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Instructor Thomas Mariano (left) demonstrates proper sealing techniques on a 787 subassembly as part of the hands-on training for new assembly technicians John Dieckman, Jorge Rodriguez Leon, Stephen Lacy, Jeanine Spencer, Jeremy McMurrin and Lance MacKay.

# Training the Dream(liner) Team

## Building cutting-edge jetliner requires people with unique skill set

By Tim Deaton

The Learning, Training and Development organization and its partner, Commercial Airplanes Manufacturing and Quality, are focusing on lean practices as they prepare the highly skilled workers who build the Boeing airplanes of today and tomorrow.

The two organizations have a strong record of collaboration, with LTD developing and delivering training to address BCA's business needs. That is especially true on the 787 Dreamliner program. The Dreamliner is a cutting-edge airplane, and assembling the jetliner with components from around the world will require manufacturing technicians with cutting-edge skills.

"The 787 production system is a culmination of the lessons we've learned building previous airplanes," said Steve Westby, 787 vice president for Manufacturing and Quality. "Our training and production processes are structured with that in mind. That Lean focus will help us hold down production costs and ultimately reach our ambitious goal of building a 787 every three days."

The job functions of 787 manufacturing technicians are vastly different from those of their counterparts on legacy airliner programs. One example: Dreamliner production, designed with Boeing's Lean+ initiative in mind, requires technicians to be cross-trained and certified in a variety of disciplines—instead of just one, as before.

A significant difference for 787 technicians is the Verification and Acceptance Planning program, in which they verify their own work to assure that it meets pro-

cess standards. They also follow a "clean-as-you-go" regimen to eliminate foreign object debris. For example, the technicians vacuum up the shavings as they drill, rather than cleaning the drill area later.

"It's a totally different skill set," said Duane Noble, operations manager for 787 final assembly and delivery. "If we are successful, and I have no doubt we will be, this could be the model for future airplane assembly lines."

## TRAINING APPLICANTS

To meet BCA's aggressive production schedule on legacy airplane programs, LTD provides preemployment training (PET) for job applicants. The course provides basic training in such areas as drilling, sealing and working in a confined space. Approximately 3,000 job applicants will complete PET this year before being evaluated for work at BCA.

"Just as the new airliner has been designed from the ground up to support a lean, efficient manufacturing process, so too has the training," said Norma Clayton, LTD vice president. "The partnership with BCA has created a comprehensive training program that's as unique as the airplane. LTD brings its curriculum development and training experience to the table, and [BCA Manufacturing and Quality] contributes its knowledge of the manufacturing processes. The result is fast-paced, cost-effective instruction that doesn't sacrifice quality."

On the Dreamliner program, LTD works with Edmonds Community College in Washington state to deliver PET at the new Employment Resource Center in Everett, Wash., near where 787 final assembly will take place. After undergoing an assessment process, applicants must complete the 87 hours of PET training on their own time before being considered for employment. Participants receive training similar to applicants on legacy programs plus specialized instruction on the 787, such as working with composites. It was from this pool of candidates that manufacturing technicians for the 787 program were chosen.

Training for the first class of new manufacturing technicians began in January, with trainees completing five weeks of core-curriculum training followed by five more weeks of hands-on job simulation training.

Developing the curriculum began with LTD and Final Assembly & Delivery working together to define the skill set the manufacturing technician would need to assemble the airplane. From this, existing courses were updated and new courses developed to provide the highest quality classroom learning experience.

"The instructors break down the most complicated processes step-by-step, and they take the time to make sure we understand," said Jami Sage, a former window-shade-company manager and one of the first technicians to complete the training.

James Burge, another trainee, said the training has been concentrated and intense. "But it's laying a very sturdy foundation for the years to come," he said. Burge is no stranger to aviation, having worked as an FAA-certified airframe and powerplant mechanic.

During their five weeks at the Employment Resource Center, the new 787 assembly technicians earn certification in 44 crucial job functions. Then they move to the high-bay assembly area for five more weeks of hands-on training. On other programs, this usually involves work on small detail parts and assemblies. By contrast, the new technicians receive realistic experience by working on actual 787 fuselage sections. "We want to simulate everything in their training so the technicians know what to expect when they get to the real aircraft," said Al Boardman, LTD program manager for 787 final assembly and delivery.

The training schedule is tied to the 787 production schedule. The first group of employees completed training and transferred to the 787 program in March. They will be assembling the first airplane, scheduled to roll out on July 8. Other groups will finish training and move to the production line as additional components arrive from suppliers and assembly work builds momentum toward the airplane's July rollout and August first flight. The final group will graduate in late May as work begins on the second airplane. An additional team of 787 manufacturing technicians will be trained beginning in September.

Current Boeing employees who transfer to the 787 line will receive training in areas unique to the program. They also will receive training in two tools—Velocity and Tablet PC—that support the Lean manufacturing process by providing the step-by-step work instructions and processes manufacturing technicians need to perform their jobs. Velocity is the online system technicians use to receive their work instructions, and Tablet PC is their shop-floor computer.

"It feels great to be part of a new generation of mechanics working on the latest and greatest design for Boeing," Sage said. "We are anxious to get the first planes built and delivered." ■

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**787 Assembly Technician Chandra Miller prepares to measure and record structure thickness on a side-of-body structure to determine the required fastener length. Miller is among the first employees to complete 787 assembly training.**