

David Robinson: Building the 777

David Robinson studied the engine diagrams. He had an idea that would make installing the airplane engines more efficient. Now he had to make his idea a reality.

David Robinson was a lead engine mechanic for The Boeing Company. He worked at the Boeing plant in Everett, Washington. David had worked for Boeing for 20 years, receiving regular training to keep up to date on airplane manufacturing. He and the crew members who worked for him were members of the International Association of Machinists and Aerospace Workers union.

Boeing had been manufacturing airplanes since the early 20th century and now sold its airplanes, jets and helicopters all over the world. The 777, on which David and his crew worked, was Boeing's newest jet airliner. The 777 had been developed by Boeing in the early 1990s to meet the needs of Boeing's customers who wanted a large jet sized between the smaller 767 and jumbo 747, which would cost less to operate. The 777 was designed to meet all those needs.

The 777-200 extended range, the most popular 777 model, can hold more than 400 passengers at a time, depending on the interior configuration. It can fly more than 8,000 miles without stopping, meaning that it can easily fly across the Pacific, say from Los Angeles to Tokyo. And, because the huge engines that power the 777 are powerful and fuel-efficient, the plane burns less fuel than other jet airplanes, making it cheaper for airlines to operate. The 777 is the first of Boeing's planes to be designed completely on computer.

David's crew's job on the 777 was to attach the plane's engines to its wings. The 777 engine struts, which hold the engine to the wing, were built at the Boeing plant in Wichita, Kansas from components that came from suppliers from all over the world. After the struts were completed, they were sent from Wichita to David's plant in Everett to be attached to the plane.

However, when David and his crew attached the engines to the wings, they had to remove several parts from the engine struts and then reattach them after the engine was installed. This was not all that uncommon a procedure, since the engines and wings were built separately and then had to be configured to work together. But, David was convinced there was a better, simpler way to attach the engines.

David reviewed engineering diagrams and his crew's job. He thought that several of the insulation blankets and bearings that were built into the engine struts in Wichita could be left off the engine struts at first. These parts could then be attached by his crew after the engine struts were mounted on the wings. That way, these parts would only have to be attached once, not twice. This would streamline the manufacturing process. However, it would mean that the mechanics at the Wichita plant would have to change the way they worked. What should David do?