

War In Iraq

- [Iraq News](#)
- [Around the World](#)
- [Current analysis](#)
- [Historical analysis](#)
- [Economics](#)



Login

user:

pass:

Remember me
[register](#)

RU

EN

User Menu

- Home Page
 - «Mirror of the World»
 - Support the Site
 - Contacts
 - Iraq-War board rules

Articles

- [Iraq News](#)
- [Around the World](#)
- [Historical analysis & facts](#)
 - [Current analysis](#)
 - [Economics](#)
 - [Hot News](#)
 - [Rankings](#)

Forums

RSS feeds

 RSS feed for articles and news

Weather

Calendar-Filter

< Feb > < 2009 >

| S | M | T | W | T | F | S |
|-------|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| Today | | | | | | |

Boeing 787, the new US flying coffin Part II

By: fromPortugal on: 09.02.2009 [11:20] (1381 reads)

Article **Boeing's 787 Dreamliner cannot meet the Federal Aviation Administration's current stringent standards for preventing sparks inside the fuel tank during a lightning strike, and the agency now calls those requirements "impractical" and proposes to loosen them.**

Boeing has worked closely with the FAA to make the change in time for the 787 Dreamliner, whose airframe built of composite plastic makes lightning protection a special challenge.

2008 statements

US FAA officials intend to issue a "special condition" providing clarification of the lightning protection requirements that must be complied with before Boeing's 787 can be certified.

The airframer is fully confident, however, that its proprietary lightning protection design will meet FAA requirements

Earlier this year, Boeing said it had found a path forward with the FAA to resolve lightning protection issues

(13648 bytes) [c]

[Print](#)

FAA to loosen fuel-tank safety rules, benefiting Boeing's 787

The Federal Aviation Administration (FAA) has quietly decided to loosen stringent fuel-tank safety regulations written after the 1996 fuel-tank explosion that destroyed flight TWA 800 off the coast of New York state.

The FAA proposes to relax the safeguards for preventing sparks inside the fuel tank during a lightning strike, standards the agency now calls "impractical" and Boeing says its soon-to-fly 787 Dreamliner cannot meet.

Instead of requiring three independent protection measures for any feature that could cause sparking, the revised policy would allow some parts to have just one safeguard.

Boeing has worked closely with the FAA to make the change in time for the 787 Dreamliner, whose airframe built of composite plastic makes lightning protection a special challenge.

But the move has stirred intense opposition inside the local FAA office from the technical specialists — most of them former Boeing engineers — responsible for certifying new airplane designs.

The national union representing about 190 Seattle-based FAA engineers this past Tuesday submitted a formal critique to the agency, calling the new policy "an unjustified step backward in safety."

In a lightning storm, the critique said, the less stringent rules could leave a commercial airliner "one failure away from catastrophe."

FAA management, contradicting its own technical staff, argues that relaxing the spark-prevention standard is balanced by new technology to reduce fuel-tank flammability that will increase safety overall.

And Boeing experts insist the 787 will be safer in a lightning storm than any jet flying today.

Jim Hall, the former National Transportation Safety Board (NTSB) chairman who oversaw the TWA 800 investigation, said he's disappointed in the FAA but not surprised.

"It appears that management has overruled the judgment of the people that have day-to-day responsibility for the safety of aircraft," Hall said.

The TWA 800 rule

The average commercial airplane is hit by lightning about twice a year, Boeing estimates. A dangerous electrical spark may occur if current passing through an airframe reaches a small gap between metal parts and jumps across the gap.

Yet because of well-developed protection systems, it's been more than 45 years since a U.S. airliner was brought down by lightning.

The rules the FAA is now reinterpreting have been in place since 2001 after the investigation into the TWA 800 fuel-tank explosion that killed all 230 people on board the 747 jumbo jet.

While investigators concluded that the likely cause of the spark that triggered that explosion was faulty wiring, they set up standards to prevent fuel-tank ignition from any source, including a lightning storm.

The rules address two distinct areas: preventing sparks in the tank and reducing the flammability of the vapor inside the tank.

Current policy dictates that airplane engineers must design three independent layers of protection in any conceivable scenario that could produce a spark.

"To this day, we have not had one manufacturer that has been able to demonstrate compliance with that rule," said Ali Bahrami, head of the FAA's Seattle office dealing with commercial-airplane certification. "We decided it's time to re-evaluate our approach."

Airbus applied for certification of its newest plane, the A380, before the regulation, so it did not have to comply.

The FAA granted exemptions in 2006 and 2007 to plane makers Dassault Aviation, of France, and Hawker Beechcraft, of Wichita, Kan., allowing them to certify their Falcon 7X and Hawker 4000 business jets with only two independent layers of protection on the wing-skin fasteners.

In a detailed briefing on the 787's protection systems, two high-level Boeing lightning experts — who spoke on condition that they not be named — said the Dreamliner cannot meet the requirement.

"Boeing spent years trying to develop triple layers of structural lightning protection for every 787 fuel-tank fastener and joint, but we were unable to identify the technical means at many locations in the wings," one said.

The FAA will accept formal comments on the policy change through Feb. 13.

The critique submitted by the FAA certification engineers' union, the National Air Traffic Controllers Association union (NATCA), acknowledges that the existing regulation is strict.

It may have to be revised in some way, said one FAA certification specialist, who, like other agency engineers interviewed for this story, asked not to be named to avoid retribution.

"A bunch of us are in agreement as to how we can do that and maintain safety," he said. "But it's not what our management is trying to do in allowing catastrophic single failures."

Potential sparks

The new FAA policy memo identifies three places where the failure of a single protection measure could produce a gap where sparking might occur, though each is a remote possibility.

The concerned FAA engineers detailed where these three vulnerabilities are on the 787:

- The aluminum shear ties that attach the wing ribs to the spars could crack.
- A wing-skin fastener could break, popping the sealant on the head.
- On fasteners inside the fuel tank, a coat of sealant covering a gap between fastener head and sleeve could deteriorate.

The two Boeing lightning experts said the company has studied each of these scenarios closely.

Indeed, **Boeing lightning lab tests in 2007 revealed an unexpected amount of sparking inside the 787's wing tank as then designed, caused by gaps between fastener heads and sleeves.**

In response, Boeing's engineers turned around thousands of fasteners, putting the heads on the outside instead of inside the fuel tank. Following this redesign, engineers weighed the worst-case lightning threat at every location and demonstrated that there was sufficient margin to rule out sparking.

For those fasteners that couldn't be turned around, a brush coat of sealant was added as an extra precaution, the Boeing experts said.

"The issue is totally resolved now," one of the experts said.

Likewise, the Boeing engineers said, shear-tie cracks and broken fasteners have proven not susceptible to sparking under the worst-case level of lightning current.

"The level of detailed design, test, and analysis (in the 787's wing-tank lightning protection) ... is greater than has been conducted previously in aviation," one said.

Reducing vapor

The FAA claims the less stringent anti-sparking rule is balanced by an important new safety feature of the 787: its fuel-tank inerting system.

As the level of fuel inside the wing falls during flight, the system pumps inert (nonflammable) nitrogen gas into the space created. That hugely reduces the danger of flammable vapor.

When the original 2001 rule was written, the FAA stated that it would consider relaxing the ignition-source rules in the future if there was improvement in the technology to lower flammability — "such as full-time fuel-tank inerting."

By all accounts, the 787's inerting system is very effective. But there's a catch: The FAA is not requiring that it be "full time."

If a 787's inerting system breaks down, to save the expense of grounding the plane, an airline will be free to continue to operate it for 10 days while waiting for replacement parts.

That's despite an internal recommendation from one of Boeing's own safety-engineering team leaders in November 2005 that the 787's inerting system should be required to be working before takeoff.

During those 10 days, the possibility — however remote — of potential failures in the three areas with single anti-spark features looms as unacceptably dangerous to the FAA engineers represented by NATCA.

"This inerting system, if it was full time, it would definitely be an acceptable level of safety," said a second FAA engineer who has worked on the 787's certification.

But without that assurance, he said, to fly on a Dreamliner out of a lightning-prone airport in the summer is a risk he's not prepared to take.

"I wouldn't put my family on a 787 out of Miami," said the engineer, who formerly worked for Boeing.

In contrast, Boeing's 787 lightning-team leader sees the inerting system as a bonus safety feature rather than an essential requirement. He is willing to rely on Boeing's exhaustive testing of every potential spark point in the wing.

"I wouldn't hesitate to get on the plane," he said. "I know more about the structural protection on this airplane than I do on anything else we've ever built."

FAA, Boeing too close?

Tomaso DiPaolo, NATCA's aircraft-certification national representative, charges that when FAA engineers raised their safety concerns internally management simply removed them from the team developing the new policy.

The FAA ignored its own technical people, he said, while making sure Boeing agreed with the policy change.

"It's another example of the FAA getting too close to industry," said DiPaolo. "It appears that whatever Boeing wants, Boeing gets."

A Boeing internal document reviewed by The Seattle Times shows the company had a "team to assist FAA in wording of interpretation" of the lightning rule for the 787 as far back as August 2004, just eight months after the new jet program launched.

The FAA's Bahrami insisted that the policy change has been crafted to work for all airplane manufacturers with no special treatment of Boeing.

"Boeing is only one customer," Bahrami said.

[link](#)

Boeing confident 787 lightning protection will pass FAA scrutiny

By Mary Kirby

US FAA officials intend to issue a "special condition" providing clarification of the lightning protection requirements that must be complied with before Boeing's 787 can be certified.

The airframer is fully confident, however, that its proprietary lightning protection design will meet FAA requirements.

Special conditions are issued when an aircraft is to have novel or unusual design features compared to the state of technology envisioned in the airworthiness standards for transport category airplanes.

"There has been good communication between Boeing and the FAA as the special condition has been developed and they are not a surprise to us," Boeing tells ATI.

"They are not a result of any specific 787 design concern or feature. It will be the FAA's responsibility to make the finding of compliance for the 787. Our job is to define the design in a manner that we are confident will meet these requirements. We do not know when the special condition will become final."

Boeing's overall lightning protection scheme entails a wire mesh embedded in the 787's composite fuselage to conduct lightning away from the twinjet. An airliner's fuselage is the most frequently damaged part of aircraft due to lightning.

Boeing says its system "is primarily there for economic reasons to reduce the effects of lightning damage on the fuselage to minimize the impacts to customer airlines".

It notes that the extremities of the aircraft, such as wing tips, engine nacelles, horizontal stabilizer and tail are other areas where lightning is expected to attach "but they utilize other methods of protection based upon the expected lightning threats in those areas".

"These areas primarily use metal foils similar to past models as the major

protection method rather than the wire mesh. The design focus for the wings is not as much on structural damage but on protecting the fuel tanks and the wire mesh provides less benefit there."

Earlier this year, Boeing said it had found a path forward with the FAA to resolve lightning protection issues.

"The lightning protection discussions have related to the application of new regulations to the 787 and obtaining guidance from the FAA in how to demonstrate we have adequately met the intent of them," says the company. "We are applying this guidance in developing our certification data package."

Boeing adds that it understands "the requirements that the design must meet for certification".

[link](#)

*Probably most of you do not remember the "**Boeing 787, the new US flying coffin**" , because it was written in 2007. So what's new in 2009 two years after?*

Only the bad news.

*As indicated in Part One, the flying coffin was supposed to be delivered to the first costumer in 2008, but the truth is the 787 was unable till today to make the **first flight!***

*And as amazing as it can be, now in 2009 we are watching FAA changing rules for aircraft certification, **because 787 is unable to comply with them!***

*As i said in Part one, "**US is slowly going down, US economy is melting, is the future of the new boeing to be a reflection of the US future?**", back in 2007, yes it looks like Boeing reflects the US future. Desperate measures are being made in order to save Boeing and their hope for the future. The thing will have to fly and will receive certification no matter how.*

Don't waste time, run to buy a ticket on the new US flying coffin.

Comments by FromPortugal

9 comments

| | |
|--|--|
| <input type="radio"/> Only comments <input checked="" type="radio"/> Article and comments | Comments per page <input type="text" value="50"/> <input type="button" value="Send"/> |
|--|--|

Life insurance is available?????
 by bernie22 on 09.02.2009 [14:34]

Imagine: sitting in a window seat, looking out at the 787 wing, filled with fuel, waiting for a bolt of lightning to strike and see if it would blow up and send you tumbling down in a ball of flames???????

Bad US manufacturing. Beware!
 by heckmanns-being-back on 09.02.2009 [14:52]

Ten years ago bought some electronics equipment for sound design. Could be expanded with more DSP cards (made by Motorola) in order to increase possibilities. With each more of these cards performance went down. Unusable. Had long e-mail exchanges about this with the Illinois based manufacturer. To no avail. I looked sharply at the cards and found knowing that they can do other functions during the flight through the satellite system, they had a box back case with the repair. It came back with the laconic message: "One expansion board was replaced." Then it worked again for a few weeks. After that same problem as always and totally nothing worked. Only Idiots and Imbeciles that buy anything in the zioWest.

I lost my patience and threw that piece of sCrap away. Boycott everything that has "Made in the U.S.A." on its back.

NightmareLiner

by BlackPanther on 09.02.2009 [22:28]

That picture of the woman for Boeing's new "DreamLiner" above is pretty hilarious. It seems like she is saying to herself, "Look at me! I can fly! I can fly! I can THUD."

Maybe Boeing should hire this guy to be its promotional spokesperson for the Dreamliner.

ht tp://www.chesleysullenberger.com/

The plane isn't flying yet and will never fly.

by gmmonko on 10.02.2009 [00:37]

I bet you! Moreover the seem to have changed the design dramatically. In fact the sparks inside the tanks can be prevented by using a device which is being installed in all aircrafts around the World until 2010.

Moreover they could even use a gas to prevent fuel from being ignited.

Pity the mig21 driver

by pilot-x on 10.02.2009 [07:10]

stuck on a dreamliner
in his nightmare
thundering thru the vastness
way up there
one window all wing
200,000 lbs of fuel can't see a thing
thats pilot purgatory
rapa chc cha
rapa chc cha...

Boeing is in deep troubles

by LittleHelper on 10.02.2009 [10:51]

In the worldwide aviation community, the Boeing 787 dreamliner has already caught a very undesirable nickname: it is called "Lateliner" or "7-late-7", due to its design and construction being now more than 2 years behind schedule.

It seems, nothing is really going on properly with this plane. Some months ago, engineers found out about a grave security risk: A wrong type of rivets and bolts having been used to connect the fuselage and wings of the prototype planes.

All the rivets and bolts had to be removed and exchanged with an other type.

After this, the Boeing machinists went on strike, and due to this, also the Boeing 747-8 widebody airliner (thought as a competitive product to the Airbus A380) fell strongly behind in its design and construction schedule.

The Boeing 747-8 is anyway not sufficiently booked, until now only 40 of them are sold, and most of the sold planes are only the version for freight, not that one for passengers. Because they are sold so badly (not one single plane in 2008), the whole 747-8 program is in danger of cancellation. On top of this, the Boeing company as a whole in the 4th quarter of 2008 suffered a grave loss of more than \$500 million.

All this has seriously undermined the confidence that stakeholders previously had in Boeing.

Boeing's customers also get more and more nervous.

Two days ago, the Russian Airline S7 cancelled the order of 20 pcs. of 787 dreamliners.

Boeing shares lost more than 20% since beginning of 2009.

The Project That Never Was...

by hidflect on 10.02.2009 [12:25]

BTW - Although the most repulsive wo-man I knew was my boss in the PR days of 1997-99, she had good contacts in Boeing and told me that the Boeing "Dreamliner" (or whatever that piece of crud is called) was nothing more than a never-intended, non-existent PR stunt of a project to cast Boeing as "energetic" and " modern" and aid in sales of current models. Just, you know, to keep the "buzz" going.

Boeing smirkingly thought the A3XX project was a hoax and the 787 was of similar intentions. Then they did a hard swallow when parts started getting fabbed in sheds and with a sh1t eating grin started to "gin up" the BadDreamLiner from Executive waffle into reality. But they kinda "slow, slow, mucho slow" proceeded with it in the vain, vain hope that the A3XX was just some kinda "cauchemar" (bad dream) that might go away.

Then customers (a.k.a. A-rabs) started asking them at airshows to come up "wi' da sh1t" they promised and they've greased along with a sickly grin ever since. So ust in case you were ever wondering why the world's biggest airliner(A380) came out years before the still-never-seen-flying-by-man-or-beast Nightmare Liner... They really, really don't want to make that Thing.

The Euros must've known this of course and were larfing as Boeing endlessly rotated the model on a computer screen like a chicken kebab on a spit, too reluctant to stick their hands in and get their financial fingers burned off... Damned either way, Boeing now have the dream they wished for.

Burnelli must had his last laugh

by Q' on 10.02.2009 [19:09]

"The rules the FAA is now reinterpreting have been in place since 2001 after the investigation into the TWA 800 fuel-tank explosion that killed all 230 people on board the 747 jumbo jet."

TWA 800 was shot down by a US Navy missile as witnessed by hundred people including other pilots.

"In fact the sparks inside the tanks can be prevented by using a device which is being installed in all aircrafts around the World until 2010."

There is a much better solution: lifting body from Burnelli Technology. Boeing, Northrop and Lockheed Martin knew about that alternative having seen them in action and decided to prevent Burnelli to apply its solution for commercial use. B-2, F-14, F-15, F-22, Aurora, and X-33 stole patented technologies on which the Pentagon is directly involved.

FAA knew all its alternative to avoid the obvious solution failed and the current planes are fundamentally flawed by design.

Page: 1/1

Posting comments:

You should be registered AND logged in user to post comments here.



WebMoney

Yandex