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Vammas

Less is More for Snow Removal Fleet at Cincinnati/Northern Kentucky Int'l



Manchester-Boston Regional Leverages Technology & Customized Equipment for Airfield Maintenance

Nine multifunction vehicles like the one pictured here are the workhorses of CVG's new snow removal fleet.

Less is More for Snow Removal Fleet at Cincinnati/Northern Kentucky Int'l

By Robert Nordstrom

With substantial overnight air traffic from DHL Express, it's imperative for Cincinnati/Northern Kentucky International Airport (CVG) to keep its runways open 24/7. When temperatures drop and precipitation flies, all eyes are on the snow removal crew to keep DHL's airplanes flying.

Vammas

CVG management recently enacted a flurry of changes to the airport's snow removal operations with an eye to improving efficiency and safety while lowering costs. Last year, the airport traded in 16 various pieces of snow removal equipment for nine multifunction vehicles and a plow specifically designed for runway lights.

The investment in multifunction equipment has allowed the airport to downsize its fleet while reducing labor, fuel and maintenance costs, reports Shannon Oldfield, CVG's director of maintenance.

"Essentially, we're able to be more efficient," Oldfield explains. "If you remove one piece of equipment from the airfield and you're able to maintain operational efficiency, then you have, in my opinion, also improved safety."



Shannon Oldfield

This is not the first time CVG has overhauled its wintertime strategies. The airport previously used a daytime crew for the bulk of its snow removal and ran a skeleton crew at night to maintain airfield conditions. But when DHL left in 2004, the airport no longer needed to run snow removal operations throughout the night, explains Oldfield. When the express carrier returned to the field in 2009, so did the need for overnight snow removal.

Back then, CVG used traditional plow trucks, front-mounted brooms and snow blowers to clear its runways, taxiways and ramp areas - a process that is costly in terms of time and labor, notes Oldfield.

During heavy snow events, broken runway lights were also an issue. Using traditional equipment and methods, plow trucks weave in and out of lights. "But even the best operator will destroy a few lights," Oldfield explains. "Plus after the storm, uncovering the lights with shovels and backhoes was not efficient."

Given such shortcomings, CVG management decided to overhaul its snow removal procedures by investing in multifunction snow removal equipment and refining its strategic approach.



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Project: New Snow Removal Fleet & Plan Location:Cincinnati/Northern Kentucky Int'l Airport

Crew: 100 full-time & seasonal workers

Shifts: 7 a.m. - 8 p.m.; 7 p.m. - 8 a.m (1-hour overlap is used for debriefings, strategy discussions, equipment issues, etc.)

Equipment Suppliers: Fortbrand Services (nine Vammas PSB 5500 multifunction snow removal vehicles)

Equipment Manufacturers: Aljon Mfg. (Vammas PSB 5500)





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Project: Ongoing Airfield Maintenance

Location: Manchester-Boston Regional Airport

Average Snowfall: 66 inches/year

Airfield Maintenance Fleet: 70 vehicles

Airfield Maintenance Staff: 25 full-time employees, plus seasonal supplements as needed Multitask Vehicle: Customized Beam VX800 (earlier version of A8000)

Distributor: Fortbrand

Of Note: Airport convinced equipment distributor to modify a glycol recovery truck so it can also be used for rubber removal, pressure washing & transporting sand/deicing fluid



As one might expect, weather is no small factor for the New Hampshire facility, located 50 miles north of Boston. "We average 66 inches a winter, but it seems as if we either get 100 inches or 30," says MHT

Carlton Broley

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Maintenance Superintendent Carlton Braley. "Last winter (2012-2013), we got 20 inches of snow in one storm alone."

Self-Spec'd Equipment

In some cases, MHT has taken the reigns and devised new systems to improve maintenance procedures. Frustrated with the cost of acquiring and operating separate vehicles for rubber removal, glycol recovery, cleaning markings and collecting sand, airport personnel worked with an equipment manufacturer to develop a customized vehicle that could perform all of these jobs - and more.

Although Braley is thrilled with the result, he acknowledges that getting the machine produced took a lot of trial-and-error. The first manufacturer that airport personnel approached about renovating a street sweeper to also perform rubber removal turned them down flatly. "They said it was too far of a stretch," Braley recalls. "Then we went to Fortbrand, (an equipment distributor) with whom we have had a terrific working relationship over the years."



Fortbrand customized a Beam truck MHT was primarily using for glycol recovery to also remove rubber from runways and taxiways. "They added a third broom and a large liquid tank to hold the cleaning solution," explains Braley.

After testing the modified truck for a few months, MHT maintenance personnel suggested a few additions, such as a hot-water tank, a burner to heat the water and high-pressure nozzles. In spring 2008, the modified VX800 truck was delivered. (The upgraded model sold today is the A8000.)

MHT crews are enthusiastic about the performance of the multipurpose vehicle. "With a 55-gallon tank, we can do three to four hours of rubber removal an evening, with no overtime," Braley reports. "It takes us less than 30 minutes to clear a runway. We accomplish about 20,000 square feet of rubber removal each evening. Depending on the severity, we choose to clean a wider path or a longer path. The square footage remains the same. We could double the production, but it would put undo stress on the morning schedule; and with our current rubber removal procedure, we never reach a critical buildup of rubber."

Although MHT is open 24 hours a day, the last flight usually arrives by 1 a.m. This allows crews to remove rubber from the runway without disrupting traffic. The overnight/early morning schedule also helps minimize the evaporation of chemicals. By reducing overtime and burning less fuel, the airport's multipurpose vehicle helps reduce maintenance costs, notes Braley. "For rubber removal, it is less expensive per square foot. Our only expense now is the cost of the chemicals."

Besides removing rubber, the truck also moves about 1,000 tons of sand each winter and collects fluid from the airport's secondary aircraft deicing locations. Crews use the vehicle's high-pressure wand to clean snow melters, catch basins, manholes, trenches and sidewalks. It has also proved helpful in prepping airfield markings for maintenance.

Human Help

Braley also stresses training for permanent Maintenance Department personnel. Ideally, he wants every member of the crew to be able to operate all 70 of the airport's maintenance vehicles, including the VX800. When the airport first purchased the multipurpose Beam truck, Fortbrand provided training for both operators and mechanics. "Each person on our staff got at least eight hours of training, and many received a lot more," Braley recalls. These days, he relies on senior operators to train new employees. "For rubber maintenance jobs, we might train someone for three nights to make sure they get the hang of it," he explains.

Industry Forecast

Braley, a member of the International Aviation Snow Symposium Committee, anticipates technology to play an important role in increasing airfield safety. "I expect more tablets and even smartphones to be used in the future," he says. "My only reservation is that plow operators may become distracted by them, and not pay attention to what is going on around them."

He also predicts that more organized training, including a certificate program, will become a reality for airfield workers.

On the equipment front, he foresees better tools for removing snow around airport lights. "The new LED lights being installed in many airports are more expensive to replace, but will last 50,000 hours compared to 12,000 hours with standard incandescent lights," he explains. "They will eventually save airports quite a bit of money."

He also expects more sophisticated and accurate weather forecasting to help airport maintenance staffs stay on top of challenging conditions: "We should have a better idea of when storms will hit, and how long they will last."

Above all, he predicts that multipurpose equipment such as MHT's Beam truck will become more popular at other airports, although he acknowledges that their price remains a challenge.

"Receiving AIP funding from the FAA for certain specialized equipment can be challenging," Braley says. "Currently, the FAA may provide grant money for snow-removal equipment, but not for MTEs (multiple task equipment). Hopefully, that will start to change."

With or without federal funds, Fortbrand Executive Vice President Alan J. Stearn encourages airport directors to consider total cost when evaluating equipment prices: "Airports need to think about long-term savings in labor and the costs of maintaining many vehicles, since this machine (the A8000) can do the functions of several machines with one operator."

While some operators still prefer the base unit, which is designed for glycol recovery, more and more want the multifunction configuration, notes Stearn. Over the past year, the company has delivered six A8000s to a firm that services several Canadian airports.

Andrew Perrone, director of airfield equipment sales for Fortbrand, is similarly enthusiastic about the A8000 and its larger cousins, the A9000 and A12000: "In the past, one vehicle dedicated just for glycol recovery would sit in a garage most of the year. With the Beam, every function is within the vehicle; there are no attachments. It is ready to go."

Perrone also encourages airports to analyze the equipment's long-term benefits, as MHT did: "It will eventually pay for itself and save money in the long run, but the initial outlay must be overcome."

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The New Fleet

In a less-is-more move, the airport bought nine Vammas PSB 5500 multifunction snow removal vehicles to replace its runway deicing truck and 15-piece fleet of front-mounted brooms and plow trucks.

The Vammas machine allows a single operator to plow, sweep and blow snow in the same vehicle, at speeds up to 37 miles per hour. The unit combines front wheel mechanical and rear articulated steering to maneuver on taxiways, aprons and runways.

The vehicle's 30-foot polyethylene moldboard plow is self-adjusting, with independent spring-loaded cutting edge segments designed to minimize damage to in- pavement lighting. The broom section, which is placed behind the plow, covers a 22-foot swath. The 46-inch diameter broom with wafer bristles runs on 31-inch castor wheels. A blower at the rear of the unit removes remaining snow.

The order of operations is key - and a key to the unit's high top speed, says Alan Stearn, executive vice president of Vammas' distributor Fortbrand Services.

Because the plow performs the bulk of the work, putting it in front rather than the broom prevents the broom from getting bogged down, explains Stearn. The Vammas' middle-mounted broom sweeps up what the plow may leave, and an intense air blast at the rear of the machine clears remaining remnants, he continues.

According to Stearn, a fleet of these units can clear a 10,000to 12,000-foot runway in 10 to 12 minutes.

CVG operates its new nine multifunction vehicles simultaneously in a staggered or V formation, pushing snow from unit to unit until it reaches the sides of the 150-foot-wide runways.

Winter Ready

These days, CVG relies on more than 100 full-time and seasonal workers to clear the airport's four runways, associated taxiways, ramp areas and side pavements of streets. The daytime shift (typically 7 a.m. to 8 p.m.) has up to 65 employees, and the nighttime shift (usually 7 p.m. to 8 a.m.) has as many as 45 employees.

The 13-hour shifts provide a one-hour overlap for debriefings, strategy discussions, equipment adjustments and other logistics, notes Oldfield.

Flexibility is an important part of the airport's approach. "With access to seasonal employees, we are able to scale up or down as needed," he explains.

Every member of CVG's snow team undergoes rigorous training from the airport, Oldfield adds. Fortbrand also provided supplemental operation and maintenance training with the delivery of the new multifunction equipment.

"Fortbrand was very helpful in answering questions and suggesting different routines and equipment configurations for using the multifunctional equipment to its fullest capacity," Oldfield reports. "They evaluated our equipment inventory and made suggestions. We drew from our experience and took Fortbrand's suggestions to develop a tailor-made program for CVG. With the new multifunction equipment, we've noticed a big difference in our snow removal operations. We are able to work much more efficiently and effectively."

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