

For Boeing, It's Been a Long, Strange Trip

After Three-Year Delay, Plane Maker Readies 787 Dreamliner Production; But Can It Produce 10 per Month?

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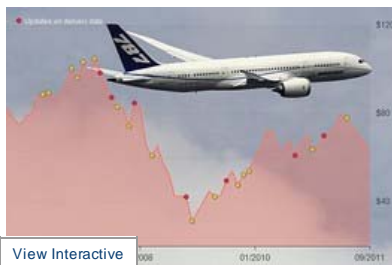
By [DAVID KESMODEL](#) And [DANIEL MICHAELS](#)

Boeing Co. is poised to stage a three-day celebration next week for the first delivery of its long-delayed 787 Dreamliner jet. But behind the hoopla, engineers are starting to tackle a bigger job: ramping up output of the aerospace company's first all-new jetliner in 13 years.

For Boeing to post a profit on the troubled Dreamliner program, it must assemble the wide-body planes with an industrial efficiency never before attempted in jetliner production, say aviation executives.

Dreamliner Deferred

Boeing's long-awaited 787 Dreamliner was dogged and delayed by problems. See stock price, key events and, in red, production delays.


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Boeing—eight years after it began developing the ultra-efficient jet—is still trying to prove it can make a success of both its innovative product and new approach to plane-making.

For decades, Boeing designed and built its jets in-house, bearing the whole expense. In 2003, it embarked on the unprecedented step of outsourcing most of the Dreamliner's manufacturing to far-flung suppliers.

But when assembly of the first Dreamliner began in 2007, major problems arose. Mechanics at Boeing's final-assembly plant opened boxes from suppliers containing thousands of brackets, clips and wires that already should have been installed on

fuselage sections. Some plane components came with no paperwork.

On Sunday, Boeing is scheduled to deliver the first of the twin-aisle jets to Japan's [All Nippon Airways Co.](#), more than three years behind Boeing's original schedule. Boeing has spent billions of dollars undoing its supply-chain mess, but results are still unclear.


[Enlarge Image](#)

Bloomberg News

An All Nippon Airways flight attendant in the doorway

So far, the company has been able to crank out about two of the long-range jets a month. By late 2013, it expects to produce 10 a month—a pace never reached in the industry for a wide-body aircraft.

"The challenge of 787 production is getting all the bits and pieces to come together concurrently," said [Steven Udvar-Hazy](#), chief executive of [Air Lease Corp.](#), who in his current and previous position has ordered dozens of Dreamliners to rent out to airlines.

of a 787 Dreamliner last month.

"The financial dimension of this ramp-up is critical."

Profitability of Boeing's 787 project is under "significant pressure," the company said in a recent filing. Analysts say the project won't turn a profit for years.

Boeing's squeeze comes partly from the airliner's popularity. The Chicago company landed orders for more than 820 Dreamliners, thanks to promises of low fuel consumption, reduced maintenance costs and greater passenger comfort. It's one of the fastest-selling jets ever. But the delays have forced Boeing to pay customers fat compensation, compounding the project's cost.

Boeing officials are steadfast that they can speed up production to clear the order backlog. "Is it a challenging ramp? Yes," Chief Financial Officer James Bell said during an earnings conference call in July. "Do we think we can do it? Yes."

Boeing's effort comes as rival Airbus is starting production of its competing A350 model, which it aims to start delivering in 2013. Further Dreamliner delays could help Airbus, a unit of [European Aeronautic Defence & Space Co.](#), chip away at Boeing's early lead in the lucrative market segment.

Airbus chief operating officer for customers John Leahy congratulated Boeing on the upcoming delivery, but said the speed and smoothness of the Dreamliner ramp-up remain to be seen. "We took a lower-risk approach with the A350," he noted. Airbus included fewer radically new systems on its plane and aims to increase production more gradually than Boeing does.

Boeing says the Dreamliner's novel construction speeds manufacturing. The planes are the first big passenger jets built largely from plastic reinforced by carbon-fiber, instead of aluminum. Boeing officials say they have tackled many of the problems in the Dreamliner supply chain that contributed to its delays.

One of the company's first tasks is to make significant modifications to about 40 almost-finished Dreamliners that couldn't be completed until designs were finalized. Boeing officials predict that reworking all those planes will take two years.

Production of new Dreamliners will simultaneously accelerate. Some customers question Boeing's ambitious target.

"It's going to be a challenge to get to 10 a month quickly," said Stephen Hannahs, CEO of Aviation Capital Group, the airplane-leasing subsidiary of insurer Pacific LifeCorp Co., which has ordered five Dreamliners.

Mr. Hannahs said a big headache Boeing faces is building Dreamliners on two assembly lines on opposite U.S. coasts. The first is at Boeing's historic base near Seattle. The second, which began assembly work in July, is in North Charleston, S.C., where Boeing was already making components for the new jet.

"Logistically, it's more complex," acknowledged Pat Shanahan, the Boeing vice president who oversees its aircraft programs, in an interview at the Paris Air Show in June.

Another potential snag looms when Boeing introduces a new, longer version of the Dreamliner, known as the 787-9. When production begins on the first of these planes, planned for late 2013, the shift could cause disruptions in the supply chain as workers adapt to different designs, caution aviation executives and industry analysts.



Enlarge Image

Reuters

One 787 Dreamliner sits on the tarmac at Boeing Commercial Airplanes manufacturing facilities at Paine Field, Everett, Wash., while another 787 Dreamliner flies by during the jetliner's certification event.

Mr. Shanahan said speeding up 787 production "is just going to be hard work." He added, "We're still proving out the production system."

Boeing's key suppliers for the Dreamliner said they are confident that the system can successfully accelerate.

"I think we ought to be able to get there," said Marshall Larsen, chief executive of [Goodrich Corp.](#), which makes brakes, engine pods and parts for the 787. "No airplane is without a few hiccups," he said in an interview. "I think what we will see now is more business-as-usual in ramping up the factories."

Suppliers such as Goodrich are more confident now because many have clamped down on subcontractors to ensure their work meets expectations. Some have parked their own staffers at

vendors' facilities to monitor production. Many, like Boeing itself and Italian supplier Alenia Aeronautica SpA, which is a unit of [Finmeccanica](#) SpA, have abandoned lean single-source parts contracts. Instead, they are tapping multiple suppliers to secure deliveries of adequate quality and quantity.

[Spirit AeroSystems Holdings](#) Inc., which builds Dreamliner front sections and other major components, has started buying some "critical" parts from two vendors, said Terry George, Spirit's executive program manager for the 787. Spirit moved to "a more conservative approach" in part to reduce risk, he said.

Douglas Hamed, an analyst with Sanford Bernstein, predicts Boeing will reach its 10-a-month target in late 2014, or roughly a year late. Mr. Hamed estimated in a research report in August that Boeing will lose money, in total, on the first 1,000 Dreamliners, although he said the gap between the revenue and cost of each plane delivered should be "reasonably good" by the end of this decade.

Boeing doesn't reveal profits by aircraft model but plans to disclose some details of its accounting for the 787 program next month in its third-quarter earnings. "We do expect 787 profitability to improve over time, in the same manner as our other commercial production programs," said Boeing spokesman Chaz Bickers.

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