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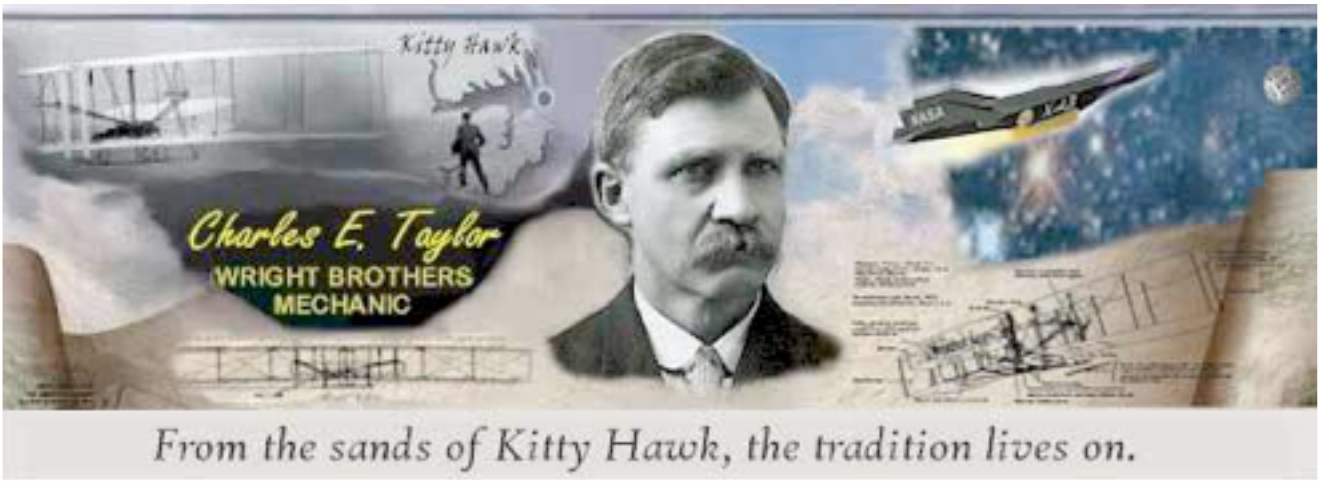


Hello all,
To subscribe send an email to: rhughes@humanfactorsedu.com
In this weeks edition of *Aviation Human Factors Industry News* you will read the following stories:

When the Maintenance Manual is Wrong

Don't just work around it, push the manufacturers to get it fixed says John Goglia.

If you've been in maintenance for any length of time, you're bound to have run into this problem. The aircraft manufacturer's maintenance manual and actual maintenance work that needs to be done are not in synch. This may be an occasional problem but even occasional problems can be fatal under right conditions. This issue was driven home for me by a fatal air accident involving rigging of aircraft flight control cables. I was involved in this accident investigation as an NTSB member.

The accident involved an aircraft that crashed shortly after mechanics had rigged the aircraft. The aircraft was destroyed on impact, killing the two crewmembers on board. Based on analysis of available information, including analysis of the flight data recorders, radar tracks, and eyewitness accounts, it was determined that the pilots were fighting for control of the aircraft and that the accident was caused by faulty flight control rigging.

Accident investigation

Determining what happened is only one step in accident investigation. The next step is why. Why were the flight control cables improperly rigged? Every mechanic is aware of the nightmare scenarios that happen — just as it happened here — when aircraft are mis-rigged. We all have it drilled into us to be extra vigilant when working with flight-critical cables.

To determine the why of the improperly rigged aircraft, we interviewed the mechanics involved, reviewed the relevant manuals and maintenance log pages, reviewed the facilities where the maintenance was performed, and the equipment actually used to perform the cable rigging and reconstructed how the maintenance was performed.

What we determined from this accident investigation is that the maintenance manuals were incorrect and failed to provide the guidance necessary for the mechanics to do their jobs properly. In this case, the

mechanics rigged the elevator trim cables in accordance with the illustration in the manual which had the rigging backwards. This meant that when the pilots on the ill-fated flight took off and applied nose-up trim, the aircraft started to nose over.

As they pulled back on the yoke to correct the nose down condition, it got more and more difficult to control the aircraft as the aircraft accelerated. The pilots applied more nose-up trim which, because the cables were rigged backwards, actually pushed the nose further down. With the aircraft so close to the ground and things happening so fast, the pilots never had a chance to figure out what was happening to their aircraft before it crashed.

Incorrect manual

In this case, we found that while the written manual instructions were technically correct, they were confusingly written and difficult to follow, so the mechanics relied on the illustration and basically ignored the text. What I found hard to understand in the course of this investigation, was why this problem hadn't been raised and fixed before. This particular manual, with its incorrect illustration, was around for decades. It seems to me that mechanics up until this ill-fated flight, had figured out that the illustration was wrong and properly rigged the aircraft — but never got the manual changed.

I know from experience as a mechanic and as an accident investigator, both for USAirways' mechanic's union (IAM) and the NTSB, that incorrect manufacturers' maintenance manuals are a problem and that mechanics usually work around them, without getting them corrected. This accident demonstrates the importance of mechanics raising to management problems they uncover with these manuals and for airline and repair station managers to push the manufacturers to correct the manuals.

Evidence Surfaces Of Passengers In The Cockpit Of Polish Airliner Which Crashed

CVR Picked Up Voices 16-20 Minutes Before The Plane Went Down

New evidence has surfaced about the crash of a Polish aircraft which went down April 10, killing the President of Poland, his wife, and many other high-ranking government officials.

Polish and Russian officials held a news conference recently to announce that the cockpit voice recorder recovered from the Russian-built TU-154 captured the voices of unidentified passengers in the cockpit some 16-20 minutes before the crash. The New York times reports that the pilot had already received at least one advisory concerning poor weather at the airport when the cockpit conversation was recorded.

The delegation was traveling to Russia for the 70th anniversary of the Katyn massacre, in which more than 20,000 Polish officers and others were killed by the Soviets during World War II. The presence of the voices of non-crew members in the cockpit has led to rampant speculation that the pilots may have been pressured to land so that the President and others would not be late for the ceremony.

Tatyana Anodina, the head of the Interstate Aviation Committee, said one of the non-crew members in the cockpit had been identified, but aviation rules prevent her from naming that person or what was found on the CVR. However, the Polish News Agency PAP identified one of the voices as General Andrzij Blasik, the head of Poland's Air Force. "As for the influence on the decision making of the crew, this should be investigated," Anodina said. "This is important for the investigation and for establishing the cause" of the crash.

Shortly before the accident occurred, a Russian airliner reportedly missed two approaches to the airport and diverted to an alternate. The crew was informed about 4 minutes before the crash that visibility had dropped to 650 feet in heavy fog.

Investigators also said they were looking into the possibility of a cell phone being used while the aircraft was in flight. What is still not known is why the crew ignored ground proximity warnings before the airplane struck trees short of the runway before impacting the ground.

FMI: www.mak.ru/english/english.html

FAA Proposes $1.55 Million Civil Penalty Against FedEx

The Federal Aviation Administration (FAA) has proposed a $1.55 million civil penalty against Federal Express for allegedly failing to revise its Continuous Airworthiness Maintenance Program in accordance with FAA regulations.

FedEx allegedly failed to ensure that the air carrier used approved standards, inspections, and time limitations for 14 cargo Unit Load Devices (ULDs) used on the company's airplanes beginning in early 2008. The civil penalty addresses 124 flights from March 20 to April 17, 2008. Aircraft ULDs are sophisticated containers with integral pallets that are used to load.

"When it comes to maintenance, it's unacceptable for any air carrier not to meet the FAA's standards," said FAA Administrator Randy Babbitt.

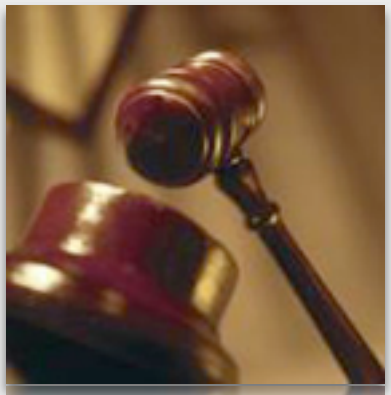
During a routine surveillance from March 14-20, 2008, FAA inspectors determined that FedEx had failed to incorporate Technical Standard Orders (TSOs) into its Continued Airworthiness Maintenance Program for 14 cargo ULDs. The TSOs contain specific maintenance instructions for the ULD smoke detector, power distribution feed, and batteries. FedEx could not ensure that it used approved maintenance standards for the 14 newly installed ULDs because the company failed to make the necessary revisions to its program for overhauling and inspecting the devices.

On March 20, 2008, FedEx was notified of the problem by FAA but did not make the necessary revisions to its Continuous Airworthiness Maintenance Program until April 17, 2008.

Concorde crash trial: Continental Airlines to make final plea

US airline will argue it had no responsibility for July 2000 crash near Paris

Continental Airlines will make a final attempt on Friday to convince a French court it played no role in the Concorde crash, as a four-month trial aimed at apportioning blame for the July 2000 disaster wraps up near Paris.



Olivier Metzner, the US airline's lawyer, will take the stand to reiterate the argument that his client bore no responsibility for the Air France crash, which killed 113 people and put an end to the era of commercial supersonic flight.

He will seek to counter the pleas of prosecutors, who last week said that Continental should pay a €175,000 (£148,000) fine and two of the company's American employees should be given 18-month suspended jail sentences.

Prosecutors also requested a two-year suspended sentence for Henri Perrier, the engineer known as the "father" of Concorde who is accused of ignoring a string of warning signs which could allegedly have averted catastrophe if addressed.

At the heart of the trial, which has called dozens of witnesses and experts and cost an estimated €3m, is the precise chain of events which led to the Air France jet plunging into a motel north-east of Paris just minutes after takeoff from Charles de Gaulle airport.

Prosecutors at the court in Pontoise, north-west of the capital, argue the New York-bound plane was brought down by a strip of metal which had fallen off a Continental aircraft on to the runway and burst a tire on the Concorde, sending debris into the fuel tank and causing a fire. A French inquiry said the piece of metal was partly to blame for the disaster.

However Metzner has sought to demonstrate that the Concorde was already on fire before it hit the titanium strip and therefore Continental was not to blame. He has denied charges by prosecutors that the US DC-10 aircraft was suffering from "defective overall maintenance".

Despite urging the charges to be dropped against two defendants, a former French civil aviation official and a former Concorde engineer, prosecutors have insisted that two others must be found guilty of involuntary manslaughter.

In an emotional hearing on Wednesday, lawyers for 80-year-old Perrier, director of the Concorde programme at Aérospatiale, now part of EADS, from 1978 to 1994, begged for their client to be let off.

"An aeroplane is man-made; you can never guarantee it is not going to go down," said Christian Buffat.

The former Concorde test pilot André Turcat also spoke in Perrier's defence. "It is obvious that he is not responsible. It is absolutely clear that the accident was unforeseeable and unlikely."

A verdict in the trial is not expected before the end of the year.

Airline Mishaps Raise Concern

As Air Safety Officials Hold Hearings on Pilot Discipline, Two Risky Events Emerge. An American Eagle turbo-prop in Miami; A pilot for the airline recently didn't start an engine before getting ready to take off. No accident occurred.

Pilots for two U.S. commuter airlines in the past few months failed to start up the second engine on their jets before getting ready to take off, according to safety experts. The unusual incidents are prompting concern among federal aviation regulators and industry officials.

The events, which haven't been reported before, ended safely with both regional jets turning off the runway without gaining speed or flying.

But the cockpit lapses raise new questions about the professionalism of some crews flying for commuter carriers, even as the National Transportation Safety Board on Wednesday continued its public sessions about how to enhance the focus and discipline of airline pilots.

A parade of industry safety officials told the safety board that airlines need to step up training and other efforts to prevent pilot distractions that can result in dangerous errors. "We have to set a standard that we expect our pilots to perform better each and every year," said Brian Ward, a senior safety official for FedEx Express.

Pilots often taxi airliners using only one engine as a way to save fuel. Written and verbal checklists, however, are supposed to ensure that both engines are operating prior to turning the aircraft onto the active runway, advancing the throttles and starting to accelerate.

Despite distractions, pilots also are trained to keep close track of cockpit instruments to ensure that both engines are on and working properly.

In these cases, traditional safeguards broke down and safety experts from the Federal Aviation Administration and the airlines have looked at how the pilots could have been oblivious to their mistakes until just before the jets were getting ready to roll toward liftoff.

The first mix-up involved an American Eagle Embraer jet preparing to depart Los Angeles International Airport for San Diego last November, according to government and industry officials.

The first officer apparently became distracted by conversations with air-traffic controllers while trying to start the second engine, prompting the crew to mistakenly believe the engine was running.

After receiving a cockpit warning about the second engine's failure to rev up, the crew taxied back to the gate. But the pilots still thought they had a malfunctioning engine, according to these officials, until mechanics showed them the engine had never been started.

The pilots received additional training and testing, and American Eagle revised its takeoff checklist for Embrarer jets to prevent a repeat of the mistake. A spokeswoman for American Eagle, said the incident was voluntarily reported by the pilots and "the FAA did allow us to handle this matter internally."

The second incident occurred at Dulles International Airport in early March, and involved a different Embraer twin-engine jet operated by Trans States Airlines. According to people familiar with the details, the crew forgot to start the second engine and didn't realize it until the jet was lined up for takeoff and the throttles were advanced.

On Wednesday, a spokesman for Trans States, which flies under United Airlines and USAirways colors, said the airline and FAA officials are still investigating what happened.

An FAA spokeswoman said pre-flight checklists are critical safety tools, and "it is important that flight crews don't become distracted."

Concerns about the engine blunders come at a time when pilot professionalism-- particularly among crews flying for commuter carriers -- already is under a public microscope. The safety board is advocating, among other things, voluntary programs to get pilots and controllers to take greater responsibility by establishing self-regulating standards of conduct. "Challenges of human error will never be remedied by any traditional training or safety program" overseen by regulators, Tony Kern, a consultant on human factors, told the board Tuesday. "The gods of technology won't solve this [problem] for us."

FAA Issues SAIB For 'Loose Items' In The Cockpit

Items Placed On Glare Shield Of Particular Interest

An event aboard a Mitsubishi MU-2B has prompted the FAA to issue a Special Airworthiness Information Bulletin (SAIB) concerning the potential hazards and airworthiness concerns related to having loose equipment in flight compartment; particularly items placed on the glare shield. It applies to all aircraft that have a glare shield installed above the instrument panel, and is of particular concern to aircraft with windshield heating systems where the power terminal strips may be exposed and subject to an electrical short from a foreign object placed on the glare shield.

During recent flight, thick black smoke filled the cockpit of a Mitsubishi MU-2B, and the crew was forced to make an emergency landing. It was discovered that a hand-held GPS receiver and antenna had been set on the glare shield. A metallic portion of the GPS antenna inadvertently made contact across the windshield heater terminal strips, resulting in an electrical short circuit. The resulting current flow caused the loose equipment to burn, resulting in smoke in the cockpit.

The FAA says that loose equipment on the glare shield or in the cockpit can present a hazard, particularly for aircraft with a windshield heater system installed where electrical terminal strips may be exposed and subject to short circuit. Owners and operators should recognize the potential for exposed terminal strips to be attached to high current windshield heating systems and refrain from placing any loose items on the glare shield that might cause an electrical short and subsequent electrical fire. If possible, these terminal strips should also be insulated or covered to mitigate such an occurrence.

The FAA also reminds owners and operators that loose or portable equipment on the glare shield can obscure the field of view of the crew, can potentially influence the magnetic compass accuracy, and can become a

hazard in turbulence. Loose or portable items and equipment should be properly secured prior to and during the flight, portable or loose equipment should be isolated from other equipment installed, and the magnetic compass should be checked to assure it is not being affected by any magnetic or electrical influence from portable or loose equipment.

Maintenance Training By The Numbers

In 2009, AMTs taking part in the FAA Safety Team's online program completed 201,404 total training hours. The numbers break out as followings: + 4,332 AMTs completed at least 12 hours of training, for a total of 51,984 hours

+ 3,438 AMTs completed a minimum of 40 hours, for a total of 137,520 hours

+ 119 AMTs earned a Diamond Award by completing a minimum of 80 hours plus a college-level course (approximately 100 hours per AMT) for a total of 11,900 hours

Of this total, 7,889 hours were on the number-one cause of accidents where maintenance is involved: FAILURE TO FOLLOW PROCEDURES.

FAAST Blast

Notice Number: NOTC2295

On May 13, 2010, FAA, Lockheed Martin personnel, and representatives general aviation groups met to exchange ideas on how to improve Flight Service at the Flight Service Safety Summit at FAA headquarters. "It was a great session with lots of outstanding feedback and insight on the services we provide across the NAS," reports Dennis Roberts, FAA's Director of Flight Service

Operations. The summit highlights just how vital this service is to GA pilots and how hard FAA is working to ensure its quality. The summit's goal was to raise awareness for the specialists about how significant their job is to enhancing GA safety. "We need to recognize that Flight Service is not a 'call center,'" Roberts adds. "Pilots are making life-or-death decisions based on the information provided by our briefers." About the summit, Heidi Williams, AOPA Senior Director of Airspace and Modernization, said, "AOPA continues to look for opportunities to provide input to both the FAA and Lockheed Martin to enhance the level of service and safety culture that exists with FSS today." Roberts summed up, "Simply giving normal services isn't sufficient. If we are to effectively lower the GA accident rate, especially for accidents caused by weather issues, we must give extraordinary services."

Picture This!

Flying boats are usually the stuff of old James Bond movies, but if they aren't properly tied down while being towed, they are certainly capable of flying through the air. Fortunately, in this case the boat only flew into the back of the vehicle towing it, but the outcome could easily have been catastrophic had the boat flown into traffic.

(see next page)