

# GROUND SUPPORT WORLDWIDE

April 2012

## International: New Aircraft Materials Put Procedures To The Test

Composites help airlines move more passengers while burning less fuel. But how will the new materials stand up to routine ground handling operations?

page 10

## Flightcom: Ground Support Product

Page 12

# LEADER

Wireless headsets provide hands-free mobility, clear team communication and safe ramp conditions.

Southwest Airlines is deploying Flightcom's wireless ground support communication system at all its gates across the United States.

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## GROUND SUPPORT WORLDWIDE

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# Contents

**ON THE COVER:** Flightcom's wireless ground support communication system won our first-ever Ground Support Product Leader award.



## 12 Cover Story

### FLIGHTCOM: GROUND SUPPORT PRODUCT LEADER 2012

Wireless headsets provide hands-free mobility, clear team communication and safe ramp conditions.



10

**10 International  
NEW AIRCRAFT MATERIALS  
PUT PROCEDURES TO THE TEST**  
Composites help airlines move more passengers while burning less fuel. But how will the new materials stand up to routine ground handling operations?

**25 Cygnus Aviation Expo  
CYGNUS AVIATION  
EXPO 2012 REPORT**  
New products, directions and people on display at this year's show.

### COLUMNS

**20 Ruminations From The Ramp**  
Aviator's Answer To 'Mad Men'

**18 Ramp Safety**  
Procedures 101

### DEPARTMENTS

**4 Editor's Note**

**5 News in Brief**

**22 Product Profile**  
How to increase safety and efficiency of refueling operations

**29 Product Warehouse**  
Security/Communications

**33 Classified Advertising**

**34 Publisher's Note**



25



Southwest Airlines is deploying Flightcom's wireless ground support communication system at all its gates across the United States.

Photo provided by Flightcom.



## Flightcom: Ground Support

# PRODUCT LEADER 2012

Wireless headsets provide hands-free mobility, clear team communication and safe ramp conditions.

**W**e added a Product Leader category to our popular Ground Support Leaders of the Year awards this year. At last month's Cygnus Aviation Expo, we officially recognized Flightcom Corporation, Portland, OR, for its wireless ground support communication system.

The company's headsets – both wired and wireless – are already supporting hundreds of commercial and military flight crews and ground support personnel at more than 40 U.S. airports.

Last December, however, the company won a major contract with Southwest Airlines to provide a wireless ground support system for pushbacks outside Southwest's 420 gates at 73 airports in 37 states for more than 3,400 flights a day across the United States.

How does the system work? Here's a basic explanation of its four main components:

- **The ComHub:** Essentially, the heart of the system. The ComHub connects the pushback driver and the wing walkers to a DECT-based wireless network. During pushback, the ComHub, carried inside a bright yellow weather-resistant bag, is connected to the plane's interphone so that the driver can talk directly to the flight deck.
- **The Wireless Headsets:** One for the driver and, typically, two for the wing walkers (although the system can work with as many as four wing walkers). The headsets provide a transmission range of 1,600 feet. A push-to-talk button on the



Photo provided by Flightcom.  
Deicing crews can also use Flightcom's wireless communication system. Maintenance workers are another potential user at the airport.

driver's headset allows for direct communication with the flight deck. Headsets for the wing walkers keep these important guides in continuous communication with the driver on an open mic.

- **Waterproof Charging Case:** Everything fits into an unbreakable, airtight and dustproof carry case that can easily be wheeled to wherever it needs to be. A convenient, built-in battery charger provides power for all the components. The case easily plugs into a standard AC outlet to provide the headsets with a



full charge in two hours that's good for 24 hours of continuous use. Batteries will stay charged for up to a year, keeping the system "at the ready" whenever it's needed.

There's more to the system – and more to its potential aviation uses besides pushing back planes from gates. We talked with a couple of Flightcom executives and here's what

they had to say about what makes the wireless system an award-winner.

#### TEAMWORK

On a loud, busy ramp with the pressure always on to make the turn, the difference between costly work injuries and hundreds of thousands of dollars in damage to aircraft is often measured in fractions of a second.

So much the better then, if the entire ground team can hear one another and let their own voices be heard to stop an accident from happening.

"Once we got on the ramp, we realized flat out that there was no good communication system for the entire ground support team," says Simon Broadley, vice president of engineering for Flightcom.

Before striking the deal with Flightcom last year, Southwest Airlines relied on what most airlines relied on for pushbacks. The pushback driver wore the sole headset that was plugged into the aircraft. Meanwhile, the wing walkers relied on what wing walkers had relied on for the past half century – hand signals.

Hand signals, of course, only work when they can be seen. As Broadley sees it, the wing walker is crucial to a safe pushback, but literally had no voice in the matter without the wireless headsets.

"Wing walkers were living the life of silence," Broadley says. "They just were not able to have any effective communication. Now, when a wing walker sees a problem, he can say something right away."

Studies by the Flight Safety Foundation show that human factors are the primary culprit in ramp accidents. Poor communication typically tops the list when things go wrong.

"The wireless system not only enables communication between the flight deck and ground crew," says Michael Walsh, director of business development for Flightcom, "it optimizes communication by controlling who can talk to whom and under what circumstances."

All ground personnel, for example, can hear the flight deck on an open mic. But to minimize confusing cross-talk, only the driver can talk directly to the flight deck.

The pilot can also be heard. "We purposefully gave the pilot priority over everyone else to ensure the flight deck could be heard at all times," Broadley says.



Tom Carlson, Flightcom's senior electrical engineer, adjusts the configuration on one of Flightcom's wireless ground support headsets.

Overall, the system gives the pushback driver the chance to better manage his team during pushback.

"It's often the case that individual members of the ground crew just focus on their own individual tasks," Broadley adds. "A driver might be so focused

on that towbar, for example, that he doesn't see the wing walker's signals. This way everyone can hear and be heard and that really helps make these individuals operate like a real team."

After the pushback, the driver removes the ComHub from the aircraft (the bag also has a long, red flag that says "REMOVE BEFORE FLIGHT") and displays it to the flight deck.

However, a safety backup built into the system alerts the pilot if the bag remains on the plane.

#### DECT-BASED WIRELESS

One key to the Flightcom system is in the choice of technology to hear and speak without the wire. A wireless system transmits voices largely in one of two ways – either by incorporating DECT (Digitally Enhanced Cordless Telecommunications) or Bluetooth.

"The first forays with wireless systems on the ramp used Bluetooth technology," Broadley explains.

But there are drawbacks to Bluetooth.

"Bluetooth is meant for close communications," he adds, "typically about 300 feet."

Bluetooth transmissions are also subject to interference from other communication devices – especially those operating on the 2.4 GHz or 5 GHz frequencies – and can even be blocked by



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physical barriers – something there's quite a lot of on the ramp.

DECT, on the other hand, can offer better coverage than Bluetooth. The range of transmission can extend to 1,600 feet. The Flightcom system also uses DECT 6.0 and is less subject to interference in the 30 MHz to 1.8 GHz frequencies. What's more, DECT can bounce its signal up, over and around objects to establish the best connection.

Flightcom's wireless system is also full-duplex – meaning it allows communication in both directions simultaneously. Full-duplex capability is important for ground support communication since it lets all personnel speak and hear others at the same time, much like a telephone.

Half-duplex systems, such as walkie-talkies, allow communication in both directions, too – but only one direction at a time. If one person is transmitting, all other transmissions are blocked until the first transmission is over.

#### HEARING PROTECTION

While the wireless headsets can be viewed as merely a better way to communicate on the ramp, Flightcom's equipment also provides



Michael Walsh, director of business development for Flightcom Corporation, accepts the Ground Support Product Leader award at last month's Cygnus Aviation Expo.

excellent hearing protection. OSHA regulations require hearing protection when the time-weighted average noise level exceeds 85 decibels.

A Noise Reduction Rating is a measurement that's also in decibels. Simply subtract the NRR from the average noise level, and users can tell how much hearing protection they'll get. Flightcom headsets are rated at 26 decibels. So, if noise levels on the ramp work out to 71 decibels, then the headsets cut that noise down to 45 decibels. By comparison, a normal conversation at three feet measures 65 decibels.

And lest we forget to emphasize this point, the Flightcom executives we interviewed reiterated that there's more than one way wireless equipment can be considered "wireless." Some wireless headsets, for example, may still require a wire to a radio or a belt pack. In addition, the transmission range for such devices aren't likely to be as robust compared to the Flightcom system.

"Wires are a real sore spot with airlines since they are always breaking," Broadley says.

Walsh adds that it's a question of "when not if," wired headsets will



Simon Broadley, vice president of engineering for Flightcom Corporation, shows the standard wireless pushback system he and his team designed in conjunction with Southwest Airlines.

need to be repaired. He says the repair issue really gets the airlines' attention when they look at their overall repair costs for wired headsets, whether they're used for pushback or deicing.

"We've seen instances where the same wired headset has been repaired eight to 12 times annually," Walsh adds, "and the majority of those repairs are either for broken wires or cables."

Such an after-market installation of wired headsets on deicing equipment, Walsh also notes, is expensive and can be eliminated with a true wireless system.

"And anyone in the bucket loves that they aren't tethered," Walsh adds, "and the drivers like the fact that they can get out of the truck and still be in communication."

The setup is different for deicing operations. A vehicle-mounted base station provides communication between the driver and the deicer. But the system can also be configured to provide push-to-talk commu-

nication with ground control or other teams by way of two-way radios.

Walsh also notes that Flightcom's wireless systems can be used for maintenance as well as pushback and deicing.

In this instance, the ComHub supplies hands-free communication to the maintenance crew, no matter where they're stationed.

"Our system allows maintenance technicians inside and outside the aircraft to stay in continuous voice contact," Walsh says, "and that's a far better alternative than banging on the wall to get someone's attention. Maintenance personnel also enjoy the ability to communicate in real time during aircraft movement." ■

#### Company Profile

## FLIGHTCOM



Flightcom can trace its beginning to 1983 when electronics engineer Brian VanderPloeg decided to take flight lessons. VanderPloeg simply couldn't hear the flight instructor sitting right next to him.

Working out of his Portland, OR, garage VanderPloeg started Oregon Avionics and developed a better headset for the general aviation industry. VanderPloeg, an active member in the Experimental Aircraft Association, soon discovered that he had indeed built a better mouse trap.

Demand further increased after *Aviation Consumer* named the company's system the "Best Portable Intercom" in 1986. From there, Oregon Avionics became the Flightcom division of parent company Sonetics Corporation in 1989.

Flightcom's business grew 1,325 percent in a five-year period in the early-1990s and by then had expanded its lines of equipment in the commercial and military aviation markets.

While the Flightcom division was growing, Sonetics began to focus on other applicable markets that needed the best in hearing protection, plus clear communication. In 2008, Sonetics' Firecom division introduced that industry's first completely wireless headset.

Other expansions followed. Sonetics Apex headsets and a line of portable and vehicle-mounted communications systems, for example, are used by work teams in industrial, construction and public works environments. And Sonetics Triton wireless headset and intercom systems were specifically designed for noisy marine settings.

Today, Sonetics counts more than 500,000 customers in 90 countries. It's been recognized twice by *Inc. Magazine* as one of the 500 Fastest-Growing Companies in the nation in 1991 and 1992. The company continues to grow by 20 percent a year.

Meanwhile, Flightcom is working with or in discussions with nearly every major commercial airline in the United States. The company is also working with federal regulatory agencies to advance the safety and hearing protection requirements for the ground support workers.

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