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April 2011

GROUND SUPPORT WORLDWIDE

LAXFUEL

Operates on Precision

The fuel farm supplies more than four million gallons of Jet A to airlines each day

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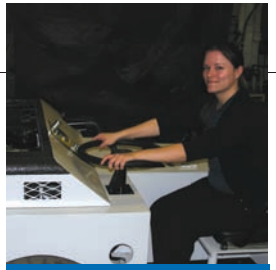

LISA HADDICAN

Airlines Continue to Slash Capacity

The massive tsunami that swept parts of Japan has grown in its level of devastation with each passing week. The Internet is ablaze with images of the havoc it caused, including a CCTV recording of the tsunami engulfing the airside of Sendai Airport. And through amateur video recorded inside the airport at the time, cars parked nearby are washed away as easily as if they were toy models.

Yet, the greater threat from radiation from the nation's damaged nuclear reactors has left the country in a state of fear and uncertainty.

This, of course, has had an effect on the airline industry. No stranger to natural disasters, the airlines are monitoring the situation closely and making adjustments to routes as needed. As reported by AP, United/Continental has suspended some flights from U.S. locations to Japan, citing a lack of demand for the routes. Delta announced it will cut flights from Japan by 15 to 20 percent through May.

The cuts are not likely to stop there. Reported by CNN, Lufthansa and Alitalia, which have rerouted some flights in Japan, have been watching radiation levels of its flights to determine further action.

And, of course, this is coupled with the threat of rising fuel costs. As reported by the AP, Qantas recently announced it would cut growth in domestic capacity

On the Road Again

Ground Support Worldwide **recently took a trip to California to visit companies in the Los Angeles area. The trip included a visit with ASIG at the LAXFUEL facility, which can be read about in this issue's cover story. Victory GSE and its affliated company, A&V Rebuilding, also opened the doors of their operations.**

Above: Technicians at Victory GSE work on rebuilding a unit; right: a view of A&V Rebuilding's shop where some units are stored.

Another stop was made at Tandem GSE, where I learned more about its parts business. Many thanks to these companies for their time.

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by 6 percent in the second quarter of this year and cut international growth in capacity by 3 percent. That followed an earlier announcement by Air Canada that it would eliminate six routes due to fuel costs.

And this is on the backdrop of larger capacity cuts announced by the airlines in the past few weeks, including US Airways, which, according to the *Philadelphia Inquirer*, plans to reduce capacity by 2 percent in the fourth quarter.

Will the public continue to travel in light of fewer flights, higher fares and more fees?

The cuts in capacity come amid reports of stronger traffic and earnings for most airlines in 2010 and the first couple months of the year. In its latest statistics for February 2011, the Air Transport Association reports that U.S. carriers saw an increase in passenger revenue by about 13 percent compared to the previous year. And in 2010, the US DOT Bureau of Transportation reported that airlines in service in the U.S. carried 2.1 percent more passengers in 2010 than in 2009.

This sets up an interesting situation leading into the summer travel season, traditionally a peak money-making time for the airlines. Will the public continue to travel in light of fewer flights, higher fares and more fees? Stay tuned.

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MISSY ZINGSHEIM

Marketing Practices for Businesses

In our current environment we are hit at every angle with marketing and advertising. Every company is looking for that outside-the-box approach to reach current and prospective clients. Then there are other companies that are coming up with products to help you avoid such advertisements. I am sure most of us have a DVR or TiVo and know exactly what I am talking about.

So then the real questions become: how do I effectively market my product or service? How does one gauge if it is working? What are the expected returns on investment when it comes to advertising?

THE BASICS

To really start at the basics, here are the definitions of marketing and advertising (as described by Dictionary.com). Marketing is the "total of activities involved in the transfer of goods from the producer or seller to the consumer or buyer, including advertising, shipping, storing, and selling." Advertising, meanwhile, is "the act or practice of calling public attention to one's product, service, need, etc., especially by paid announcements in newspapers and magazines, over radio or television, on billboards, etc.: to get more customers by advertising."

So then the real questions become: how do I effectively market my product or service? How does one gauge if it is working? What are the expected returns on investment when it comes to advertising?

So what does this mean? Marketing is the overall process of supplying a product or service to a customer. Advertising is a part of that, serving a singular purpose of drawing more attention to a product or service.

They represent vital functions to a business. When I first started with *Ground Support Worldwide,* one of my favorite responses that I would get from clients was, "I don't want/have to advertise. I have more work than I know what to do with." I never really understood this answer. Being in sales for over a decade now, I have never turned down an opportunity or the potential to make more money.

As consumers, we all see advertising and marketing on a regular basis. How many times after seeing an ad does it take you to remember it or care that you saw it at all? In our own businesses, we market ourselves everyday. The logo is the brand, and it's put on everything to reiterate what and who the particular brand is.

MULTIPLE CHANNELS

There are many different ways to reach an audience or market. The options seem almost endless and somewhat confusing at first glance: print/magazine, digital/online, social media, expo/conference, video, direct mail, email, and text-message advertising. These are just a handful of advertising options that are available.

In upcoming issues, I want to dig into these specific forms of advertising and marketing. I welcome any questions or comments on specifics that you would like to hear more about.

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Calendar of Events:

May 1-4
Regional Airline Association Annual Convention
Nashville, Tennessee
972.943.4793
http://www.raa.org/AnnualConvention/tabid/171/Default.aspx

May 1-4
IATA Ground Handling Council Annual Meeting
Kuala Lumpur, Malaysia
http://www.iata.org/workgroups/Pages/ighc.aspx

May 12-19
SAE G-12 Aircraft Ground Deicing Steering Committee Meeting
San Francisco, California
724.776.4841

Business Buzz

■ **Fraport announces February 2011 traffic figures:** Aircraft movements increased by 8.2% to more than 36,000 take-offs and landings and the airport also saw continued growth in airfreight volume, which was up 4.3% to 170,564 metric tons. This represents a new record high for February. Fraport's five majority-owned airports, including Frankfurt Airport, recorded an increase of 11.6% in passenger numbers for February 2011 to a total of 5.14 million.

■ **Swissport reports 2010 fiscal results:** Swissport International generated total operating revenue last year of CHF 1.741 billion, a 5.2% increase over 2009, despite the negative impact of the strengthening Swiss Franc, the volcanic ash crisis, and the closure of underperforming operations in 2009. The Swissport Group expects to experience continued growth in the current year, supported by its new owner PAI Partners.

■ **Air France-KLM Cargo receives accolade:** The carrier has received the Cargo Award in the latest Schiphol Aviation Awards, sponsored by Amsterdam Airport Schiphol. The airline has been recognized for its ground-breaking initiatives on behalf of Schiphol SmartGate Cargo, its integrated approach to goods inspection and its pioneering role in the implementation of e-freight. The awards were presented March 25, by Ad Rutten, executive vice president & COO of Schiphol Group. In keeping with the airport's drive for sustainability, the event was held in De Arendshoeve, Aalsmeer — one of the most sustainable green locations in the Netherlands; it was attended by 140 guests from the aviation industry.

■ **Lufthansa launches curbside check-in service at Detroit Metropolitan Airport:** Lufthansa German Airlines now offers curbside check-in and baggage-check service for customers departing from Detroit Metropolitan Airport's North Terminal to Frankfurt and beyond. This new, free service is available for customers in first and business class, senator and HON Circle members, and Star Alliance Gold members.

■ **Malabar International announces new products for Boeing 787:**

Air Transport Association reports growth for U.S. airlines in February 2011

Passenger revenue, based on a sample group of U.S. carriers, increased by 13% last month compared with the same month in 2010. Miles flown by paying passengers rose by 2.1% while the average price to fly one mile was 10.8% higher than a year ago. On international services, passenger revenue grew 17%, while in the domestic market revenue was up 11.5%. These figures are compiled by ATA based on data provided by Alaska, American, Continental, Delta, JetBlue, United and US Airways, including data for Air Midwest, Air Wisconsin, Allegheny, American Eagle, Atlantic Coast, Atlantic Southeast, Chautauqua, Comair, Continental Express, Executive, Freedom, Horizon, Mesa, Mesaba, Piedmont, Pinnacle, PSA, Shuttle America, SkyWest and Trans States.

The International Air Transport Association announces February 2011 traffic results

The association announced scheduled international traffic for February 2011 showing increases of 6.0% and 2.3%, respectively, for passenger and cargo demand compared to February 2010. February demand growth was down significantly from the revised 8.4% and 8.7% expansion recorded in January for passenger and cargo traffic, respectively. The political unrest in the Middle East and North Africa during February is estimated to have cut international traffic by about 1%. As such it is responsible almost entirely for the slippage in passenger demand growth, according to the association. In addition to the political unrest in the Middle East and North Africa, the more dramatic fall in cargo growth (from 8.7% in January 2011 to 2.3% in February) was impacted in part by factory shutdowns due to the Chinese New Year period, which fell in the first part of February in 2011.

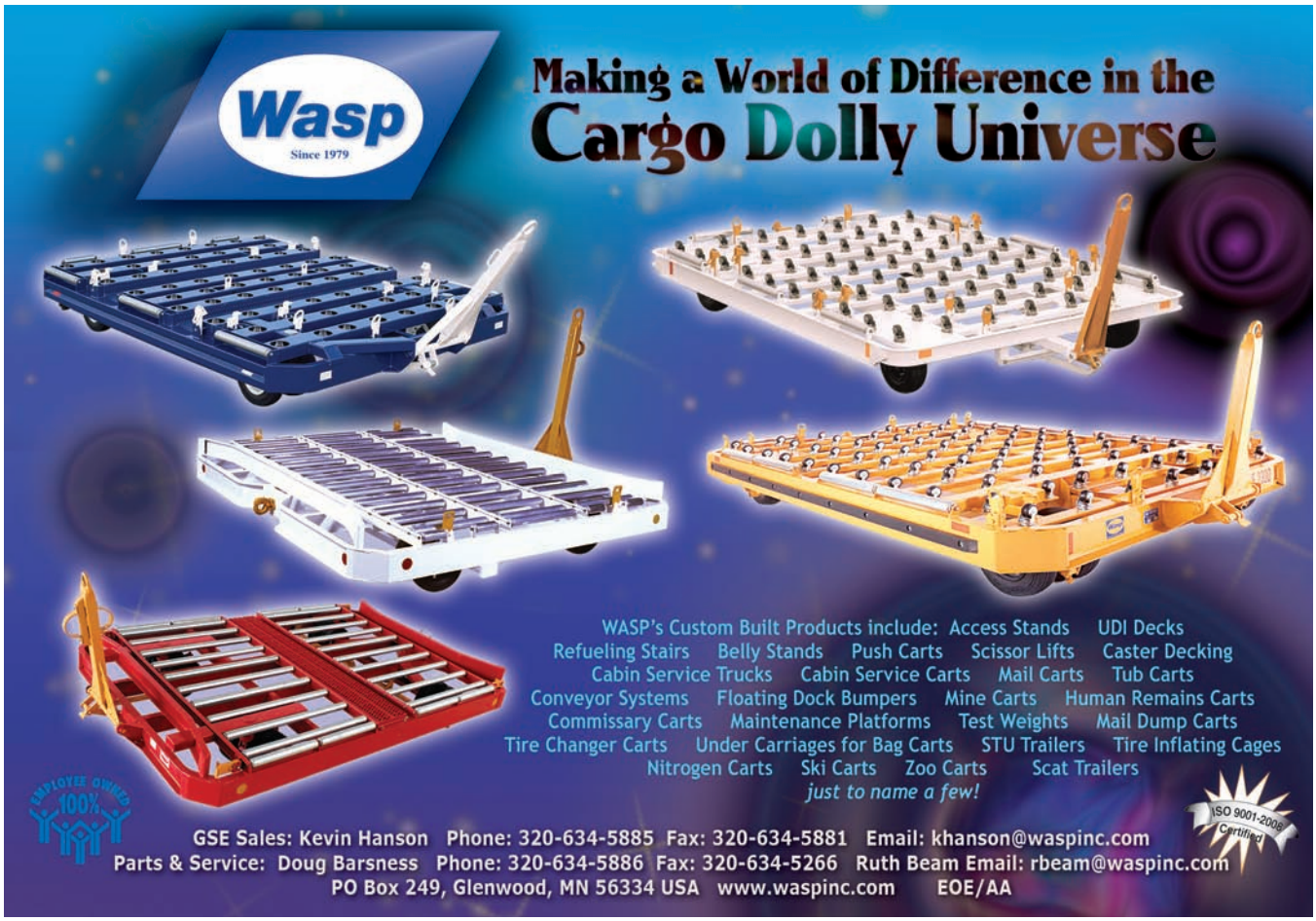
The company announced it has developed, produced and delivered B787 Coolant Service Carts and accompanying B787 Coolant Top-Off Packs. Malabar's CSC and CTOP are used for servicing the B787 Environmental Control Systems. Equipped with an integral programmable logic controller, the CSC performs rapid aircraft coolant drain, fill, clean and de-aerate operations on the coolant systems in the 787 aircraft. Both the CSC and CTOP are designed in accordance with B787 System and Equipment Engineering specifications to meet the special servicing requirements of the Boeing Aircraft Environmental Control Systems (PECS, ICS, FCAC).

Clariant acquires Octagon Process

Clariant is expanding its capabilities in the North American deicer market by acquiring Octagon Process LLC, a privately held company based in New York. As a result of the acquisition, Clariant will provide customers a broader supply-chain network and enhanced geographic scope, according to the company. Terms of the transaction were not disclosed. Through the addition of Octagon's infrastructure and logistics network, Clariant will be able to offer a sustainable and ready supply of Type I, Type III and Type IV aircraft deicing and anti-icing fluids on a national basis, complementing its existing line of runway deicing products.

■ **Swissport receives ground handling award:** Swissport International has again been named Best Ground Handling Company 2011 by the Institute for Transport Management. Swissport has earned the distinction for 11 years in succession. This award is based upon an annual survey by the independent London based Institute of Transport Management (ITM) to determine the best and most professional companies within the aviation and logistics fields. This latest survey was conducted through a series of interviews and polls covering suppliers, airports, airlines, and passengers by the Institute.

■ **Air T Inc. announces third-quarter finacial results:** The company reported consolidated net earnings of $599,000 ($0.24 per diluted share) for fiscal 2011's third quarter ended Dec. 31, 2010, compared to consolidated net earnings of $1,247,000 ($0.51 per diluted share) for the third quarter of fiscal 2010.



The company also reported year-to-date earnings for the nine months of $1,443,000 ($.58 per diluted share) compared to $3,212,000 ($1.32 per diluted share) for the similar fiscal 2010 period. Consolidated revenues for fiscal 2011's third quarter were $22,314,000, a decrease of less than 1% compared to the similar 2010 fiscal quarter. Consolidated revenues for the first nine months of the 2011 fiscal year were $57,508,000, or 6% lower than the prior year comparable period. At Dec. 31, 2010, the backlog at Global Ground Support, the company's ground support equipment business, was $19.0 million, compared to $5.7 million at Dec. 31, 2009.

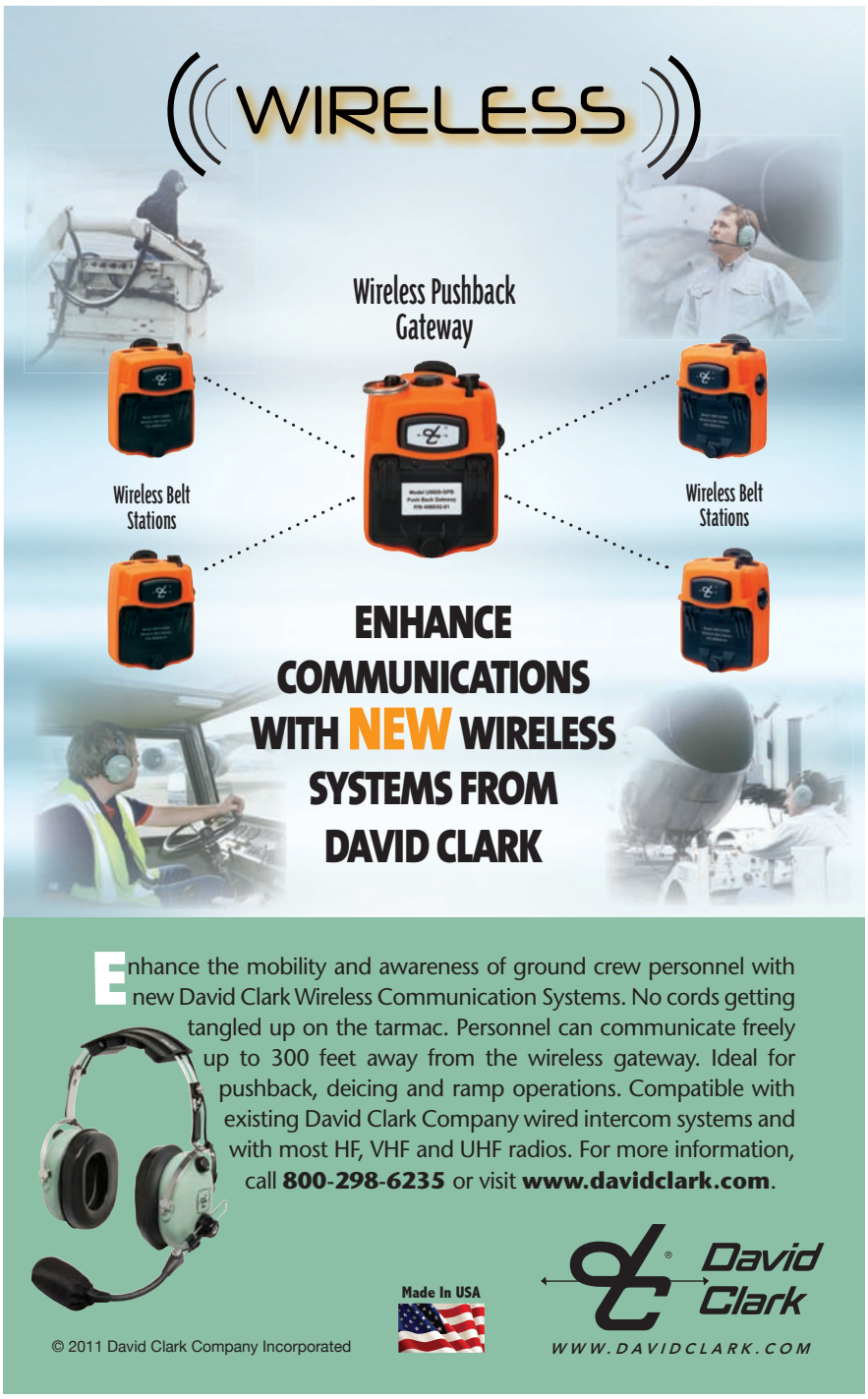
Partnerships/ Acquisitions/ Contracts

■ **Menzies handles inaugural Velvet Sky flight from Johannesburg:** Velvet Sky, South Africa's newest domestic carrier, took to the skies in an inaugural flight from Johannesburg OR Tambo International Airport to Durban King Shaka International Airport. Menzies is the appointed handling agent. Within the coming weeks, Velvet Sky expects to expand from one to three aircraft and run more than 60 flights per week around the Johannesburg/Cape Town/Durban "golden triangle."

■ **ICV Partners acquires Cargo Airport Services:** ICV Partners, a private investment firm focused on investments in smaller middle market companies, announced the acquisition of Cargo Airport Services, a provider of cargo handling solutions, from MidMark Capital, the Weinberg Bell Group and other shareholders. Chief Executive Officer Michael Duffy and the CAS executive team also invested in the transaction. Founded in 1998, CAS has grown and today handles 1 million tons of cargo, making it the second-largest independent handling company in North America. The company operates 21 facilities in 12 airports.

■ **Aviapartner operates ground handling services for Gulf Air at Milan Malpensa:** Aviapartner has been awarded the contract to provide ground handling services for Gulf Air at Milan. The airline opened the Bahrein to Milan route with four flights per week, operating with a B737 as of March 27, 2011. Gulf Air is the national carrier of the state of Bahrein.

■ **Servisair announces contract with KLM at DFW:** The company has been awarded an additional contract to provide KLM's passenger handling and cabin cleaning services at DFW.



Servisair has provided the Dutch carrier's ramp handling services since 2008. The new services are effective from May 10.

■ **MCO selects WeatherBug:** Earth Networks, the provider of WeatherBug® products and services and operator of a large weather observing and lightning network, announced its all-weather monitoring and alerting products are being utilized at the Orlando International Airport in central Florida to improve ground crew safety and operations. The solution includes a professional-grade WeatherBug weather station equipped with a lightning sensor; StreamerRT, a web-based weather visualization and monitoring application; and lightning-alerting devices. The solution helps protect ground crews, including baggage handlers, technicians and mechanics of 20 different airlines from dangerous lightning and other forms of severe weather, including high winds and storms.

■ **Aviapartner operates the ground handling services for Qatar Airways at Brussels Airport:** Aviapartner has been awarded with the contract to provide ground handling services for Qatar Airways in Brussels. The airline opened the Doha to Brussels route with five flights per week, operating with an A330-200 as of Jan. 31, 2011. Qatar Airways is the national carrier of the state of Qatar. Qatar Airways serves more than 90 destinations across a vast international route network that is still expanding.

■ **Servisair announces contract with AeroMexico at IAH:** The company has announced that AeroMexico has entrusted its passenger handling services to Servisair for its operation at George Bush Intercontinental Airport-Houston, effective as of March 18, 2011. At IAH, Servisair currently provides ramp and cargo handling services for AeroMexico.

■ **ASIG announces contract at BUF:** It has been awarded the contract to provide ramp handling services to US Airways Express at Buffalo Niagara International Airport (BUF). In addition, ASIG is also providing further cabin cleaning services to US Airways' mainline and express flights, as well as cargo line hauling services for both carriers. US Airways Express averages about 145 weekly flights and services commenced March 7.

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People in the News

■ **IATA appoints Maunu von Lueders as regional VP for Asia-Pacific:** A Finnish national, von Lueders has served as CEO of two international carriers, JetLite in India and Nordic Airlink/FlyNordic in Sweden. His aviation career began with Finnair where he worked until 2001 in various positions, including general management, sales & marketing, commercial partnerships and international relations. Von Lueders has also worked with the oneworld global alliance as vice president of sales.

■ **The Air Transport Association of America names Steven Lott as vice president, communications:** Lott joins the ATA from the International Air Transport Association, where he served as head of communications for North America for the past four years. In that role, Lott helped establish a presence in the United States and particularly in Washington, D.C., for IATA, which represents some 230 U.S. and international airlines. In this new role, Lott will help drive communications strategy and work closely with the ATA government affairs and policy teams to advocate for the airline industry in Washington, D.C., and around the world.

■ **Servisair Announces Senior Management Changes in its USA Region: Matt Ellingson**, previously Servisair's Regional Vice President Operations, has been appointed to the position of Executive Vice President – USA. Reporting to the CEO, Ellingson is responsible for all facets of Servisair's activity in the US. **David Finch** has been promoted to Senior Vice President, Business Development, U.S.A. Finch will continue to oversee Servisair's U.S. sales and marketing activities, as well as contract services. Finch has been with the Servisair organization for more than 31 years. **Andrew Grant** has been appointed to the position of Vice President of Servisair Fuel Services (SFS), Grant, who joined Servisair eight years ago, will report to Ellingson, and will have responsibility for management of all SFS operational and sales-related activities. Grant has more than 25 years experience in aviation fuel services, including into-plane fueling and tank farm operations management.

A view of the outbound pumps and filtration system at LAXFUEL.

LAXFUEL Operates on Precision

The fuel farm supplies more than four million gallons of Jet A to airlines each day

By Lisa Haddican

Upon entrance to the LAXFUEL facility through a crash-rated gate, the first impression is — simply put — a little intimidating. Several large storage tanks accent the skyline and line the grounds, interconnected through an intricate system of pipelines. Aircraft Service International Group manages the facility, which it has done since 1986. With substantial development in the past 25 years, the facility is the largest operation of its type in the country, supplying more than four million gallons of Jet A to airlines each day.

HISTORY

In 1986, the fuel supply chain at LAX was a markedly different operation. Separate fuel facilities located around the terminals were owned by individual fuel suppliers, leaving airlines little choice for their fuel purchasing options. "It wasn't an open market situation at LAX," comments Larry McMahon, vice president – fuel consortiums at ASIG. "The airlines basically worked out a deal with the oil companies and the airport to buy out the oil companies' facilities."

Once the fuel facilities were placed under the ownership of the airline consortium, the latter looked to an outside contractor to manage it. It selected ASIG, which has been handling the facility ever since, recently marking its 25th year with the facility and receiving a recent contract extension.

And the development accelerated from there, according to McMahon, as the airlines looked to consolidate the scattered facilities into a central operation. During a five-year development period from 1991-1996 at a cost

Four backup generators are positioned to provide power in the event of an outage.

of $125 million — which the airlines paid for with bond financing it secured through the city — the facilities were consolidated into a central fuel farm located at the airport. According to McMahon, this new centralized facility operated and maintained by the airlines through its contractor (ASIG), could now be accessed by a multitude of suppliers. “There were no longer any physical constraints which limited whom the airlines could satisfy their fuel supply demands with. Essentially, LAXFUEL grew from having four to five suppliers to 30 suppliers overnight.”

And to allow access from additional suppliers, the consortium leased additional storage space off-airport. “Over the years they went and secured off-site facilities, so ship importers and other refiners in the area could ship into these off-airport facilities. This fuel could then be shipped into the airport for on-airport fuel consumption,” he explains. These facilities consisted of leased pipelines, storage tanks and berths for ship deliveries.

A series of pipelines receive fuel to the facility.

MODERN-DAY OPERATION

The facility currently serves approximately 75 to 80 airlines at the airport. It features 15 large storage tanks and a state-of-the-art filtration system as well as 18 pumps that dispense fuel at a rate of 1200 gallons per minute. It has an on-airport capacity of more than 600,000 barrels of fuel. It is fed by four pipelines from a variety of fuel supply sources. Three off-airport storage locations provide a capacity of 1.5 million barrels. “We have about 20 days of fuel supply capacity with on-airport and off-airport storage,” according to Jim Moses, LAXFUEL’s facility manager.

The operator points out that it does not get involved in the purchasing of fuel for each airline. This function remains the responsibility of each airline operating at LAX. “The airlines purchase their own fuel and have their own individual contracts with their designated suppliers. Our job is allocating the storage space equitably and making arrangements to bring the fuel in,” McMahon says.

The LAXFUEL offices at Los Angeles International Airport.

Scheduling and allocation of the fuel takes a concentrated effort on the part of the various airlines, fuel suppliers and ASIG. Don Peninger, ASIG's scheduler at LAXFUEL, works regularly with airline members and their suppliers to coordinate plans for each shipment of fuel, ensuring that planned inventory shipments are within a manageable range. Peninger notes, "We allocate the storage to all of the LAXFUEL suppliers and airlines on an equitable basis."

As with all storage facilities, the fuel supply at LAXFUEL is commingled, as the jet fuel needs to meet only one industry-wide quality standard.

FUEL QUALITY

Beyond scheduling and allocation of storage capacity, another primary responsibility of the operator is to ensure fuel quality. ASIG's responsibility for the quality of the fuel begins from receipt at its facility to the isolation pits located at each terminal.

Larry McMahon, vice president – fuel consortiums at ASIG

SAFETY AND EMERGENCY RESPONSE

The facility disperses an average of more than four million gallons of fuel a day — an operation that demands a constant focus on safety. A network of surveillance cameras oversee activity at the facility, while an electronic monitoring system (collectively known as the Surveillance Control and Data Acquisition system) runs constant internal checks of storage tanks and pumps, noting such factors as fluid levels, temperature, pressure, and flow rate. If unacceptable limits are detected, automatic shutoffs are engaged as a safety precaution. Another safety feature is emergency fuel shut-off buttons located at the terminal. If an operator engages a fuel shut-off button, it will close fuel valves within seconds.

The facility disperses an average of more than four million gallons of fuel a day — an operation that demands a constant focus on safety.

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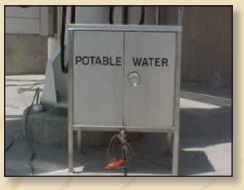

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AUDITS

As an ISO 9000-2008 certified facility, the organization adheres to strict audit processes for internal and external audits. The internal audits are conducted quarterly.

In terms of future expansion, there is a major airport development program going on that will require LAXFUEL to incorporate additional pipelines and the new international hydrant system within its facility distribution system.

"External audits are also conducted in which airlines will come in and review all of the facility's quality control, maintenance, inspection and financial records," says Bruce Grein, ASIG's quality control supervisor.

TRAINING

The company employs about 40 individuals in administrative and operations positions at LAXFUEL. On the operations side, it runs 24 hours a day with three shifts that include a shift supervisor, a central control operator, and two lab technicians. The facility has established a detailed recurrent training program for all of its employees to ensure that the highest standards are being adhered to on a daily basis.

FUTURE DEVELOPMENT

In terms of future expansion, there is a major airport development program going on that will require LAXFUEL to incorporate additional pipelines and the new international hydrant system within its facility distribution system. LAXFUEL is also reviewing the potential for incorporating all of the hydrant systems around the various concourses at LAX into LAXFUEL's operating system. If this can be accomplished as planned, LAXFUEL would ultimately be operating and maintaining the entire fuel system at LAX. At the present time, these hydrant systems are primarily being maintained by the airlines operating at these concourses in conjunction with their independent contractors.

Lastly, LAXFUEL is working with one of its off-airport terminal operators to expand its off-airport throughput capacity, which will enable them to handle additional jet fuel imports. According to McMahon, this project is in line with LAXFUEL's goal to ensure open access for all of LAXFUEL's airlines and suppliers.

Swissport Eyes Growth in Africa

The company shares its outlook for cargo and ground handling operations in the region

By Lisa Haddican

Swissport International, a major player in cargo and ground handling operations around the world, recently made its financial results for 2010 public. The company says it earned a total operating revenue of CHF 1.741 billion, which represents a 5.2 percent increase over 2009. It cites several developments in 2010 as contributing to a profitable bottom line, including the start of operations in Munich and new contracts across the globe.

The company expects to experience continued growth in 2011. One development that it believes will lead to greater gains on the cargo side for the company came in December 2010, when it opened a new warehouse at Jomo Kenyatta International Airport in Nairobi, Kenya. The 10,500 square-meter airside facility will, the company believes, open it up to substantial growth in the region.

NEW CARGO WAREHOUSE IN NAIROBI

According to John Batten, EVP cargo at Swissport, the new facility nearly triples the company's capacity. "The capacity in our facility is roughly 120,000 tons per year, however, the capacity is largely determined by the import/export mix," he explains. "Import cargo requires a larger footprint per ton because of storage prior to delivery, whereas export cargo requires a much smaller one, in view of the high percentage of shipper built units."

The new warehouse at the airport in Nairobi features many noteworthy capabilities, including direct access to the airside and five new parking positions for widebody full freighters located directly outside the warehouse. Adjacent to the warehouse is space for the storage

Image courtesy of Swissport International

Swissport Cargo Warehouse

AT JOMO KENYATTA INTERNATIONAL AIRPORT

Facility size: 10'500m2

Capacity: about 120,000 tons per year

IT Features: - CCTV system of 87 cameras

- three x-ray machines

- two metal detection machines, hand-held detectors

- CargoSpot IT platform: automated data capturing & real-time inventory control

of ULDs. It also includes a landside truck dock with positions for 15 trucks, as well as one 20-foot dolly dock for receipt of pre-built units.

The facility has 2,400 square meters of office space, a generous portion of which is designated for airlines, GSAs, clearing and forwarding companies. Offices for customers and other government authorities are also located on site.

Inside the facility is a floor space of 10,400 square meters, which includes a temperature-controlled area for perishables and a space reserved for the consolidation of other types of fresh produce. Four separate cold rooms provide storage for up to 75 main deck units

John Batten, EVP cargo at Swissport International

In terms of IT and security, the facility features automated data capturing and real-time inventory control with the CargoSpot IT platform, through the use of hand-held terminals. The facility has a CCTV system composed of 87 cameras that record and store footage for up to 30 days. Three x-ray machines screen cargo, along with two metal detection machines used in conjunction with hand-held detectors.

The facility, Batten points out, is operated with only electric equipment to provide an emissions-free environment.

For Swissport, the new space represents an opportunity for significant growth in cargo operations. "Thanks to the move to our new facility, Swissport Cargo Services – Kenya expects the volumes handled in 2011 to be 60 percent ahead of those handled in 2010," he says.

And to accommodate such growth, the company is looking to add staff to handle the volume increase. "The company has about 100 employees at Swissport Cargo Services – Kenya," he says. "In anticipation of growth, the division does expect to hire on additional staff to support operations. In view of increasing volumes, we will probably grow this number by about 20 percent over the remainder of the year."

OVERALL CARGO OUTLOOK IN AFRICA

The company's overall outlook for cargo in Africa is strong. In South Africa, it has made gains with contract awards from Air France Cargo, Martinair Cargo, Air Cargo Germany and Singapore Airlines Cargo. "With the additional customers won in South Africa in the last quarter of 2010 and first quarter 2011, we would expect our volumes to be more than 35 percent ahead of 2010 tonnages handled," Batten says. "In Tanzania the perishable market has gained some strength,

Images courtesy of Swissport International

and we foresee a growth of between 5 percent to 8 percent above the 2010 tonnages."

Cargo volumes, of course, are difficult to predict throughout most of world. In the latest regional outlook by the International Air Transport Association, carriers in Africa should come out even in terms of profitability for passenger and freight. And, as Batten notes, the region isn't as susceptible to fluctuations in the market with cargo as others. "The volatility in Africa is not the same as Europe and the Americas, however, we are careful about recruitment," he says. "Swissport Cargo Services is focused on delivering a top quality service through optimum use of our resources available and through the use of technology in improving the productivity."

The company conducts cargo and ground handling operations in four African countries: South Africa, Algiers, Tanzania and Kenya. When it comes to additional expansion for both types of operations, the continent presents some challenges for the company. "In some African Countries, the main problem is the bureaucracy in government departments," he says. "Africa is not yet liberalized in terms of airports opening to foreign companies like Swissport. Although this is slowly changing, the timeframes involved in decision making are often extended."

GROUND HANDLING IN AFRICA

And on the subject of ground handling operations, Swissport has also been making strides. In addition to adding 1time Airline to its portfolio in South Africa, the company has also added other customers, such as Thai International. These join the carriers it currently handles, including South African Airways, South African Airlink and international carriers, including Delta Air Lines and Air Madagascar. In total, the company conducts about 90,000 handling turns each year, according to Batten.

In terms of growth for handling operations, the company's outlook is much more modest. "We are looking for between 4 to 6 percent growth in ground handling, but this is subject to the political situation in certain North African and Middle Eastern countries, and, of course, the devastating catastrophe in Japan will also have a negative impact on the global aviation business and the rising oil costs," he explains.

On the operational side, a big push for the company in terms of ground handling operations in Africa includes a greater emphasis to create a working environment centered on occupational health and safety. "We are going through a culture change and trying to create one that embraces health and safety," he says. "We are investing heavily in training to promote this and make it part of the daily working practices."

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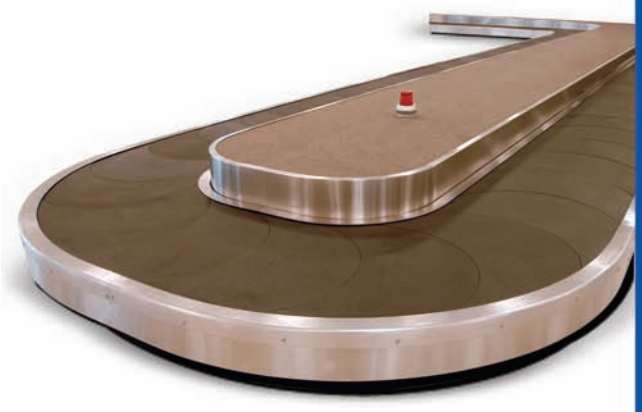
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Finding Joint Solutions

By coordinating the process of AGSE development and acquisition through the JPAVSE program, the U.S. Armed Forces are finding significant savings

By Aaron Amundson

JPAVSE, or the Joint Panel for Aviation Support Equipment, exists as part of the military's Aviation Common Systems Board, or ACSB. Its primary focus is to identify common needs for support equipment between the branches of the military, which allows for group development and purchasing of equipment, minimizing both the variety and cost of new systems. Through its efforts, the branches have saved an estimated $100 million to date.

JPAVSE Projects at a Glance

AUTOMATIC WIRE TEST SET

Navy: 56 units

Per-unit Savings when Combined w/AF Quantities: $750,000

AF: 160 Units

Savings on Development: $320,000

Per-unit Savings when Combined w/Navy Quantities: $1.12 million

Total Savings: $2.19 million

COMMON RADIO FREQUENCY AVIONICS FLIGHT LINE TESTER

Navy: 826 Units

Per-unit Savings: None

AF: 20 Units

CG: 160 Units

Combined Savings on Development: $4.5 million

Per-unit Savings when Combined w/Navy Quantities: $1.98 million

Total Savings: $6.48 million

POTENTIAL PROJECTS

Next Generation Software Loader: AF, Navy, CG

Large Tow Tractor: Navy, CG

Hydraulic Component Test Stand: AF, Navy, Army

Shaft Engine Test Instrumentation: Navy, Army

Standard Aircraft Towing System: Army, CG

Computed Radiography: Navy, Army, AF

Aircraft Jacks: Army, CG

T-56 Engine Removal Vehicle: Navy, CG

PROCESS

The process through which JPAVSE makes these decisions is split into two steps, the first of which is coordination. At each tri-annual meeting, the principle representative of each branch presents a brief of current and future equipment programs, and emerging technologies which might meet these needs are discussed. This is to ensure that each service is aware of potential programs being explored by other branches, and, using this information, each branch is responsible to provide a response exploring possible intersections of equipment need prior to the next meeting.

Once these potentially overlapping needs have been exposed, the panel can move on to the second step, which is creating a financial proposal based on cost estimates and forecasted savings over the lifecycle of the equipment. The cost benefits can be widespread, but the main two factors explored are savings based on economies of scale and cost avoidance, whether it be from a single development and testing process, or simplified maintenance programs.

Once a potential program has been approved, the development and production can begin. This can be a long process. Navy Captain Michael Belcher, the Navy's principal representative on the panel explains, "Typically, for an average program, from start to finish, once we decide we're going to buy something, to deliver the last item is about seven years." He adds, "It could be upwards of eight depending on how complex it is, or it could be as little as five, depending on how many you're buying."

Before any order can be placed, the military must work with the manufacturer to develop a product that meets all of its needs, and it must then be extensively tested to ensure it performs as designed. Only once this extensive development phase is complete can actual production begin.

He elaborates that military orders are often placed in a volume that requires a long production process. He says, "If you're buying 700 to 800 units of an item, it's

going to take four to five years just to put that production out."

He also explains that production time can be lengthened by the customization the unique requirements military use entails. The environment on a Navy ramp or in a battle zone demands high performance from equipment. "A lot of the stuff we buy is modified from stuff that's used out there; it maybe has some unique requirements because of our support environment. We do some things other services don't have to do," he says.

AWTS

The easiest way to explore how significant these cost savings can be is to look at two projects currently being carried out. The Automatic Wire Test Set, or AWTS, is one such program. In this program the Navy took a lead role in developing a comprehensive test set which met all of their needs and also happened to fit an Air Force need.

Because the Navy was responsible for the development and testing process, the Air Force was able to purchase this same product without repeating the expenditure, which saved them $320,000, not to mention the quantity price drop the Navy's order created. At the same time, the Navy also benefited due to the price drop, which a combined order size enabled, saving $750,000. In combination, these two braches saved $2.19 million by coordinating their efforts, not to mention the supply of repair parts, which will be more affordable over the units' lives due to higher production numbers.

CRAFT

Another project currently being carried out through JPAVSE is the production of the AN/USM Common Radio Frequency Avionics Flight Line Tester, known as CRAFT. As with the AWTS program, the Navy took the lead in development of this system, but in this situation saw no marked cost avoidance for the price of each unit. This was because the Air Force and Coast Guard only found limited use for the system, and so failed to order in a quantity sufficient to lower the per unit cost any further, according to Captain Belcher.

Navy Capt. Michael Belcher, Navy's principal representative on the Joint Panel for Aviation Support Equipment.

While the Navy did not receive per-unit cost savings, by taking the lead in development it allowed significant savings for the other branches involved. Without the combined effort, the development process required to meet the Air Force and Coast Guard's limited needs would have cost $4.5 million. This, in combination with the quantity pricing created by the Navy's large order, generated savings of $6.48 million.

Captain Belcher says, "The main objective is to find common solutions to existing requirements. You save money by doing that, economies of scale." He explains that the benefit is found in "better

pricing for the individual units, and you're sharing in the developmental cost, so each service doesn't have to pay for that."

SUCCESSES AND FUTURE

In a situation like the development of the AWTS, savings pass on to every member involved, and there is a direct benefit. Although the Navy paid the development cost, it was more than offset by the per-unit savings the much larger Air Force order made possible, according to Captain Belcher.

In contrast, the CRAFT project was also a success, but for different reasons. The Navy was responsible for both the development and the overwhelming majority of the order, 826 of the 1006 units ordered, but the Air Force and Coast Guard were able to purchase an effective, reliable system without the prohibitive costs individual development requires.

While the Navy saw no direct benefit, it developed and received a vitally useful system while benefiting other branches of the military. As Betcher explains, "Whoever's lead would generally bear that expense for the other services to take advantage of. Over the last three years we've saved about $9 million by doing some joint projects with the Air Force and Coast Guard."

As the JPAVSE program continues, more and more potential programs are coming to light. With the enormous savings the panel has enabled, estimated at more than $100 million in the last 15 years, the panel looks to continue its efforts. In addition to the two current projects discussed above, there are eight potential projects in various stages of exploration, and more to come. The panel sees the potential for greater interaction and continued savings as the program continues. Belcher says, "We've had some success, but there's really more opportunities to take advantage of."

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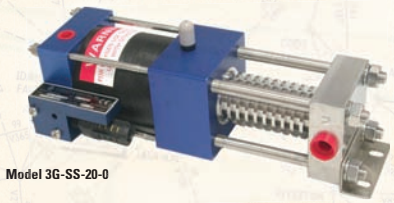

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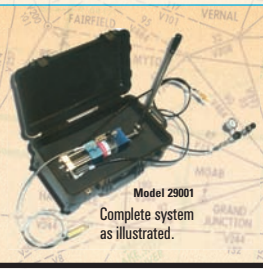

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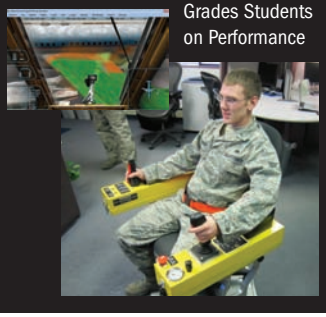

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With the price of fuel only trending upward, it will pay for GSE companies to apply their little gray cells.

It takes a crisis to start the little gray cells working. When fuel was 25 cents a gallon, we taxied airplanes around with abandon. Airport and airways congestion meant long lines of jets waiting their turn to take off, trails of heat shimmering behind each one and haze forming into dense clouds of smog. One of the sights at JFK was the occasion for ultimate horror — a change of runways. This could be caused by a radical shift in the winds or by changes in air traffic, mandating a different direction for traffic flow. You would see the jets form up into a long line, much like the elephants at Barnum & Bailey Circus, lacking only a trunk to grab the tail of the aircraft in front. Thirty or more big jets were in a row. They would trundle the long miles to the new hold areas, and one could imagine the cursing from passengers and especially the crews.

That condition became somewhat alleviated by gate holds. Why start four thirsty engines, taxi out and hold, creeping up yard-by-yard as the successive No. 1s roared down the runway until finally your turn came? The problem, though, was that there was not an infinite supply of gates. A departure not departing meant an arrival could not arrive. So often arrivals held ... and held and held. The frustration for the passengers was that they had indeed arrived but could not disembark, and if there was a connection to be made ... well. Meanwhile, too, there were still big engines running and waiting for the chance to move the aircraft that last few hundred yards into the gate. Snow or thunderstorms only aggravated the problem. The feds regulated this waiting, threatening huge fines against the airline who dared hold their passengers captive for more than a specified number of hours. Good thought, but the airlines instead began canceling flights rather than risk a long ground hold, and, "We are sorry, but there are no seats available until next Tuesday," for the stranded traveler.

AIRCRAFT TOWING A SOLUTION?

Well, no answers so far for the problems of traffic density. The promise of a new and improved air traffic control system has been dangled for years, always coming soon but not just now. But we are once again re-examining an old idea. Why have aircraft taxied under the impulse of the wasteful and thirsty power of their own turbine engines? Why not tow them out to the runway, only starting their main engines minutes before their takeoff? A thrifty high-efficiency diesel would certainly burn a lot less fuel than the aircraft's own main engines in traversing the miles from terminal to gate. And we could meet inbounds in the same way, towing them from runway to gate.

It certainly is more practical than it once was, where a small crew was required to hook up a towbar to the nosegear and attach the tow tractor. Now, towbarless tugs have scoops for nose gears, or grippers

and grabbers that can couple the tow vehicle to the aircraft quickly and easily. Of course, there are some practical problems that must be faced. The need for dedicated roads for tow vehicles to get to and from runways, and the potential for inadvertent runway incursions by tow vehicles come to mind immediately. GPS navigation would have to be fitted into the tug. It is one thing to taxi an aircraft from the cockpit 15 feet or more up, and quite another to be four feet off the ground inside a tug and trying to find your way at night in a fog. I have been out there under emergency conditions trying to find my way around, and it is frightening. Training for the ground crew in moving and navigating around active runways and taxiways will be paramount, as there is a huge potential for the already-mentioned runway incursions. Then there will be the added burden on the ground controllers, already maxed out in handling the aircraft flow and now having to handle the additional burden of lumbering tugs, intruding where only aircraft dared go.

> But we are once again re-examining an old idea. Why have aircraft taxied under the impulse of the wasteful and thirsty power of their own turbine engines?

There are certainly added benefits to towing aircraft to and from runways and terminals aside from the obvious saving in Jet A. There will be a definite reduction in aircraft noise, ground vehicles being a lot quieter than aircraft turbines. There are political consequences, too. I became maintenance manager at an airport that had a vocal residential community located just across an open body of water from my airline's terminal. On turning into the gates, the jet nozzles pointed directly at them. There was no doubt that the noise of our jets taxiing in and out of the gates carried across to them. Their town council and their state representatives proposed some Draconian legislation mandating that we would have to tow all aircraft in and out of the terminal and part way to the runway. Because of the layout of the ramps, the other airline's terminals were around a corner and so their noise did not impinge on the community. Only my airline would have been so affected. There were some intense negotiations and lobbying, and ultimately the legislation was dropped just shortly before I transferred there. I was pleased to find I had just had a new office clerk added to my staff, as did several

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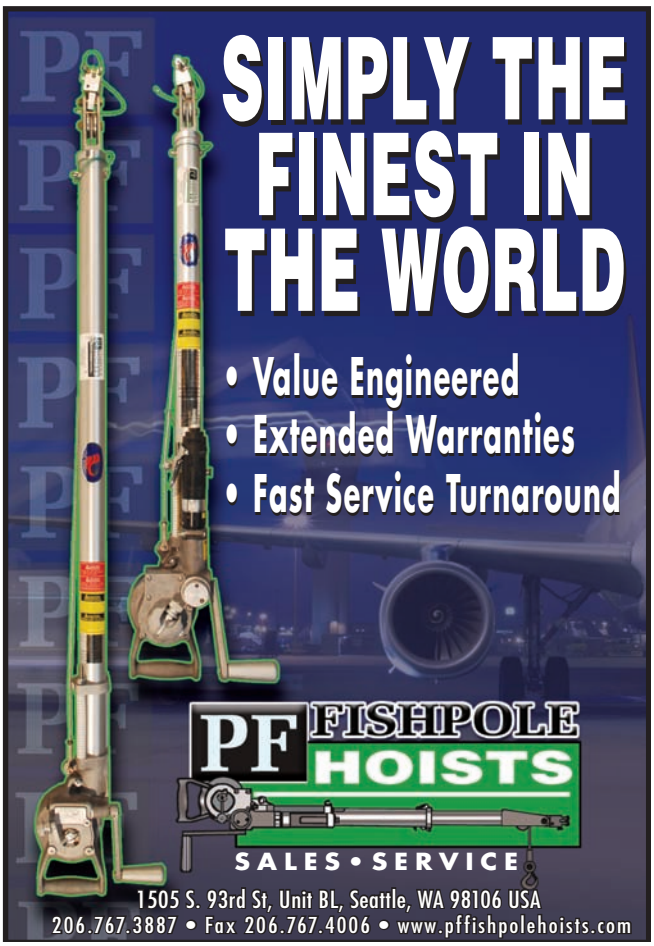
other departments in the airline. This was in spite of a hiring freeze that was being rigidly enforced. I was less pleased to find that attendance was not rigorously kept by these folks, nor was there any need to hold them to regular hours. There were also familial blood ties between them and some of the state legislators and town councilmen. No doubt it was completely coincidental. I finally lost the clerk when she decided that it was more pleasant to work at the race track than around a grubby maintenance department. And so it goes in some communities. Noise abatement can take many forms.

I also note that Airbus is investigating installation of drive motors in aircraft landing gear so that the pilots could motor out or in on aux power without use of the main engines. An intriguing concept for sure, but doubtful that it will pay to burn fuel on every flight to haul around a considerable mass of motors and electric cables in order to save fuel by not taxiing under main-engine power.

No doubt GSE manufacturers will benefit from a move to more towing. They will, however, gain a lot if they can prevail on the aircraft manufacturers to get a more universal and standardized means of attaching tugs to aircraft.

No doubt GSE manufacturers will benefit from a move to more towing. They will, however, gain a lot if they can prevail on the aircraft manufacturers to get a more universal and standardized means of attaching tugs to aircraft. Then, too, decisions will have to be made as to who steers and controls the joined vehicles. Fifty years ago AMF produced a unit that coupled to the main gear and actually drove a pair of aircraft wheels. It could reach impressive speeds and was controlled by the aircraft captain using a remote box on the end of a long cable. Many aircraft nowadays have no opening on cockpit windows so that concept of passing up a cable and control box would have to be revisited. But with the price of fuel only trending upward, it will pay for GSE companies to apply their little gray cells.



Human Factors: Programs Continue to Advance

They evolved to be a critical part of Safety Management Systems by looking not only at the human, but at the organization

By Dr. Bill Johnson, chief scientific and technical advisor, human factors in aviation maintenance, FAA

The term "Human Factors" (HF) provokes a wide range of definitions and emotions in ramp safety circles. HF programs, simply stated, promote safe and efficient work with an eye on human performance. This article takes a quick look back at nearly 30 years of human factors in aviation. HF programs have evolved to be a critical part of Safety Management Systems by looking not only at the human, but at the organization. This is the first in a series of articles that will showcase applied human factors research products that can be implemented today.

HISTORICAL HUMAN FACTORS

Today's ramp and maintenance HF programs have been around since the late 80s when the U.S. Congress gave FAA a mandate and funding to study and apply human factors to all aviation workers. HF consultants and scientists used a number of useful models, acronyms, and other memory aids to simplify HF concepts. Table 1 lists the famous ones, available through a quick Google search.

These memory aides are an excellent human factors review. Heinrich (1972) used a floating iceberg to suggest that the largest and most dangerous part of the iceberg is below the water line as shown in Figure 1 (page 27). The tip of the error iceberg represents the accident that we investigate. However, there are thousands of small errors below the surface that really lead to problems. For example, a cargo door may have not been sufficiently fastened. While the unsealed door was the tip of the iceberg, the contributing causes were lack of enough qualified personnel, a rushed departure, and a faulty belt loader that distracted the crew.

By 1992 the Boeing Company created a system to investigate the many small events, often human errors that contributed to a serious incident. Boeing named their process Maintenance Error Decision Aid (MEDA). It is used by more than 800 airlines worldwide to investigate ramp, maintenance, and other aviation events.

Many HF memory concepts emerged in the early- to mid-90s. James Reason used a stack of Swiss cheese to represent all of the safety and redundancy in the aviation system. When many slices of cheese are stacked together, none of the holes line up and the system is protected. However, sometimes the holes can align and permit the pile of cheese to have a weakness that can be penetrated by the many threats surrounding the usually safe aviation system. Figure 2 shows a Lufthansa Technical Training rendition of Reason's Swiss Cheese, using terms like "contributing factors" and "corrective actions," from Boeing's MEDA.

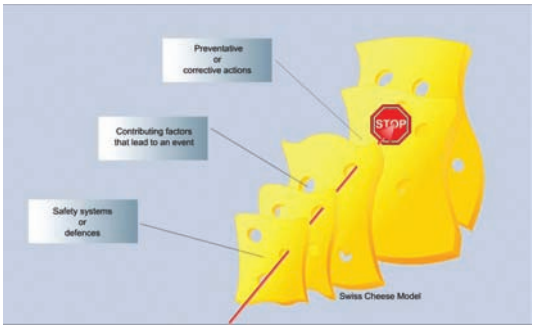


Figure 2: the Swiss Cheese

No discussion of aviation HF is complete without mentioning Gordon Dupont's "Dirty Dozen." The Dirty Dozen represents 12 common contributors to human error, including lack of assertiveness, poor communication, fatigue, lack of knowledge, lack of resources and six other contributors. The concept has become a mandated

Table 1. Famous Methods to Learn and Recall Human Factors Concepts

• Heinrich's Iceberg Model of Safety
• Boeing's MEDA
• Reason's Swiss Cheese
• Dupont's Dirty Dozen
• Johnson's and Maddox's PEAR

Figure 3: the components of PEAR Human Factors today

part of human factors training by most aviation authorities.

Bill Johnson and Mike Maddox introduced "PEAR" as a way to recall and consider HF issues in any organization. PEAR reminds you to consider the "People" in the organization; the "Environment" in which they worked, including the physical and the social environment; the "Actions" they must perform; and all of the "Resources" necessary to complete the job. Figure 3 shows PEAR.

HUMAN FACTORS TODAY

Initially, aviation HF focused on specific human characteristics of pilots and other aviation workers. That singular focus expanded to the study of teams. The term, "Crew Resource Management" (CRM), emerged. The CRM concepts focused on communication, leadership, and how a small groups worked together to focus on flight safety, personal safety, and on work efficiency.

Today's HF looks beyond equipment design, individual performance, and teamwork to the concept of "Safety Culture." That means that everyone in the organization places safety as the highest priority. Each employee can explain their contribution to the safety of the organization. Today's HF focus is broadened to the entire organization. The organization has the responsibility to manage safety with Safety Management Systems.

Today's safety cultures pay attention to HF, using all of the models mentioned above. Today's safety cultures take HF to a higher level by applying the concepts of risk analysis. That means that everyone in the organization looks at their job and the process to assess risk. Everyone continuously conducts risk assessments. They must estimate the severity of the consequences of their actions weighed against the probability that their actions could lead to those consequences. For example, a worker must ask such questions as the following: What are the consequences if I damage a surface of the aircraft by scraping it with a tug, dock, or belt loader? Then, what is the probability that the consequence could happen? If the consequence is low and the probability of the consequence happening is low, then it is probably a low-risk situation. Safe

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Figure 1: the Error Iceberg

organizations must educate each worker to understand the procedures for risk assessment. When a worker cannot assess the risk, they must have a way to get immediate assistance.

Today's safety cultures rely on data and on open reporting of errors. Workers must be able to report when they have made an honest mistake. Such errors must become learning experiences that prevent the same error from happening to another worker. That means that the organization must have a written policy that is fair and "just" to all workers. A young ramp worker must have the same rights to report an error as those of a senior flight crew member.

Today, the international industry is focusing on Safety Management Systems (SMS). There will be an evolving importance on looking at the kind of data that not only tell why something went wrong, but also that can predict when something may go wrong — before there is damage, injury, or an accident. That means that SMS will address threats before they become errors. Voluntary reporting systems, that show very small threats, are a key to predicting and preventing the big events.

THE HUMAN FACTORS SIDE OF SAFETY MANAGEMENT

The International Civil Aviation Organization (ICAO) has recommended that all member states mandate Safety Management Systems. Governments and the industry are implementing SMS now. Airlines, MROs, and aviation authorities are scrambling to establish SMS departments and the SMS business is booming. As often happens, the focus is primarily on process and management of the new buzz words and acronyms. However, increasingly, users are seeing the SMS safety and financial payback.

While the SMS-building process accelerates, the human error in aviation continues. The percentage of accidents caused by human error remains around 80 percent. Whether the primary accident cause is controlled flight into terrain, loss of control, or some other factor, human performance is usually a significant contributing factor. SMS data, eventually, will return to that known conclusion. That rediscovery will reinvigorate industry-wide attention to HF.

The human factors community has been instrumental in promoting voluntary reporting and establishment of "just" cultures. Many of the voluntary reports submitted to NASA's Aviation Safety Reporting System, to Boeing's MEDA, and the FAA's Aviation Safety Action Program are fraught with the language and challenges of human performance. SMS will amplify that message and raise new attention to human factors across aviation working environments.

You should get involved with the SMS implementation in your organization. Continue with your daily emphasis on risk assessment. Train workers to understand risk assessment and integrate it into their on-the-job activities. Finally, stay tuned here for more information about applied human factors.

WHAT IS NEXT IN THE SERIES OF ARTICLES?

Fatigue Risk Management Systems (FRMS) are a required part of some Safety Management Systems. These systems are great for industry, because they permit an organization to show how they will manage the risk within their company, as opposed to following a one-size-fits-all duty time regulation. In the next installment of this series, Dr. Katrina Avers of the FAA Civil Aerospace Medical Institute will describe FRMS and show the applied products of FAA's fatigue R&D.

Headsets Facilitate Communication and Safety

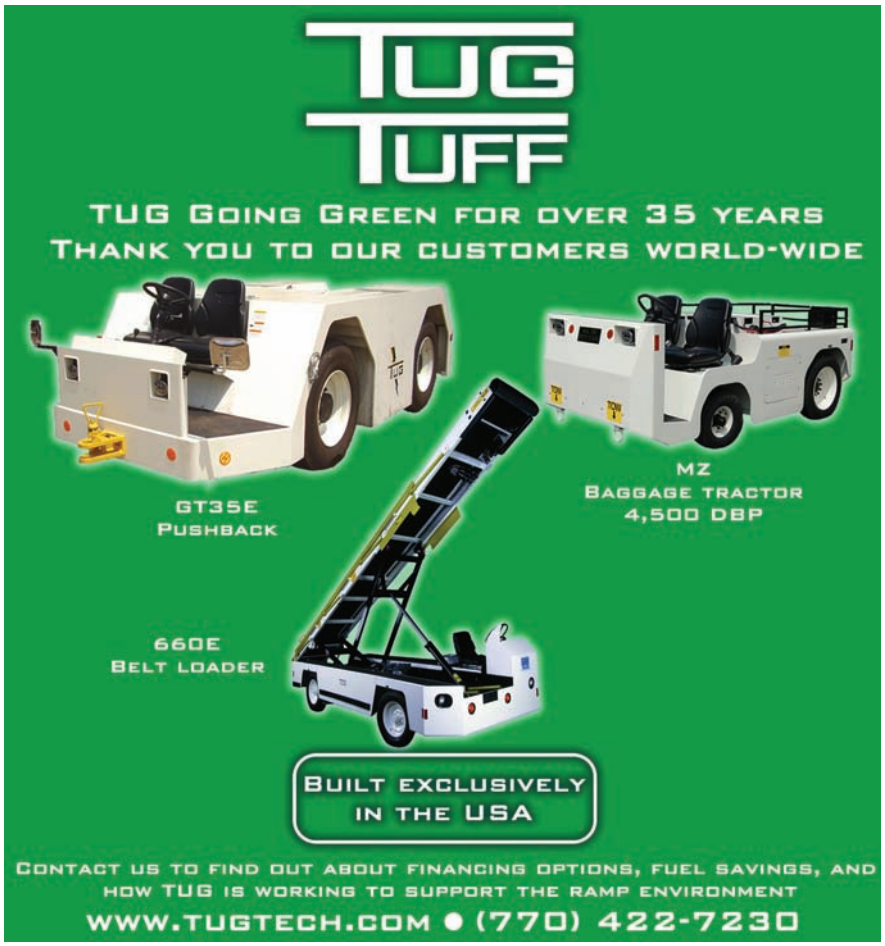
The advent of wireless headset communication systems can incrementally enhance the safety of ground support operations

By Dennis Buzzell, aviation market manager, David Clark Company Incorporated

At today's busy airports, ground support operations play an increasingly important role. From the time a plane's wheels touch down on the tarmac, to the time of its subsequent departure, a precisely choreographed routine on the part of ground crew personnel helps to ensure the safety of pilots and crew. This is no small task given the number of individuals, vehicles and equipment that are required around the ramp alone, including marshalling agents that guide the aircraft into and out of the parking position, towing with pushback tractors and tugs, refueling, deicing, luggage and air cargo handling, catering trucks and more. It can get crowded. Especially when, as one marshalling agent puts it, "food trucks and baggage guys seem to be attracted to the red flashing light that pilots turn on when it's time for pushback." There is no shortage of ground incidents and accident reports. All airports and airlines are vulnerable to mishaps. While catastrophic consequences are rare, ground operation accidents have the potential for injury to ground-based personnel and structural damage to an aircraft. As any airline engineering manager would readily admit, these types of accidents can be very expensive, while creating huge delays and unsatisfied passengers.

Above: tug operator communicates via headset during pushback; inset: over-the-head style noise-attenuating communication headset.

It is no wonder then, from the time an airliner touches down, until final towbar disconnect



Marshalling agent directs ground support operations via communication headset

and the captain acknowledges the marshaller's salute indicating release of the aircraft — clear, accurate communication is a critical component for smooth ground operations. Along with a variety of hand signals that would be the envy of any football referee, headset systems worn by ground crew personnel play an extremely important role to facilitate clear communications between pilots on the flight interphone, lead marshals, wing walkers, pushback operators, deicing crews and a variety of other maintenance personnel. Using a headset communication system, the marshalling agent can speak with ground crew personnel in a normal voice over background noise to oversee all operations. Noise-attenuating headset systems also provide added hearing protection in high-noise ground support applications, filtering engine noise and electrical interference.

HEADSET COMMUNICATION SYSTEMS IN CRITICAL RAMP OPERATIONS

Pushback is an important ground procedure that is also vulnerable to incident, due largely to the potential distraction and risks associated with a largely "heads-down" activity while the aircraft is moving under tow. Typically, an airline flight is pushed back from the gate with two or more people. One is the pushback tug driver, usually tethered (via 2-way headset cord) to the "nose" of the aircraft. To avoid tripping over cords at dusk or in poor visibility conditions, some equipment manufacturers have designed communications cables in a reflective, high-visibility orange color.

A second person serves as a defacto "wing walker," or a crew may utilize one or two additional wing walkers, who are in a better position to see both wingtips from their vantage point, versus the tug operator, who is tethered at the nose. Using headset systems, personnel can communicate with one another, and can immediately advise the flightcrew and tug driver to brake for anything that gets in their way. The ability to communicate with one another by voice is especially critical in inclement weather, at night or when there is simply no clear line of sight between personnel.

Aircraft deicing is another major ground support application where headset systems play a key role in the clear communication between the deicing vehicle driver in the cab and the nozzle operator in the overhead bucket. Accurate communication during this critical operation helps prevent accidental aircraft damage and more productive application of costly deicing fluids. Headset systems are critical to provide clear communication during deicing operations, allowing personnel to communicate and hear clearly over loud background noise from truck engines.

WIRELESS HEADSETS ENHANCE GROUND CREW COMMUNICATION AND SAFETY

The advent of wireless headset communication systems can incrementally enhance the safety of ground support operations. With traditional wired systems, ground crew personnel

Typical wireless headset ground support communication system configuration for up to four users per gateway

are "tethered" by a cable to a master station or vehicle intercom. Wireless headsets utilize gateways and belt stations that essentially do away with communication cables and provide total freedom of movement and mobility, while maintaining clear communication and noise attenuation. These benefits not only improve communication, but because crew members can communicate clearly from up to 300 feet away with no fixed base station required, situational awareness and readiness is dramatically improved. As an example, due to the added mobility of wireless headset systems, tug drivers can more easily maintain contact with spotters and wing walkers. Some manufacturers also offer a variety of headset styles, including traditional over-the-head models, over-the-head shielded microphone, single ear and headsets designed to be worn behind-the-head, to fit various application requirements.

WIRELESS SYSTEM SETUP FOR GROUND SUPPORT APPLICATIONS

A typical wireless system utilizes a pushback gateway in direct communication to the aircraft interphone. Each gateway supports up to four users, such as a marshalling agent, tug operator and two wing walkers. The wireless headsets worn by ground support personnel connect directly to belt stations. Personnel can move about freely without being tethered and there are no extraneous cords that may get tangled or snagged on the aircraft or multiple vehicles and equipment on the tarmac.

SELECTING A WIRELESS HEADSET SYSTEM

There are a variety of wireless headset communication systems available for ground support operations. You'll want to research the features and benefits of each before making a purchase decision. Some questions to be answered on your checklist may be:

(1) Does the manufacturer of the system show demonstrable experience in the development of headset communications for high-noise environments in general, and systems for ground support operations in particular?

(2) Does the system utilize hands-free, full duplex intercom technology?

(3) How durable are system components? Will they stand up to the rigors of the ground support environment?

(4) Will the system be compatible and interface with most HF, VHF and UHF radios?

(5) What is the battery life?

(6) Are the headsets comfortable for personnel to wear during long periods of use?

(7) How simple is the system to use, and how easy is it to link multiple users via the wireless technology?

The wireless headset communication system you choose will result in significant cost savings through increased aircraft availability, reduced maintenance man-hours, flight delays, inventory costs, and maintenance training time, while providing a much greater degree of operational readiness and safety.

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GS AIRPORTMAP

INFORM

German-based company INFORM recently unveiled GS AirportMap. Based on geographical data of each airport and a real-time information system, GS AirportMap is able to show the precise location of aircraft gates, stands, aircraft position and the flight being handled at each of those locations, as well as the status of tasks and the position and status of GPS-equipped vehicles, PDAs and mobile phones.

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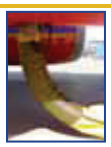

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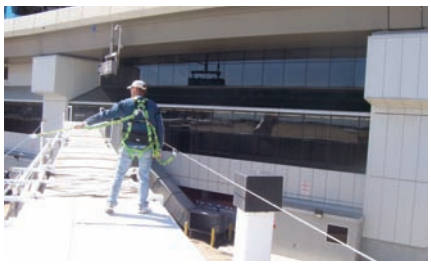

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