his team bought more fuel-efficient equipment and converted a growing number of diesel-powered belt loaders, cargo loaders and other equipment to run on electricity. Now roughly 15,000 pieces of ground equipment are electrically powered.

The return is almost immediate: simpler electric motors are less maintenance intensive and drive higher across-the-board reliability; the motors are quieter, cleaner and contribute to improved working conditions for agents.

The group is testing more electric-powered devices in Minneapolis-St. Paul, gauging performance and reliability in the sub-zero climate. Between ATL and MSP almost 20 percent of ground equipment has transitioned to more environmentally friendly electric models, with more than 2,000 electric-powered devices now operating system-wide.

“There’s a great environmental, reliability and cost benefit to converting existing equipment from dirtier and less-efficient diesel to electricity,” said Fuqua. “We’ll continue to make prudent investments in conversions where it makes sense to do it and to the benefit of the airline and Delta people.”

Delta continues to exceed increasingly stringent California emissions regulations by introducing cleaner burning vehicles as well as electric equipment in all markets Delta and Delta Connection partners operate. As the new Salt Lake City terminal is built,

Between ATL and MSP, almost **20 percent** of Delta’s GSE has transitioned to more **environmentally friendly** electric models.

Delta will introduce electric equipment in that station with several other major airports receiving similar fuel-efficient, reduced-emissions vehicles.

The team also worked in select stations to convert traditional diesel deice trucks to cleaner, renewable biodiesel and added three LAX-based plug-in Porsche E Hybrid vehi-

cles. The entire Porsche fleet is also managed by Delta’s GSE asset team. Additional hybrid and plug-in hybrid models are expected in Seattle in the future.

A mobile resource

While much of the department’s focus is built on improving utilization and reliability of existing GSE, technology enhancements in both aircraft and ground equipment require the team to be nimble and innovative in their approach to equipment fleet strategy. The GSE asset team works to source new equipment within network requirements—tow bars matched with aircraft type, for example—and moving existing equipment around the system.

When Delta opened seasonal operations in Juneau, the GSE asset team worked to ship tugs, tow bars, belt loaders and other equipment into position in time for the airline’s first arrival into the city, which lacks roads linking it to the rest of the state or neighboring Canada. Newer items are often moved to more remote stations like Honolulu and Anchorage where they will stay for good due to high shipping costs and limited availability of replacement parts.

“It’s a well-coordinated dance to make sure we have the right equipment where the network and operation demands it,” Fuqua said. “With seasonal markets, though it poses a challenge, we’re often able to maneuver equipment from one station to another without having to source and purchase new GSE which is a more sensible use of the airline’s capital.”

Delta also invests annually to purchase new equipment, replacing aging ground equipment to serve new aircraft like the Airbus A350—due to join the fleet in 2017—and for that, the airline works cross-divisionally with TechOps, Airport Customer Service and Cargo to source the right equipment for the job.

“You can’t fuel airplanes, load them with customers, baggage and cargo, de-ice them or push them out of the gate without the help of the equipment assets we acquire and maintain,” said Brooks. “GSE is vitally important to an airline’s operation.” **GSW**

This article originally appeared on the Delta News Hub at news.delta.com.

THE DATA IS IN

The Rampmaster Refuelers Engine Management System (EMS)
Delivers Unparalleled Savings for Every Gallon of Jet Fuel Pumped.

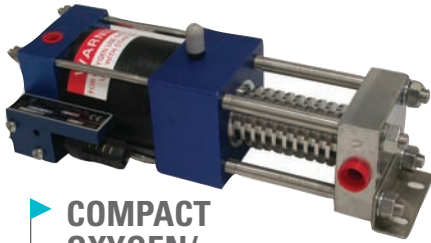
An Independent Study by WVU's Center for Alternative Fuels, Engines and Emissions has Confirmed that

EMS DRIVES UP TO 78% DIESEL FUEL SAVINGS

See how EMS is innovating refueling at www.rampmasters.com/EMS

RAMPMASTER
CHAMPION OF EXCELLENCE

AviationPros.com/10017697



COMPACT OXYGEN/NITROGEN GAS BOOSTER

Hydraulics International Inc.

Hydraulics International's compact air and/or hand driven oxygen/nitrogen booster rated to 3,450 psi. Ideal for filling or topping off O₂ bottles from as low as 300 psi. Operated by a low-pressure shop air compressor or manually. Air consumption is less than 6 scfm operating at 60 cycles/minute.

AviationPros.com/10025559



MAINTENANCE HOISTS PF Fishpole Hoists Inc.

PF Fishpole hoists are precision-engineered aircraft equipment maintenance hoists for single attach point equipment installation and removal on all commercial aircraft:

- Valve engineered products.
- Short lead times.
- Speedy service at many locations worldwide.

AviationPros.com/10441302



ENGINE COMPRESSOR WASH RIG

A.T. Juniper (Liverpool), Ltd.

The 2x25 gallon engine compressor washing rig is the mainstay of the Juniper range. Versatile enough to tackle most engines when partnered with our growing list of wash probes, lances and spray rings, yet maneuverable enough for the most remote areas of an airfield.

AviationPros.com/10027072

P2861 PHASE SEQUENCE TESTER

Page Industries



The PAGE INDUSTRIES P2861 Phase Sequence Tester is the number one tool in the industry to quickly and safely test the

electrical connection and verify voltage readings at the end of any 400Hz six pole aircraft cable assembly removing any potential to damage electrical equipment or injure the operator.

AviationPros.com/12167984

ENGINE DISTRIBUTORS INC.

TIER IV SOLUTION

Engine Distributors Inc.

Featuring a complete line of EPA- and CARB-certified 1.5, 2.3, 4.0 and 6.8 LSI engines ranging from 20 to 200 horsepower. Available in gasoline, LPG, CNG, natural gas and dual fuel. Our engines are the solution to high-priced Tier IV diesels.

AviationPros.com/10442466

MORE THAN 20 YEARS OF QUALITY GSE PRODUCTS!

NARROW BODY TO WIDE BODY STAIRS

LAVATORY AND WATER SERVICE CARTS & TRUCKS

MAINTENANCE LIFTS

BELT LOADERS

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

AviationPros.com/10117661



TILTABLE CARTS
Tronair Inc.

Tronair's new four-cylinder tiltable carts meet OSHA/EU-OSHA safety requirements for one-person cylinder lifting. The carts feature an "operator assistance system" that eases the movement of cylinders from vertical to horizontal.

AviationPros.com/11193215

HOSE REEL
U.S. Airmotive GSE

U.S. Airmotive offers hose reels that are capable of storing up to 80 feet of 12- or 14-inch diameter lay flat ducting. The all-aluminum construction, powder-coated white reel can stand alone



or connect to bridge PCA adapter bar locks for storage and protection. It is available with 6- or 8-inch casters that resist wear and tear on concrete and asphalt; pneumatic tires are optional. Long wearing bronze alloy bearings eliminate the need for lubrication. Expanded metal support prevents ground contact with coupler or hose. It measures 32 inches wide, 41 inches deep, and 45 inches high.

AviationPros.com/10226743

MODEL 704 LIFT
NMC-Wollard Inc.

NMC-WOLLARD Model 704 lifts a distributed load of 2,000 lbs. or concentrated loads of 500 lbs. Hydraulic stabilizers allow full capacity at full extension. Lift has elevating work platform floor height to 30 ft., providing repair access to most aircraft. The retracted height for travel is 100 in. with handrails in place. 20 mph top speed. Modular engine/transmission package simplifies maintenance and repair. Choice of 4 engine packages or electric.



AviationPros.com/12158422

www.juniper-liverpool.com

The Juniper Universal 2x25 Gallon Compressor Wash Rig for military applications.
Part number: JMP/HER/D/1144/C600 NSN: 4940-99-849-9712

Covering the C130 Hercules, C130J, P8 Poseidon, P3 Orion and A400M.

For details of tooling for this rig please visit the website

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

AviationPros.com/10017984

LEKTRO Since 1945
The Ultimate Aircraft Tug

**Models Ranging
15,000 to 210,000 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



HOBART 2400 POWER COIL
ITW GSE Hobart

Introducing the Hobart 2400 Power Coil, combining the superior 2400 frequency converter operation with a low maintenance cable coil design with UL approved cable. The Hobart Power Coil is designed for quick and easy installation by combining our 2400 GPU, cable handling system, interconnection cable and aircraft cable all in one compact unit. This saves space, streamlines installation and protects the cable from damage and the elements.

AviationPros.com/12064782



WORLD'S LARGEST GSE SUPPLIER
Sage Parts

Sage Parts is the world's largest supplier of GSE and airport-related replacement parts with warehouses throughout the world. Sage Parts supplies parts and accessories for all types and brands of GSE including from aircraft cargo loaders to deicers to lavatory/water vehicles. Sage also provides supply chain management, on-site supply services and other cost-reduction programs.

AviationPros.com/11315519



12-TON TRIPOD JACK
Malabar International

Malabar's Model 12314S tripod jack services H1, H2, H46, H53, UH60 and SH60 helicopters and various fixed wing aircraft. The 12314S is built to withstand harsh environmental conditions and rugged use, and provide many years of continuous service. Malabar customers are guaranteed a quality product with each purchase and are assured of continued product support whenever and wherever the need arises.

AviationPros.com/12141604

Par-Kan COMPANY
QUALITY. VALUE. PERFORMANCE.

800-291-5487
www.par-kan.com

AviationPros.com/10017637

PREMIUM QUALITY CABLES AND MORE

SCUFF JACKET FULL CABLES REPLACEABLE CABLE HEADS AND NOSES

If you don't think your choice of cables, ducts, reels and pre-conditioned air connectors can make a difference to your bottom line, you're probably not using products from J&B Aviation.

ISN'T IT TIME YOU TOOK A CLOSER LOOK AT J&B?
If your business has a need or special challenge you'd like to talk to us about, please don't hesitate to call or email. We're easy to reach—and to do business with.

Call 1-800-621-0074 or +1-941-721-1018
Email: jandsales@itwgse.us

J&B AVIATION
It's all about connections

www.itwgse.com/jb

AviationPros.com/10017483



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

- 19 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

AviationPros.com/10016926

ALBERTH AVIATION

TOOLS & EQUIPMENT DESIGNED BY MECHANICS FOR MECHANICS

GROUND SUPPORT EQUIPMENT



GSE | Specialty Maintenance Tooling | Aircraft Parts

www.AlberthAviation.com • 832.934.0055

AviationPros.com/10016971



FINANCING & LEASING OF NEW & USED AIRCRAFT GROUND SUPPORT EQUIPMENT

SALES, RENTALS, PURCHASE, TRADE-INS & APPRAISALS

We are GSE experts with over 30 years of GSE experience. Let us work together on your next GSE requirement.

Contact Neil Bennett:

Phone: 253-358-0330 * Email: neil.bennett@somersetcapital.com

www.somersetgse.com

OAC, Terms & Conditions apply

AviationPros.com/10017127

Mercury GSE
Ground Support Equipment

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

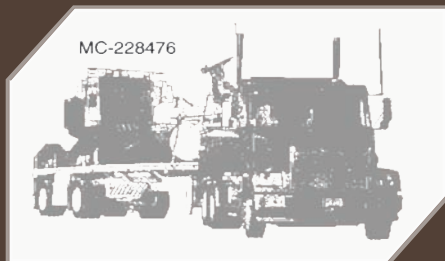
E-MAIL: dtaylor@mercurygse.com

12519 Cerise Ave., Hawthorne, CA 90250

AviationPros.com/10017592

SATELLITE SPECIALIZED TRANSPORTATION, INC.

Your Ground Support Specialist



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



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)

BAGGAGE TRACTORS

- Tug MA50, gas
- TLD JST-25, diesel

AIR CONDITIONERS

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

CONVEYORS

- NMC-Wollard TC-888, diesel

GPU

- TLD 90Kva & 120Kva
- TLD 90Kva/28V dual output
- Hobart 4400 90Kva/28V dual output
- JetGo 550Mt-RJ 28V

AIR STARTS

- Stewart & Stevenson TMSS 255
- TLD 180 PPM

PASSENGER STAIRS

- Phoenix Metal PAS200 wide body
- Stinar SPS-2513

LAVATORY TRUCK

- Wollard TLS 770

FOR SALE OR LEASE

AviationPros.com/10017302

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
Bobtails

Visit: www.Davin-Inc.com/Equipment for a list of available equipment

New One-Piece 800-746-8273

DOORS

- AVIATION
- AG DOORS
- SHOP DOORS
- BARN DOORS

HYDRAULIC
"One-Piece" DOOR

OR

BIFOLD
STRAP LIFT
and auto latch

Say **YES...** to Strap-Lift Doors
Say **NO** to Cable Lift

SCHWEISSDOORS.com

...Lift Straps

ALBERTH AVIATION

GROUND SUPPORT EQUIPMENT

832-934-0055 • www.AlberthAviation.com

QUICK RELEASE PINS



POSITIVE BALL-LOCKING

Fairlane

www.fairlaneproducts.com/QuickPins

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

ADVERTISE HERE

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

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

EMR LOGISTICS INC.

LAND • AIR • SEA

For all your transportation needs.

CONTACT: **Joey Mazzone**
GSE TRANSPORTATION SPECIALIST

TOLL FREE: 855.811.1080
Joey@ShipEMR.com

"Consider It Done."™






▲ Editor - Alex Wendland
 awendland@aviationpros.com
 920-563-1644

A New Lease on GSE

I'm not a numbers guy. Never have been, never will be. But working on our cover story this month led me to believe a lease-heavy fleet is best for business.

In my industry, content is king. In business though? Consistency is key. Reliable, all-inclusive payments allow ground handlers with lease-heavy GSE fleets to plan for the long term rather than navigating surprise break downs and the necessity for fleet back-ups.

Additionally, an all-inclusive leasing system can include training budgets for new employees and continuing education to maintain situational awareness for those already on staff.

"There should be naturally ongoing training regardless of what you're buying," Neil Bennett, managing director at Somerset Aviation Capital, says. "I think that's just a general safety thing that everyone should be doing."

All that planned training can come in handy when the lease ends and ramp staff has the opportunity to get brand new equipment - often decades before that equipment would reach the ramp. Brand new equipment, maintenance, training and a consistent monthly payment? Sign me up. You know, if I were in the market.

Sure, by definition lessees don't own their GSE outright, and they don't get that sweet, sweet resale money. But they also don't have the hassle of selling their own equipment. Leasing seems to be a simplified way of acquiring equipment, not to mention being a client instead of an owner. It just makes life easier for maintenance and repair. And sure, the payments never end if you lease the

fleet. But lessees have brand new, reliable equipment on the ramp and new stuff coming in all the time. Fewer machines, more productivity, less responsibility.

On the manufacturer side, regular lease turn-over churns demand in the GSE industry. New leases often demand new equipment, and GSE leasing firms have reason and necessity to buy shiny new equipment for their clients.

All that used equipment can go a couple of different ways. A quick refurbishment and some maintenance can get it back on the ramp in another lease or, after that 20-year-old tractor runs its life cycle, make a sale and ship it out to fuel that boom going on in the BRIC countries.

Is this all a touch altruistic? Absolutely. But we could all use a little more altruism in our lives.

What's your fleet strategy? Ownership? Leasing? A combination of the two? Let me know @GroundSupportWW on Twitter or email me, awendland@AviationPros.com.

SOCIAL MEDIA & ONLINE CONTENT



FACEBOOK
 facebook.com/
 AviationPros



YOUTUBE
 youtube.com/user/
 AviationProsVideos



TWITTER
 @aviation_pros



LINKEDIN
 linkedin.com/groups/
 AviationProscom

MEDIA CENTER



How Airports Can Help Revitalize the Aviation Industry
 AviationPros.com/12168529

TOP ARTICLE



Delta Apologizes for Flight Attendant Brawl That Forced Flight Diversion
 AviationPros.com/12167578

ONLINE PRODUCT GUIDE



30K PlaneSkate™
 AviationPros.com/12175197



IGHC
IATA GROUND HANDLING CONFERENCE

Enhancing, Developing and Innovating: Grounds for Success

15-18 May 2016, Toronto, Canada

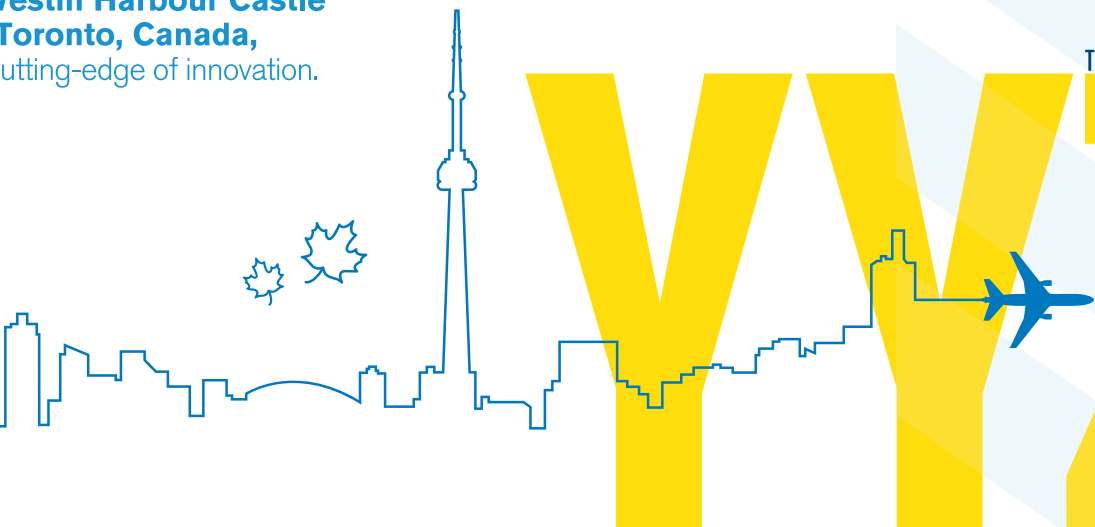
HOSTED BY AIR CANADA

Hot topics. Influential leaders. More than 800 delegates. A dynamic setting.
That's the IATA Ground Handling Conference in a nutshell.

IGHC Conference is the largest, premier annual ground handling event, attended by almost 100 airlines and many high-level industry experts from the entire Ground Handling Value Chain, including service providers, airports and suppliers. Don't miss the networking opportunity of the year!

The event theme, **Grounds for Success**, promises insightful presentations, interactive panel discussions and informative workshops featuring top experts. We will uncover efficiency enhancements, groundbreaking developments and innovative solutions for a safer and more sustainable ground handling industry.

Save the date and join us at the luxurious Westin Harbour Castle in exciting Toronto, Canada, a city on the cutting-edge of innovation.



Registration is now open! Be sure to check our website for event updates and details!
www.iata.org/events/ighc

AIR CANADA 

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