

COMMENTARY

## Boeing's Dreamliner: Will nightmares surrounding its introduction recur in future litigation?

Aviation litigation specialist Ricardo M. Martinez-Cid of Podhurst Orseck PA discusses the roots of Boeing's recent Dreamliner crisis and explores the possibility of future litigation over the aviation giant's flagship jet.

The Federal Aviation Administration's recent decision to ground Boeing's new 787 jumbo jet, nicknamed the Dreamliner, has prompted a flurry of speculation about the aviation giant's future.

The rash of high-profile electrical problems that pushed Boeing's flagship jetliner onto the front pages, culminating in the FAA investigation, seemed to come out of nowhere.

But the truth is that the Dreamliner has suffered a string of delays, mechanical problems and other concerns since its much-anticipated arrival in late 2011. It is worth reflecting on how Boeing reached this critical crossroads.

A close look at the Dreamliner's design, marketing and operational history reveals institutional problems that may give rise to further safety and litigation concerns. Resolving the plane's apparent safety issues to avoid litigation pitfalls may pose as great a challenge as designing the cutting-edge plane to begin with.

Driven by market share competition, mediocre sales since 9/11 and an aging fleet worldwide, Boeing in 2003 announced plans to develop the Dreamliner, a midsize, lightweight, fuel-efficient aircraft unlike any existing at the time. Half the plane consists of composite materials that are both lighter and stronger than aluminum.



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The extra strength allows for a more enjoyable passenger experience by providing windows that are 65 percent larger than standard airplane windows and more comfortable cabin pressure. The plane is also the first to rely on rechargeable lithium-ion batteries in its auxiliary power unit, which provides power on the ground or if the main engines quit.<sup>1</sup>

First, in an effort to cut down on research and development costs — initially estimated at \$10 billion — and shift production risks to a global chain of suppliers, Boeing made the landmark decision to outsource a majority of the plane's design.<sup>3</sup> Although Boeing had previously outsourced manufacturing, this was the first time in the company's 97-year history that it relinquished control of a plane's design. Many of its suppliers delegated tasks to even smaller subcontractors.<sup>4</sup>

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News of the Dreamliner sparked industry-wide buzz: A record-breaking 800 orders poured in before a single jet was built, and the plane's \$207 million price tag put tremendous pressure on Boeing to deliver.<sup>2</sup> Early on, the project faced significant production hurdles due to changes in Boeing's business model.

Working with this global network of manufacturers proved more challenging than Boeing had expected. Language barriers and government regulations slowed progress. Not all the subcontractors shared Boeing's high quality-control standards, and the different suppliers sometimes produced parts that failed to fit together properly.

For instance, the plane's nose-and-cockpit section did not align with the rest of the plane, leaving a 0.3-inch gap.<sup>5</sup>

In the end, by outsourcing 60 percent of both the plane's design and its manufacturing, Boeing lost control over the production process.

The resulting setbacks soon overtook Boeing's production timetable. Originally scheduled to enter service in May 2008, the Dreamliner suffered seven delays, which together cost Boeing more than three years, millions of dollars in compensation payments to airlines and a 26 percent drop in stock value.<sup>6</sup>

Boeing's second major hurdle was building the Dreamliner out of lightweight composite materials instead of aluminum, which has more predictable properties. Boeing's inexperience dealing with these composites contributed to errors by its engineers, who miscalculated how the materials would perform. For example, the software created to predict how the aircraft would behave did not work well, and Boeing had to address unforeseen problems such as skin wrinkling on the surface of the aircraft.<sup>7</sup>

The Dreamliner finally entered service Oct. 26, 2011.<sup>8</sup> During its first year, however, the aircraft suffered from numerous problems, including a reported oil leak, fuel leak, engine cracks and cracked cockpit window.

The most recent concerns involve lithium-ion batteries, which the aircraft uses to start its auxiliary power unit. On Jan. 7, a battery overheated and caused a fire in an empty 787 operated by Japan Airlines at Boston's Logan International Airport. Less than a week later, an All Nippon Airways 787 made an emergency landing after a computer warned the flight crew at 30,000 feet that there was smoke inside one of the electrical compartments. Passengers and crew had to evacuate the plane using emergency slides.<sup>9</sup>

These safety concerns proved so serious that the FAA on Jan. 16 ordered all U.S.-based airlines to ground their Boeing 787s.<sup>10</sup> The Dreamliner's grounding marked the first time since 1979 that the FAA had taken such a drastic measure.<sup>11</sup> Both major Japanese airlines have also grounded the Dreamliner indefinitely. The cost to All Nippon Airways alone exceeds \$1.1 million per day. As of Jan. 17, none of the 50 Dreamliners Boeing has delivered around the world is in service, although Boeing received FAA permission Feb. 7 to begin conducting Dreamliner test flights.<sup>12</sup>

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Experts predict that the groundings will cost Boeing around \$550 million, with potential expenses ranging from \$125 million to reimburse carriers for replacement jets to a \$5 billion write-off. (Chances of that, analysts say, are about 4 percent.)<sup>13</sup>

The Dreamliner could be out of service for weeks or months, which could affect Boeing's production line and future deliveries. And because the FAA grandfathered in Boeing's lithium-ion battery — which the company began using before the agency developed safety guidelines for such batteries — Boeing might have to redesign the battery from scratch. The process will likely result in further delays and could ultimately force the airlines to eat the costs associated with late deliveries and leasing replacement planes.

It is unclear whether the safety concerns plaguing the Dreamliner are merely growing pains, experienced by many innovative projects, or something more serious and

potentially more dangerous. What is clear is that the mounting pressure on Boeing to deliver could tempt the company to take potentially dangerous shortcuts. If there is an accident, these issues, and Boeing's response to them, will be critical factors in litigation.

Bell Helicopter's similar experience after introducing its 407 is instructive. Like the Dreamliner, Bell 407 had a difficult rollout, with a two-year order backlog and a price tag of over \$1 million. And like Boeing, Bell faced tremendous pressure to rush the 407 to market and suffered repeated safety-related setbacks.

In fact, the FAA grounded the Bell 407 not once but twice. Those groundings occurred in the first few years after Bell introduced the model. Bell 407 accidents formed the basis for a number of lawsuits, many of which my firm handled. One of those cases, *Nogueira v. Bell Helicopter*, No. 02-20574 (S.D. Fla.), illustrates the sort of legal trouble Boeing can expect if it fails to resolve the Dreamliner's problems.

The *Nogueira* accident was allegedly caused by a defective potentiometer, a subcomponent in the system that controls fuel flow to the engine. But by alleging that the 407's unsafe rush to market had caused all its accidents, we were able to introduce evidence of seemingly unrelated incidents.

Our strategy — which allowed us to seek punitive damages — required exploring Bell's process. Bell had faced the difficult task of striking an appropriate balance between

business and safety concerns, and the company's choices affected the safety risk the 407 wound up posing to the public and Bell's own litigation exposure.

We argued that rather than comprehensively address the aircraft's safety problems — an approach that would have required customer notification and risked the company's bottom line — Bell refused to acknowledge the concerns publicly, dismissing dissenters within the company and treating accidents as the result of pilot error.

The court ruled for our clients on the summary judgment motion, finding disputes of fact regarding Bell's knowledge of the 407's defects and its fault in failing to correct them.<sup>14</sup>

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Bell moved for summary judgment on our claim for punitive damages, arguing that the claim was not viable because unlike the *Nogueira* crash, the earlier accidents involved tail rotor problems and issues with an electrical harness.

No one disputed these factual differences, but we succeeded in framing the 407's design and introduction as the central issue, which made the production difficulties and previous accidents relevant to the inquiry. Although the past incidents did not involve the same aircraft parts, we argued that they demonstrated Bell's awareness of the helicopter's dangerous design flaws. They also showed that Bell had responded to the earlier accidents similarly, prioritizing the demand for a young and popular product over responsible corporate action. Bell's repeated failure to correct all the aircraft's known problems justified punitive damages, we argued.

potentially defective aircraft over business concerns. Litigants will seize on any evidence of a rush back to market, pressure on the engineers responsible for ensuring the Dreamliner's safety, or minimizing of potential manufacturing or design problems.

Given the Dreamliner's early history of manufacturing and design difficulties, Boeing must take the time necessary to resolve all the safety issues affecting the whole aircraft. If it does not, this present nightmare will surely be back to haunt the company in future litigation. **WJ**

## NOTES

<sup>1</sup> Associated Press, *From the Start, Boeing's Dreamliner Had Rushed Development Schedule, Unusual Construction Plan*, WASH. POST, Jan. 25, 2013, available at [http://www.washingtonpost.com/business/from-the-start-boeings-dreamliner-had-rushed-development-schedule-unusual-construction-plan/2013/01/25/2ad1e13e-66c6-11e2-889b-f23c246aa446\\_story.html](http://www.washingtonpost.com/business/from-the-start-boeings-dreamliner-had-rushed-development-schedule-unusual-construction-plan/2013/01/25/2ad1e13e-66c6-11e2-889b-f23c246aa446_story.html).

<sup>2</sup> *Id.*

<sup>3</sup> Peter Cohan, *Boeing's Dreamliner Delays: Outsourcing Goes Too Far*, DAILY FINANCE, Jan. 21, 2011, available at <http://www.dailyfinance.com/2011/01/21/boeing-dreamliner-delays-outsourcing-goes-too-far/>.

<sup>4</sup> See Associated Press, *supra* note 1.

<sup>5</sup> *Id.*

<sup>6</sup> Thomas Black, *Boeing Risks \$5 Billion in Revenue on 787 Probe's Outcome*, BLOOMBERG, Jan. 28, 2013, available at <http://www.bloomberg.com/news/2013-01-28/boeing-risks-5-billion-in-revenue-on-787-probe-s-outcome.html>.

<sup>7</sup> See Cohan, *supra* note 3.

<sup>8</sup> Tim Kelly, *Dreamliner Carries Its First Passengers and Boeing's Hopes*, REUTERS, Oct. 26, 2011, available at <http://www.reuters.com/article/2011/10/26/us-dreamliner-idUSTRE79P02Q20111026>.

<sup>9</sup> *Top Japan Airlines Ground Boeing 787s after Emergency*, BBC NEWS, Jan. 16, 2013, available at <http://www.bbc.co.uk/news/business-21038128>.

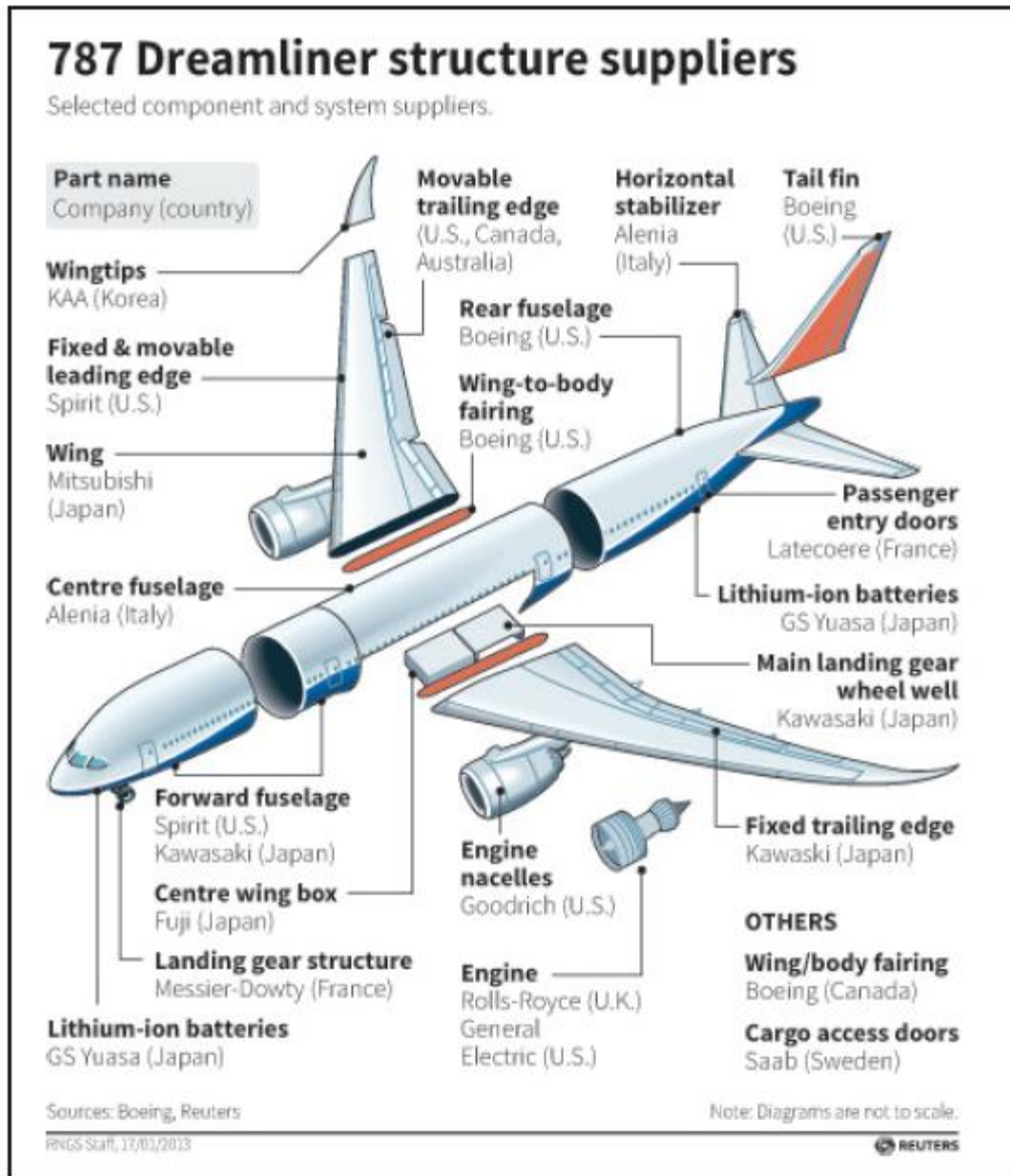
<sup>10</sup> Press Release, Fed. Aviation Admin., FAA Statement (Jan. 16, 2013).

<sup>11</sup> *Dreamliner: Boeing 787 Planes Grounded on Safety Fears*, BBC NEWS, Jan. 17, 2013, available at <http://www.bbc.co.uk/news/business-21054089>.

<sup>12</sup> Jim Barnett, *Japanese Airlines Suspend Dreamliner Flights after Emergency Landing*, CNN TRAVEL, Jan. 16, 2013, available at <http://www.cnn.com/2013/01/15/travel/japan-dreamliner-emergency-landing/index.html>.

<sup>13</sup> See Black, *supra* note 6.

<sup>14</sup> See Order on Pending Motions, No. 02-20574 (S.D. Fla. Feb. 7, 2005); see also Pls.'s Resp. to Mot. for Summary Judgment, No. 02-20574 (S.D. Fla. Jan. 19, 2005).



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