

THE BOEING COMPANY - 787

Kitting Process Improvement on the 787 Dreamliner Program

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The Boeing Company is the world's largest aerospace company and a leading manufacturer of commercial airplanes and defense, space, and security systems. The 787 Dreamliner, the latest aircraft offering from Boeing Commercial Airplanes (BCA), made its first customer delivery in 2008 and has since delivered to over 70 global customers. With the number of air travel passengers predicted to double by 2036, Boeing is focusing on continuous improvements in manufacturing to meet growing demand.

The 787 program has pioneered several innovative manufacturing processes for the aircraft, which BCA plans to implement on other commercial programs. Chief among these processes is the use of “kit carts” to deliver parts and tools to mechanics. Since “kitting” was implemented nearly three years ago, the 787 Program has experienced challenges delivering kits to the right location, at the right time, and with the right parts. Kitting inaccuracies lead to mechanic downtime, traveled work, and reduced trust in the kitting system. As the 787 program prepares to increase production rate to 14 airplanes per month next year, it is essential that the factory receives accurate kits to minimize delays in final assembly.

To address these inaccuracies, the Tauber team mapped the entire kitting process, identified the parts and tools most frequently involved in kitting issues, and identified root causes and corrective actions for these issues. After interviewing over 150 engineers, managers, supply chain and purchasing analysts, and manufacturing teams, the Tauber team created a comprehensive Value Stream Map documenting the kitting process, from the moment a change is proposed to design engineers to the time when a kit is delivered to the mechanic. Using this map, the Boeing Problem Solving Model, and analysis of historical kitting error reports, the team identified five root causes that contribute to kitting inaccuracies. The team also quantified the scale of each of these root causes and the subsequent financial impact of these issues on the 787 program.

Finally, the Tauber team worked with staff across departments to determine corrective actions and implementation plans for each root cause, including changes in the planning process, software redesign of the Bill of Materials Management tool, and use of RFID to track kit deliveries. The revised planning process and software tool will improve communication between manufacturing engineering and supply chain to ensure that the correct parts are included in mechanic kits. In addition, use of RFID in tracking kits will improve the physical kit delivery on the shop floor and provide metrics to track these improvements. As these recommendations are implemented, the Boeing Company is expected to recognize savings of \$1.8 million per year for the 787 Program and over \$10 million per year across all commercial airplane programs that utilize kitting for final assembly.