



Ground run-up enclosure goes large at Emirates

The largest ground run-up enclosure (GRE) in the Middle East has been completed by Blast Deflectors Inc (BDI) for Emirates Airline. Bob Lunn, Vice President of Engineering Facilities at Emirates, explains that the new GRE is part of the third maintenance facility Emirates has built at Dubai International Airport

"A part from the eight hangars, we knew we would need a GRE at the new maintenance facility," says Lunn. The facility is now part of the newly completed Emirates Engineering Centre on the north side of Dubai International Airport. This is one of the largest civil aviation maintenance facilities in the world and comprises eight air conditioned hangars designed to accommodate aircraft of any size, including the A380.

It is also the largest GRE that BDI has built to date. With a height of 15m (49ft 4in) and a width of 105.87m (347ft 4in), the facility can accommodate any commercial aircraft, although it was primarily designed for the A300, A330, A340, A380, B747 and B777.

During the acoustic acceptance tests at the end of 2008, two aircraft were run inside the GRE: a 777-300ER and an A340-500. During each test, noise measurements were taken at specified locations around the GRE. The acceptance test verified that the facility met the specified acoustic performances.

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Once the decision to build a GRE was made, it was just a question of securing a supplier. After viewing the facilities already built and then going out to tender, the contract was awarded to BDI.

Don Bergin, Director of Technical Sales at BDI, comments: "While we have been involved in A380 projects in the past, this is the first Stabile Flow™ facility we have built that was designed from the onset to accommodate the A380." According to Bergin, the Stabile Flow™ design incorporates aerodynamic features that deliver smooth, turbulence-free air to the aircraft engine.

"This is particularly important when performing engine runs in side wind conditions as any interruption to the supply of smooth air to the engines can result in a compressor stall or engine surge, which aircraft technicians

carefully avoid. Our Stabile Flow™ run-up enclosures, which are currently in use at airports across the globe, have proven to be reliable solutions for performing engine runs in challenging wind conditions," says Bergin.

The impact of the wind is a point taken up by Lunn. "If the engines are not directed into the wind, the crosswinds can form a vortex across the intake of the engine which can stall the engine and that would do a lot of damage," he says. "The enclosure is designed with vents in the side to break up any vortex within the facility. The top of the facility is rounded to help smooth out the airflow."

While there is existing GRE technology that incorporates a rotating turntable system so that the aircraft can be pointed directly into the wind regardless of wind direction, Emirates determined that the expense and complexity of such a facility were not justifiable as the Stabile Flow™ GRE by BDI performed at virtually the same level with substantially lower costs and maintenance requirements.

Acoustically, the BDI facility is equipped with Noise Blotters™ panels that line the interior of the three

walled structure. “These panels are designed specifically to absorb the low frequency sounds generated by modern aircraft engines,” says Bergin. “Each panel measures 1830 x 812mm (6ft x 32in).” According to Bergin, more than 3,200 Noise Blotter™ panels were mounted to the walls of the Emirates GRE in order to meet the specified acoustic performance.

The whole point of the project from Emirates’ point of view was both to reduce the noise impact of the engine runs (which are typically conducted at night) but also to speed up the conclusion of maintenance tasks. “In the past, post maintenance, we would telephone air traffic control and ask to do a high power run and then wait for them to agree and provide a vacant taxiway to perform the runs. You can imagine the time lost – and time is money of course,” comments Lunn.

“We can now come straight out of the hangars without having to cross the taxiway to run our engines, test them and then get the aircraft back into service,” Lunn adds. The hours of delay spent waiting to conduct an engine run are now a thing of the past.

Additionally, there is now little danger of the engine risking foreign object damage during the high power run. “We can keep our enclosure spot-



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lessly clean so we can eliminate damage to the engine,” Lunn says.

Additionally, video cameras record the runs at all times. The GRE is floodlit and so, if there is an incident, the

Emirates staff can see clearly what has happened. “This is not something we would have been able to do in the dark on the other side of the airport,” says Lunn. “Also we are able to track and record sound levels.”

The GRE has been a great enhancer of maintenance efficiency at the Dubai maintenance complex. What started out as a GRE kit – albeit a massive kit – has resulted in a very effective aircraft maintenance and process enhancement tool. ■

