Nordic Ground Support is the driving force behind this new cleaning concept

Wash n' brush up

At a time when ground handlers and carriers are looking at every aspect of their operation in order to achieve cost efficiencies, it's refreshing to note that some manufacturers, at least, are responding to their concerns.

Aircraft washing is not, on the face of it, particularly prosaic – nor is it an extremely hi-tech operation. In fact, the process hasn't changed much since mankind moved from wood and doped linen to aluminium in terms of aircraft construction. So when a Scandinavian company decided to go back to the drawing board and re-engineer the exterior washing and cleaning process, it had just one thought uppermost in its corporate mind: that of cost-savings.

The company…

Nordic Ground Support Equipment offers mobile ground support equipment for the train, aircraft and other types of industrial sector on a worldwide basis. It's a recent enterprise, founded in 2008, and part of the company philosophy is that of offering cost-efficient, environmentally-friendly and innovative solutions.

The youthful appearance of the company belies a product portfolio that is based on decades of research and development in close co-operation with customers and clients; moreover, several of its products are protected by patents. With its head office located in Stockholm, Sweden, it has representatives in various parts of the world.

…and the concept

Aircraft washing and cleaning innovation? The words have a certain incongruity when placed in the same phrase, it has to be said. After all, exterior washing of an aircraft involves a brush, a liberal application of detergent and much effort, doesn't it?

"Actually, that's true – for that's the way it has always been," confirms Jules Lajola, the company's MD. "And it's been a problem, for many reasons. First, it's very labour-intensive: something like an A340 requires four to six people and will take up to seven hours to clean properly. That's not all: during that period the aircraft has to be sealed off so that no other work can go on. Third, there's the risk element. Typically, cradles and lifts are used for the staff involved in the cleaning process, so there is an ongoing problem in terms of safety.

"Aircraft washing is a regulatory procedure: carriers have to perform this operation at stipulated intervals. With that in mind, a year ago we decided to see if we could improve on the process for the benefit of the carrier and the staff involved."

It should be mentioned at this point that Nordic Ground Support Equipment is not just concerned with GSE manufacture for it also supplies services, advice and training on its products. So in its decision to market an answer to the question of washing and cleaning, it looked at past solutions upon which to base its project.

In reality

It's not often that a truly revolutionary product enters the marketplace but the new aircraft washer from Nordic could be hailed as something of a breakthrough. Although other washing robots have been marketed, here was the first battery-powered example. Dubbed the Aerowash 8000, this vehicle has set a new environmental standard in terms of aircraft washing.

"We wanted to get away from a manual operation," explains Jules, whose background includes time spent at Sodexo. "We wanted to introduce mechanical assistance and make the whole thing safer. At the same time there was an efficiency requirement: could we reduce the numbers of staff required for this task?"

The result, which first saw the light of day in the spring of 2009, was a vehicle that was actually based on pre-existing technology yet one, in the words of Jules, that brought with it the benefits of updates that means the handler's job has been rendered that much easier. At a very basic level the Aerowash does away with the dangerous and cumbersome practice that involves staff working from height: a driver operates the vehicle from the ramp and an hydraulic arm does the rest. A second staff member serves as a look-out, walking around to ensure that all is in order. Thus, at a stroke, this new vehicle cuts the numbers of people required and resolves any safety issues that might be present. No human presence on the wings is required, for example, since the GSE's reach is quite adequate.

As might be anticipated, with the PC controls, the machine is very modern. The operating system and panel are user-friendly and the manoeuvrability of the machine is outstanding. Large brushes (these are around 180 centimetres wide compared to existing broom heads, which are usually a sixth of that in dimensions) provide an excellent washing result, and they are supported with a very flexible arm, which reaches to the most inaccessible parts of the aircraft body: it can extend to 8 metres, in fact. It has been calculated that some 25-35 square metres of fuselage can be cleaned per minute with these brushes, which are also of a softer material than traditional scrubbers, and thus are kinder to the aircraft's paintwork. Allied to this is a sensor set-up: as the brushes approach the fuselage, so the computer takes over to ensure that accidental damage is obviated. As Jules points out, there are decades of knowledge behind the mechanics of this application and the aim all along has been that of making the GSE

both effective and simple to operate.

To make a viable comparison, Jules reverts to the afore-mentioned example of the A340. "The Aerowash will complete the task in a couple of hours," he maintains, "and just three or four staff are required. Some carriers we have spoken to are looking to utilise a pair of these machines, one for each side of the aircraft, to maximise efficiency."

Of special note is the fact that the washer is battery-powered. Scandinavia has an enviable reputation when it comes to environmentally-friendly developments and the Aerowash is no exception to this tradition. Jules states that the machine is capable of washing two to three large aircraft on a single charge and that it can run, under normal conditions, for five to six hours. Battery charging (the washer uses a lead/acid composition) takes just three to four hours. Best of all, some thought has gone into the battery changeover process: a roller mechanism within the vehicle means that the battery pack can be simply slid in or out, making life much easier for the handler.

Thus the Aerowash 8000 is able to wash any narrow-body and smaller wide-body aircraft in a very cost-effective and safe way. The machine meets all current environmental standards for external washing, and it is the only wash robot in compliance with forthcoming regulations prohibiting combustion engines in hangars.

"There are other efficiencies that should be mentioned," adds Jules. "For instance, a clean aircraft is much more economical in flight and if this process is carried out regularly, so the savings build up. We have also brought to the carrier a system that is not harsh on the outer skin: repainting an aircraft is not cheap and our system ensures that the surface is not degraded. By washing and waxing we effectively protect that layer. The carriers are now seeking other ways of cutting costs – and the wash programme is just one area they are investigating."

Touch screen controls for simplicity: a feature of the Aerowash 8000

For ease of mind the Nordic Aerowash 8000 comes with an extensive training programme, assuring the customer of the benefits and efficiency of the equipment. Together with Nordic Aerowash 12000 and Nordic Aerowash 3000 belly cleaner, Nordic Ground Support Equipment is able to offer all the products needed for cost-effective and safe aircraft washing.

Stop press

Just as Ground Handling International went to press, it was announced that the washing innovation now has an official Finnair endorsement. According to Kimmo Kuronen, Senior Technical Manager, Finnair Technical, the Aerowash 8000 has the effect of reducing ground maintenance time needed for external washing by adding work efficiency and quality to the equation.

"The efficiency provides more time to perform other maintenance duties during the time that was previously used for external washing. In the future, the external washing allows us to perform several washes during the same maintenance time, thus releasing significantly time and hangar availability for other maintenance works," he says.

"Finnair quality definitions are high and we do not compromise them. We experience that Aerowash 8000 fulfils the expectations of high external washing standards. It is great to find a manufacturer who is focused on the aircraft external cleaning segment and who has such a comprehensive know-how on external washing. We are very pleased with their technology and general work practices and the focus they are giving to the customer, so that the customer expectations are fulfilled.

"Aerowash 8000 is modern, durable and technologically good and of high quality – the equipment meets those definitions that any airline places on the reliability and efficiency of maintenance performance. The Aerowash makes it possible, for the first time, to plan an efficient and fast external cleaning for wide-bodied planes. I believe that this equipment will become a major part in increasing external cleaning efficiency in many airlines."