

Aviation Human Factors Industry News

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From the sands of Kitty Hawk, the tradition lives on.

Hello all,

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In this weeks edition of *Aviation Human Factors Industry News* you will read the following stories:

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Broken Tail Trim in Nevada Air Crash Doubled Plane's 'G-Load,' Caused Pilot to Black Out, Expert Says

The deadly Nevada air racing disaster that killed 11 people **may have been caused by a missing tail trim** that doubled the plane's "G-load" and made the pilot pass out, an aviation expert tells Fox News. The WWII-era P-51 Mustang fighter plane -- named the Galloping Ghost -- crashed in Reno during an air race Friday, killing 11 people and injuring at least 70 others. The National Transportation Safety Board is examining photographs taken before and after the disaster for any clues into the crash.



Pilot and aviation expert Blake Mathis told Fox News Wednesday that a broken tail trim seen in one of the photos likely caused the plane to speed upwards into the sky, creating a "tremendous G-load" that made pilot Jimmy Leeward pass out.

"For anyone, not just a man of Mr. Leeward's age, it could have caused him to black out or pass out," Mathis said. "It could even snap someone's neck if they're not prepared for that."

Mathis' theory comes a day after an aviation mechanic said another photo suggests the pilot became dislodged in the cockpit as a result of a broken seat. Aviation mechanic J.R. Walker told Fox News that Leeward would have been seen in the photo even if he had passed out and was slumped in his seat.

Walker, who has worked on similar planes, suggested that Leeward's **seat may have slipped back, causing him to lose control of the plane.**

<http://www.foxnews.com/us/2011/09/21/broken-tail-trim-in-nevada-air-crash-doubled-planes-g-load-caused-pilot-to/#>

Navigator in Russian Crash Was Drunk, Report Says

The navigator on a passenger airliner that crashed in June because it missed the runway was **drunk**, Russian aviation authorities have found, and the navigator's condition **and other errors** by the crew and on the ground were to blame for the accident that killed 47 people. The navigator was in a state of "light alcoholic intoxication" as he guided the jetliner on its approach to a provincial airport in Petrozavodsk, the Interstate Aviation Committee said Monday in a report, which ruled out any mechanical failure as a factor.

The accident near Finland was the first of two major air disasters in **Russia** this summer. The second, earlier this month, killed a hockey team and several prominent former National Hockey League players and coaches.

In the first crash, the airliner, a Tupolev 134, was descending into a thick fog when it clipped a tree and broke up on a road near the runway. The engines, flaps and instruments worked normally until the impact, the report said.

Investigators found that a **combination of human errors** caused the crash, including mistakes by the navigator. The man's intoxication caused him not only to misguide the plane, but also to become "hyperactive" and give instructions to the captain, actions that were "one of the factors" in the crash, the report said. State television reported that the navigator had consumed a glass of vodka before takeoff. Russian aviation authorities often attribute the blame for crashes to crew error rather than mechanical failures on the country's aging fleet of passenger jets. But the two issues are related because the **conditions of the aircraft makes them difficult to fly** and increases the frequency of accidents.

Most versions of the Tupolev 134, for example, require a crew of four. Lacking modern avionics, the plane has a glass nose cone under the flight deck, giving the navigator a view of the ground to guide the pilot.

The crash prompted President Dmitri A. Medvedev to say that Tupolev jetliners should be grounded even before a new Russian plane, the Superjet, becomes widely available to replace them. The report on the crash may **intensify concerns about pilot training and Russia's poor safety culture**.

On the day of the accident, the report said, the meteorological service **provided incorrect information** about visibility. The captain then violated a flight rule by descending below a certain altitude without being able to see the ground or runway lights.



The report said [he also erred](#) by allowing the navigator to make decisions that are not normally delegated to this member of the four-person crew. It did not give specifics.

Boeing's Lack of Records Stymies Probe of American Airlines Jet-Skin Tears

Boeing Co. didn't keep manufacturing records that might have allowed investigators to determine why the fuselage on an American Airlines 757-200 jetliner tore in flight last year, according to the U.S. National Transportation Safety Board. That lack of records has also hampered the NTSB's efforts to pinpoint the cause of a larger tear that forced the crew of a Southwest Airlines Co. 737-300 to make an emergency landing April 1, according to two government officials familiar with the investigation. They asked not to be identified as the probe is ongoing.



“Records of manufacture for the skin panels on the accident airplane and the other airplanes with fuselage skin cracking were not retained, [and were not required to be retained](#),” the NTSB, which investigates U.S. transportation accidents and recommends safety improvements, wrote in a [report](#) on the American incident, dated Sept. 19, on its website. “Therefore, a cause for the manufacturing non-conformance could not be identified.”

The Federal Aviation Administration which regulates the aircraft manufacturing industry, may require manufacturers to increase the length of time they keep records, Frank Paskiewicz, acting deputy director of the agency's Aircraft Certification Service, told an NTSB forum on the fuselage-rupture issue recently.

Record-Keeping Contrasts

Boeing keeps its records for 10 to 11 years, depending on the date the plane was made, said Erik Nelson, deputy vice president of manufacturing for the 737 program.

Three other commercial aircraft manufacturers -- Airbus SA, a unit of European Aeronautic Defense and Space Co.; , Bombardier Inc. and Embraer SA -- [keep their manufacturing records for the life of each airplane](#), executives of those companies said at the NTSB forum today.

The American jet's [skin was too thin](#), which led to cracks, the NTSB found. Without records detailing how the plane was built and inspected, the safety board wrote, it could not determine the source of the manufacturing defect.

In the Southwest incident, a 5-foot section of the jet tore open at 34,000 feet, triggering an explosive decompression and injuring one flight attendant. The plane made an emergency landing in Yuma, Arizona.

The accident has been tied to [rivets not being secured properly](#) when the jet was built in 1996, according to the NTSB and Boeing airplanes chief James Albaugh.

Records of how those rivets were installed and inspected don't exist, the officials told Bloomberg.

Unexplained Pattern

The reason records don't exist was detailed in the safety board's report on the American incident, in which an 18- by 7- inch tear opened above the left-side front passenger door at 32,000 feet, about 16 minutes after the jet left Miami Oct. 26. The jet made an emergency landing in Miami. No one was injured.

During its investigation, the safety board discovered [two other 757s with thin skin](#) and similar patterns of cracking. Manufacturing records for those planes also weren't kept, the safety board wrote.

The FAA in 2009 revised its rules to require that manufacturers keep records for at least five years, according to the Federal Register. In the case of "critical" components, manufacturing records must be kept for at least 10 years.

'Opportune Time'

The previous rule, which dated to 1964, required that records be kept for two years. One aviation manufacturer, General Electric advised the FAA to require that records be kept for 40 years. The agency said in the final rule that it was deferring to the advice of an industry committee. A manufacturer "may maintain records longer if it chooses," the FAA said.

Manufacturers said it would be too expensive to keep the records for longer periods when the agency last considered the issue, Paskiewicz said today.

"A lot has changed since," he said. "I think it's an opportune time to take a look at that." Many inspection reports and other documents on each aircraft built are now computerized, he said.

The current rule took effect in April of this year, Paskiewicz said. It wouldn't have helped investigators in the American or Southwest probes as both jets were built more than 10 years ago.

Withstand Cracks

The Southwest tear was one of the most serious malfunctions of aircraft skin since an Aloha Airlines 737-200 almost broke apart on April 28, 1988. A flight attendant was sucked out of the plane and fell to her death after an 18-foot section of the fuselage opened over Maui.

The FAA requires that jets be built to withstand cracks and tears in the aluminum skin. Boeing builds its planes with a thicker layer of skin every 20 inches designed to stop cracks from growing.

Cracks in the Southwest skin spread through two of the thicker strips before halting, meaning that the measures designed to prevent an aircraft breakup failed, according to preliminary findings of the NTSB investigation.

The NTSB has investigated several cases of jet skins tearing open in recent years, prompting the agency to recently hold a two-day forum on the topic at its Washington headquarters.

Families Push Obama on Pilot Fatigue Rules

A half dozen family members connected to the Continental/ Colgan Air flight that crashed near Buffalo in 2009 continue their lobbying campaign for stricter rules on pilot fatigue. The National Transportation Safety Board concluded that pilot error during a stall was the primary reason for the crash that killed a total of 50 people. But the NTSB listed pilot fatigue as a secondary reason.



"We just went through the cockpit voice recording, and multiple times... the pilots are yawning," declared Kevin Kuwik, whose girlfriend Lorin Maurer died on the flight. "When it came time for the pilots to make the critical reaction [to the stall], they weren't able to do it."

For two years, the family members have pushed for tougher federal rules on pilot rest periods. They have nearly succeeded. Congress passed legislation ordering the Federal Aviation Administration to update its rules.

That agency has done so, but the rules now sit in the Office of Management and Budget, which is reviewing them.

"We're asking the President to use his influence in the administrative branch to move this forward," John Kausner told reporters in Washington, D.C. Kausner lost his daughter Ellyce in the crash.

Airlines, which are being hammered by the weak economy, generally do not favor the proposed changes in rules. "The industry is all in favor of improving safety and revising these rules," explained Steve Lott, a spokesman for the Air Transport Association. "But we must do it based on science, based on data, based on operational experience. Right now the current proposal does none of that."

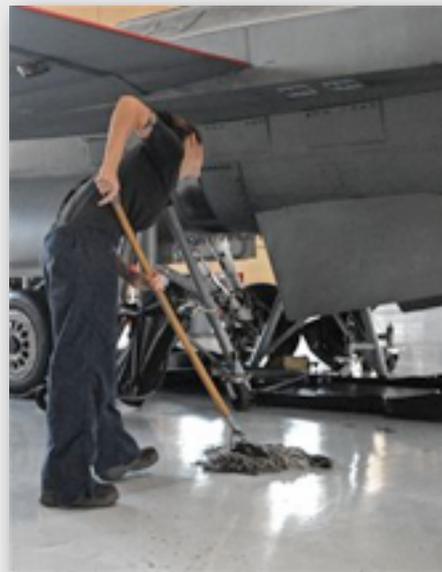
The family members met with officials at OMB to push for speedy review and adoption of the proposed new rules on pilot rest periods.

Maintenance Standards: Why so high?

LUKE AIR FORCE BASE, Ariz. -- Talk about standards. Maintainers at Luke Air Force Base have a lot of standards. They have standards they don't realize they have. They even have standards for their standards. The 309th Aircraft Maintenance Unit is one example of a maintenance shop that [adheres to an overwhelming number of standards](#). Each position has a checklist. Every job has a technical order.

"I'm kind of anal retentive, but that's mostly because [we can't afford to make mistakes](#)," said Chief Master Sgt. Jamie Parker, 309th AMU superintendent.

[All tools](#) are clearly labeled and stored in the proper place. Every maintainer is required to check out each piece of equipment they use. And even though the Airmen are usually covered in grease, somehow every inch of their work area is sparkling clean.



Although this may sound excessive, [there are many reasons](#) why maintainers need to be so meticulous.

The extreme attention to detail saves the Air Force money, increases pilots' confidence and keeps everyone safe, Parker said.

"A lost tool or screw can lead to a fatal accident if it isn't found," she said.

And, [maintainers are human](#), so it's pretty common for these types of things to get lost.

"If it's not us misplacing a tool, it's the pilots dropping something in the cockpit," Parker said. "For example, they might lose a pen. It always happens at a bad time, like right before you're about to leave on a Friday. It's never a quick process. It normally takes several hours and multiple people to find the (usually very small) lost item."

But, if the tool boxes [weren't so organized](#) and each piece of equipment wasn't accounted for, maintainers wouldn't always know if they misplaced something.

This is why Senior Airman Scott Japalucci, 309th AMU weapons load crew member, believes maintaining his tool box is one of the most important aspects of his job.

"My main duty is to load bombs onto jets and troubleshoot weapons related problem on aircraft," he said. "But, I wouldn't be able to do that without my tool box. Because [it's clean and organized](#), it helps me do my job faster. And, it's the biggest way to prevent foreign objects and debris. If something is missing, we realize right away. And, we don't stop until we find it."

Basically, Luke maintainers have a lot of standards. But, every single one is there for a good reason.

Batten Down the...Rudder?

We were only one month into a dynamic P-3C Orion deployment in the 5th Fleet area of responsibility (AOR) when the [rudder-boost-package actuator began leaking out of limits](#) on one of our aircraft. Normally, the solution is as simple as replacing the packing in the actuator, but not this time. During the removal inspection, we discovered that the actuator was corroded internally.

With the nearest replacement actuator located in the supply chain in Pearl Harbor, Hawaii, (and the aircraft scheduled for an “early go” the following morning), maintenance control decided to cannibalize the actuator off another aircraft. That aircraft had been “downed” for an extended fuel-cell maintenance procedure.



The airframe technician charged with removing the good actuator was a seasoned maintainer but only had been working on P-3Cs for about a year. The maintainer was familiar with the installation procedures but had no experience removing an actuator. The airframe work center had a heavy workload on that particular night, so the technician-in-charge requested the help of the night-shift airframe QAR.

The two maintainers checked out the required tools and went to work at approximately 2200, knowing they only would have about five hours to cannibalize the good actuator from one aircraft and install it on the other, perform leak and operational checks, and take a hydraulic contamination sampling. No problem, right?

The rudder-boost actuator is located in a tight space in the empennage of the P-3C, which leaves little room to work and almost no light to review the maintenance checklist. The maintainers staged the appropriate publications outside the empennage- access panel on the maintenance stand. The on-scene QAR wanted to teach the other technicians how to remove the actuator from the boost assembly, so he agreed to perform the maintenance functions. Meanwhile, one technician CDI'd his work, and several others observed. With a deadline looming, both the QAR and CDI failed to read through each step in the checklist and inadvertently skipped a step in the removal procedures. The skipped step required installation of a rudder batten if the aircraft was slated to be outside for an extended period of time with the linkage disconnected. The rudder batten is a tool designed to prevent the rudder from moving.

With a sense of accomplishment, the maintainers met the challenge, accounted for all tools, and ensured the work order was signed off before the aircrew showed up the next morning for preflight checks. Every metric indicated a completely successful maintenance evolution. However, when the desert winds increased the following day, [the unsecured rudder on the cannibalized aircraft](#) began to blow violently from side-to-side, tearing the aircraft “skin” in three places. Both viscous damper arms (and associated brackets) also were bent. The situation could have been more severe had it not been caught so early. Regardless, it took three days, 150 man-hours, and \$900 in parts to repair the damage—all [completely avoidable](#), if only the maintainers had followed the checklist during the original maintenance evolution.

With limited parts, people and financial resources in today’s Navy, [there is no room for these kinds of mistakes in aviation maintenance](#). Ensure that the appropriate publications are followed step-by-step every time. Anything less is unacceptable.

Colgan Air faces \$1.9 million fine over fire extinguisher training

Colgan Air, a regional airline, faces a nearly \$1.9 million fine after it allegedly allowed 84 flight attendants to fly for a week [after the airline was informed](#) they had been trained on fire extinguishers that were different from those used on their aircraft. The alleged infraction occurred in November of 2009, at a time the airline was under additional scrutiny because of a fatal crash of a Colgan Air jet near Buffalo, New York, nine months earlier. But it was unclear whether it was the additional scrutiny, or a routine inspection, that led to the discovery about the improper training.



According to the Federal Aviation Administration, government inspectors discovered that new Colgan crew members were trained using a type of halon fire extinguisher found on Saab 340 aircraft, instead of the type installed on the Q400 planes they were staffing. On November 2, 2009, the FAA notified Colgan that crew members were not trained as required, but Colgan used the 84 untrained crew members on 172 flights during the next seven days, the FAA said.

The Federal Aviation Administration last week said it is proposing to fine Colgan \$1,892,000. Colgan said it intends to appeal the fine.

"We hope the facts presented in our response result in the proposed fine being reduced or removed," said Eric Epperson of Pinnacle Airlines Corp., Colgan's parent company. "Colgan Air [was using the same type extinguisher for both the Saab 340B and Q400 training, although the Q400 extinguisher has a hose,](#)" Epperson said.

"Upon notification and out of an abundance of caution, Colgan updated our training manuals and retrained all flight attendants to ensure full flight attendant understanding," he said. "Safety is a top priority at Colgan."

Colgan Air operates primarily in the northeastern United States. It operates as Continental Connection and United Express.