

# Stream LINE

Value stream teams are leading the way so 737 production rates can soar

By Kathrine Beck and photos by Jim Anderson and Bob Ferguson

**A** big improvement was launched by a simple question from a 737 mechanic. He asked Environmental Controls Systems engineers visiting the shop floor, “How come you guys have all this variability?”

He was talking about cabin air systems. They’re made up of hoses that run behind the paneling in the cabin and diffusers that work like an air intake grille in your home. Each Next-Generation 737 airplane included seven different sizes of diffuser and 32 different lengths of hose, and 101 different assemblies made up of hose and diffuser combinations.

Engineers went to the lab and did some testing. They realized that all the diffusers could be the same size—11 inches (28 centimeters). And that all the hoses could be made in 5-inch (13-centimeter) increments. Today, the number of diffuser sizes has gone from seven to one; hoses from 32 to seven; and assemblies from 101 to seven.

The result: a significant savings in time and weight.

Environmental Control System engineers then visited the company that supplied the diffusers. By eliminating variability and making other improvements, the supplier could build the

**PHOTOS:** Lights reflect off a Next-Generation 737 Blended Winglet as the airplane moves down the Renton, Wash., assembly line. **(Insets, from top)** Garry Ayers, 737 mechanic, and power plant assemblers Shiree Springfield and Jack Stendahl.



parts more efficiently and save money.

Improvements like this are now routine in the 737 program because of “value stream” teams. They improve processes throughout the value stream—starting with obtaining parts and raw materials from suppliers all the way to Boeing in-service support of 737 airplanes in customer fleets.

Value stream teams are organized around “commodities”—specific parts or areas of the airplane. Examples of commodities include landing gear, avionics, flight controls, floor coverings and fuselage. So far, there are 34 active teams with plans to add one more team this year.

The teams are made up of the people who buy the parts and materials, design the parts and components, install them on the shop floor and service them on finished airplanes for customer airlines. Teams also include a Lean+ coach and a project manager, as well as an executive sponsor and executive “champions.” Value stream teams use value-stream mapping and other Lean+ tools to identify waste and improve processes.

Gail Beisler is an Environmental Control Systems lead mechanic and value stream team member.

“All of us can delve into it and figure out what we need,” Beisler said. “We have such a good working relationship with everyone involved.”

Mark Spillman, a 737 Propulsions Systems lead mechanic, works in an area that builds up engines with everything needed to connect them to the rest of the airplane—engine mounts, hydraulic systems, fire detection systems and more. Value stream teams “get everybody together on the same page so things move smoothly here for us down on the floor,” he said.

Spillman explained how the value stream team in his area prepared for a rate increase with an Accelerated Improvement Workshop. Eighty percent of parts to be installed on engines are on the left side. As a result, the work on the two sides of an engine wasn’t balanced as the engine made its way through two work zones in the engine-buildup area of the Renton, Wash., factory. The value stream team reorganized the flow by creating a third zone, so now the work is balanced.

The number of engines his group can deliver will go from three a day to four, eventually, as the 737 production rate increases to 42 a month, according to Spillman.

Debra Englund, Value Stream Integration leader, said the power of value stream teams is “the ability of the team to work problems cross-functionally on a recurring basis. A value stream team is not a team that solves a problem and then disbands. Instead, it is a formalized structure that has end-to-end responsibility for its commodity.”

Having value stream teams in place makes it possible for process improvements to be implemented more quickly, Englund added.

Mechanic Beisler agreed.

“Any issues we have get resolved quicker—much quicker,” she said. “It makes everything flow so much better.” ■

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**PHOTOS:** Next-Generation 737 engine cores are prepared for installation at the Renton, Wash., factory. **(Insets, from top)** Kelly McKee, power plant assembler; Mark Spillman, power plant assembler specialist and team lead; Tom Yost, 737 manufacturing team lead; and Dong Chon, 737 technical designer.

