

# A smooth trip down the line

What made assembling the first BBJ 3 a big deal? The fact that it wasn't a big deal

**Doug Christensen (from left), Jordan Peterson, Mark Garvin and Todd Thackray are part of a multidiscipline team that worked to ensure that the first BBJ 3 would proceed through assembly without any disruptions.**

MARIAN LOCKHART/BOEING

By Kathrine Beck

**A**s the first BBJ 3 made its way down the 737 moving line at the Renton, Wash., plant this summer, people took note of just how well the new derivative was integrated into the factory flow.

"This went really well because everyone was prepared. The customer was happy and delivery went smoothly," said Todd Thackray, customer engineer for the Boeing Business Jets program.

Doug Christensen, a product development engineer on the BBJ program, agreed. According to Christensen, challenges were met and rework was minimal because of "efforts to make sure Renton best practices were used" when preparing for the first BBJ 3. Employees from the BBJ program and the factory worked together closely, and far enough in advance, to prepare for the changes that were coming, he explained.

An airplane that's the first of its kind, such as this first BBJ 3, can be a challenge on the assembly line, since parts, plans and tools can differ from those used on existing models. What distinguishes the BBJ 3 from previous BBJ models is that it's built on the Next-Generation 737-900ER (Extended Range) platform, providing customers with a larger cabin and longer range. An additional challenge

was that the BBJ 3 also includes a new flight deck head-up display that had never been certified for the 737-900ER.

"Change creates risk," said Jeff Raybuck, manufacturing engineering planner with the 737 Product Integration and Improvement team. It's his job to make sure any changes in parts, plans or tools on a particular airplane don't create rework or increase cycle time. Not only is it important to deliver the airplane in a timely fashion, but a problem with any one airplane can jeopardize the flow of airplanes that come out of the Renton plant.

"Our team is made up of focals who take ownership of concerns and share information," Raybuck said. "It works together for three or four months before the build cycle begins to make sure all engineering changes are integrated."

Raybuck also helps make sure that parts are available by using a line-of-sight tool, which helps ensure required new parts are defined and ordered properly and arrive in time.

Raybuck and his team worked closely with another team led by Jordan Peterson, 737 project integration manager. Peterson said that when a unique airplane such as the first BBJ 3 is built, his team begins by determining changes and areas of risk. Then, they make sure first-line managers and mechanics in the factory know about the changes and what to expect.

For example, they prepared a Microsoft PowerPoint presentation with drawings that compare the BBJ 3 interior with a conventional airline 737 interior. BBJ interiors are installed outside of Boeing, bringing up questions on the 737 line about exactly how the empty interior should be configured to accommodate installation elsewhere. The presentation was given to the first-line managers in the affected areas, who shared the information with their teams.

"This process helped a lot," Peterson said. "Everyone knew what was coming, so there weren't any surprises."

Cooperation and planning paid off for both the BBJ program and the factory. "It was a good working-together experience, and I think the results showed that. This airplane had a lower than average number of nonconformances. Everything was on schedule and came in quite nicely," Raybuck said.

Christensen agreed. "It was terrific. The airplane moved through the factory with minimal issues and the airplane was ready for delivery on time. We really benefited from Renton best practices, and from the 737 processes that have been put in place since the last new BBJ model was introduced, to make sure the airplane was smoothly integrated into the product line." ■

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