

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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Report: CIAIAC publishes final report on fatal MD-82 takeoff accident Madrid, Spain

After almost three years the Spanish investigators of the Commission de Investigation de Accidents e Incidents de Aviacion Civil (CIAIAC) have published the final report of their investigation into the cause of the fatal accident involving a Spanair MD-82 at Madrid, Spain. The MD-82 passenger plane, registered EC-HFP, was destroyed when it crashed on takeoff at Madrid-Barajas Airport (MAD), Spain on August 20, 2008. Of the aircraft's occupants, 154 were killed, including all six crew members, and 18 were seriously injured. The MD-82 aircraft operated Spanair flight JKK5022 from Madrid-Barajas (MAD) to Gran Canaria (LPA).



The CIAIAC has determined that the accident occurred because *): The crew lost control of the aircraft as a result of a stall immediately after takeoff, when the **plane was not configured correctly, with the flaps / slats not being deployed**, following a series of failures and omissions, with the **absence of a warning** of the incorrect takeoff setting.

The crew did not identify the lack of warnings nor correct the situation after takeoff -momentarily retarding engine power levers, increasing the pitch angle and failure to correct the roll- deteriorating the flight conditions.

The crew did not detect the configuration error by **not properly using the checklists** containing items to select and check the position of flaps / slats in the work of flight preparation, namely:

- Failure to conduct the action of selecting flaps / slats (in the "After Start Checklist");
- No cross-checking was made of the position of the lever and the status indicator lights for flaps and slats during the "After Start" checklist;
- Omission to check the flaps and slats under "Take Off Briefing" in the taxi checklist;
- The visual inspection of the position of the flaps and slats at the point "Final Items" of the "Take Off Imminent" checks was not made, as shown by the instruments of the cockpit.

As contributory factors CIAIAC determined:

- The absence of a notice of the incorrect takeoff configuration because the TOWS did not work and therefore did not alert the crew that the takeoff configuration of the aircraft was inappropriate. It **was not possible to determine** conclusively the cause why the TOWS system did not work.
- **Inadequate crew resource management** (CRM), which did not prevent the diversion of procedures in the preparation of the flight.

*) The final report is currently available in Spanish. An English translation is being prepared by CIAIAC. In case of conflicting text, the Spanish text is valid.

More information:

- [ASN Accident description](#)
- [CIAIAC Report A-032/2008](#)

New Zealand engineer dies after being sucked into plane engine during test cell run

In a freak accident, a 51-year-old aircraft engineer was killed on August 8 when **he was sucked into a plane engine** as he was carrying out routine maintenance work at a New Zealand airport.

The incident occurred early this morning when Miles Hunter, an engineer with SAFE Air, a subsidiary of Air New Zealand, was performing routine testing at Woodbourne Airport, near Blenheim on New Zealand's south island.



Hunter had reportedly entered the testing enclosure while the engine, a Rolls Royce T56 Turbo Prop, was running, according to TVNZ.

A former employee said the engine was not fitted to an aircraft when Hunter was killed.

He said SAFE Air tested Hercules engines on a frame in a remote corner of the airport once they had been serviced.

The body of Hunter was recovered after the engine was dismantled at the Air Force hangar, media report said.

Police and the Department of Labour are investigating the death.

Disgruntled mechanic stole \$500,000 in equipment from US Airways

A disgruntled former US Airways mechanic [will spend two years in jail](#) on charges that he stole more than a half-million dollars' worth of equipment from the airline, the [Pittsburgh Tribune-Review](#) reports. The Pittsburgh-area man apparently resold at least some of that equipment on eBay, making more than \$350,000, according to eBay records cited by prosecutors.

On Nov. 13, 2009, police from Center Township, Allegheny and Beaver counties, and US Airways security raided (the man's) home and recovered a large hydraulic jack, wheels and pressure gauges, and two 6-foot-long torque wrenches.

Other missing items included 43 headsets, airplane landing lights and seat belts. Prosecutors said (the man) took the equipment between 2004 and 2009 while he worked for US Airways.

The man had worked as a mechanic for US Airways for 30 years. He had no prior criminal record, but the Times says he told investigators he began stealing from the airline [after he had been demoted and because his pay and retirement benefits had been cut](#).

A federal judge sentenced the man to two years in prison, three years of probation and ordered him to pay US Airways \$586,000 in restitution.



Bogus air engineer loses assets

A Norfolk conman has been stripped of his criminal profits after raking in nearly £250,000 by [pretending to be a qualified aircraft engineer](#). Mohammed Balluza, 54, landed highly paid jobs in the aviation maintenance industry overseas based on forged Civil Aviation Authority (CAA) documents.



The convincing forgeries enabled him to service, maintain and certify release-for-service documents for heavy passenger jet airliners.

But his fraud unravelled when a Sussex-based specialist aviation recruitment agency received Balluza's application for a job and became suspicious about his documents. Officials alerted the CAA and they contacted detectives at Sussex Police.

In September last year at Brighton Crown Court, Balluza, of Mill Road, Briston, Norfolk, was found guilty of four counts of fraud and sentenced to 22 months on each count, to run concurrently.

On Friday at Hove Crown Court, Balluza was ordered to release £130,000 from assets held in his and his wife's name following an inquiry under the Proceeds of Crime Act by police financial investigators.

After the case, Detective Inspector Chris Neilson, of Sussex Police's Economic Crime Unit, said: "Having gained employment on the basis of the fraudulent documents, all the money Mr Balluza had earned since 2004 were criminal gain. None of his work abroad would ever have taken place without the forged licence.

"However, as a result of close co-operation between our detectives at Crawley, the CAA [and FAA](#), and aviation companies, he will no longer be able to work on passenger aircraft without the relevant authority, here or abroad. We have now been able to ensure that his criminal profits will be ploughed back into legitimate society, through grants to local worthwhile charitable projects and into support for further financial investigation."

Investigators said their involvement stemmed from his application to the Sussex-based aviation recruitment agency, not because he had been working illegally in the UK.

When officers searched Balluza's home in July 2008, piles of technical documents were seized, including forged certificates of qualification.

At the time of his arrest he was working for a Dutch company [involved in the routine maintenance of large passenger aircraft](#), for which he required a genuine CAA licence.

OSHA to Probe Death of Airport Worker

OSHA inspectors will arrive at Hartsfield-Jackson International Airport later Wednesday hoping to determine why an airport contractor died. For three hours last Tuesday, the contractor was [trapped under a hydraulic fork lift](#) in the airport's north cargo facility. Crews worked feverishly to free the worker but their efforts weren't enough to save the man. Airport officials say he died as a result of his injuries.



A medical helicopter was standing by at the scene as Atlanta police and fire rescue crews worked to free the man. Officials said he was extricated, but did not survive his injuries.

Many rescuers who helped with the efforts were very distraught. Authorities say counselors were called in to assist those who had significant trouble dealing with the situation.

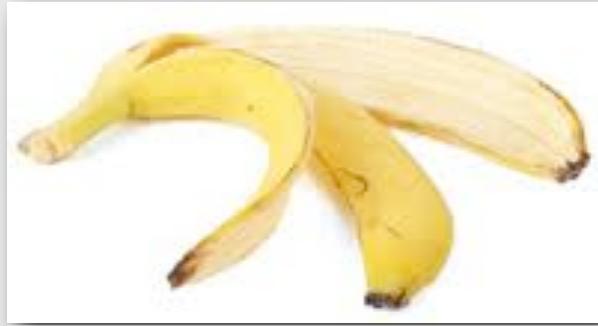
The victim has not been identified. It's not clear how he got under the lift. http://www.myfoxatlanta.com/dpp/news/local_news/OSHA-to-Probe-Death-of-Airport-Worker-20110803-am-sd

NORMALIZATION OF DEVIANCE

When Shortcuts Become the Norm

Most workplaces require workers to follow a series of pre-defined steps when performing certain tasks.

From time to time, workers may stray from the established procedures and take shortcuts. Unless there are negative consequences, the shortcuts get repeated until they eventually become the “norm.” This situation, known as the “[Normalization of Deviance](#),” is a safety hazard you must stop. Here’s why and how.



The Normalization of Deviance Creeps Up On You

Initially, the deviation by workers from set standards is incremental, [barely noticed](#), and is therefore easily accepted. In most cases, we only become aware of “Normalization of Deviance” when an incident results.

To demonstrate this phenomenon, let’s use a Lockout/Tagout (LOTO) procedure for above 750 Volts electrical energy as an example.

General LOTO steps consist of:

- Isolating the electrical energy,
- Tagging (and locking if possible),
- Testing for potential, and
- Applying worker’s protective grounding.

I believe that well-designed procedures [allow for the human element](#). In other words, you should be able to miss a step in a well-designed procedure and one of the other steps should be the check.

In the case of the LOTO steps, in theory, if one of these steps were missed, one of the other steps would act as a check and there should be no consequence.

From Shortcut to Accepted Procedure

However, when a step is missed and there’s been no negative consequence to the shortcut, it’s now possible that some workers – and supervisors – actually view missing the step as a positive. Perhaps missing the step allows a worker to save time or maybe the sub-standard procedure requires fewer tools or fewer people. If this is the case, it’s very likely that the same shortcut will be repeated, particularly in a pressure situation.

By repeatedly missing the step, the [shortcut gains credibility](#) and the outcome supports the experience. Over time, this leads to a belief that this behavior is now the “norm” or acceptable standard. In most cases, the result is positive.

The Slippery Slope of Shortcuts

However, in the worker’s mind, what was once a four-step procedure has now become a three-step procedure. The margin for [human error](#) has now increased,

since one of the steps/checks has been removed from the procedure, adding to risk of incident.

Now what happens if this same worker is mentoring or training an apprentice or inexperienced worker? He's now teaching a three-step instead of a four-step procedure, again increasing the risk of incident.

Let's take another example: Speeding. Most of us do not consistently go 20 miles an hour (32 kilometres an hour) over the speed limit in one fell swoop. We start by going three or five MPH (8 kilometres an hour) over the limit, as this seems to be an acceptable speed based on the other drivers around us who have already become "normalized". For many of us the speed slowly creeps upwards.

Eventually the consequences catch up, leading to an incident (collision, speeding ticket) and then we revert back to the standard.

Conclusion

When we look at the regulations, standards or procedures, we realize that most were "written in blood" or designed as a result of a loss. Complying with those standards is the best way to avoid "Normalization of Deviance."

CHIRP for Aviation = Confidential Human Factors Incident Reporting Program

The aim of CHIRP is to contribute to the enhancement of aviation and maritime safety in the UK, by providing a totally independent confidential (not anonymous) reporting system for all individuals employed in or associated with these industries.



LACK OF MANPOWER AND TRAINING

Report Text: I work for an organization that carries out base maintenance that had recently gone through a rapid major expansion. This is good as more opportunities and jobs are created.

However, due to the rate of expansion we are left with a situation that manpower levels are **dangerously low** on maintenance checks with little or no supervision.

There is a considerable amount of stress and pressure put on the engineers and supervisors to get the aircraft out on time by the management, who after numerous warnings has not done anything about the situation.

New staff is being employed but they have little or no experience on the type of aircraft. Some of the new staff have not even completed a basic induction or a familiarization course. Due to the shortages **they are let loose** on the aircraft as soon as they are employed, with no guidance given.

We have enquired about setting up a familiarization course as part of the induction process but has been told that due to lack of manpower it's not possible.

The quality of work has suffered as a result and the overall morale at work is really low, not helped by other on-going industrial issues. The situation had become difficult but now was only going to get worse.

Lessons learned: I guess with aviation you just have to wait for a disaster to take place to make any changes. These issues have been raised with management but nothing has been done so far.

CHIRP Comment: The reporter's concerns were represented to CAA (Safety Regulation Group) and also discussed by the CHIRP Air Transport Advisory Board (ATAB). The ATAB concluded that in a situation such as that described, there was a **management responsibility to conduct a risk assessment** to ensure that the rate of increase in capacity aligned with the availability/hiring of appropriately qualified staff to ensure that the required regulatory standards could be maintained.

An initial review by the CAA revealed that the organization's hangar capacity had been increased by approximately 40% over a short period of time to cater for new maintenance contracts, which were being undertaken. However, the management's man/hour plan **did not appear to match** the planned increase in workload. The CAA elected to carry out a more detailed investigation to ensure that the available manning and individuals' experience on type and competence satisfied the requirements for the organization's Part 145 approval, and **to monitor** this on an ongoing basis.

EASA Begins the Process of Implementing SMS Rules

The European Aviation Safety Agency (EASA) [has formally begun](#) the process of implementing Safety Management System (SMS) regulations.

EASA issued the Terms of Reference (TOR) for task number MDM.055 on July 18, 2011.

This task anticipates the creation of adequate rules and guidance material to permit EASA to implement a set of SMS rules. The Terms of Reference do not specifically explain to whom the SMS rules created under this project would apply – they merely mention some of the parties to whom ICAO has recommended apply it. This is a more important omission than some people may understand, and it provides EASA with the ability to [dynamically change the scope of application as necessary](#) during the course of the rulemaking project without amending the TOR. Under current ICAO recommendations, SMS should apply to air carriers, repair stations, manufacturers and airports. In the United States, the FAA made the decision to [create two different SMS rules](#) – one for airports, and then a second one for air carriers that is intended to be later applied to repair stations and manufacturers.



EASA has said that it is amending COMMISSION REGULATION (EC) No 2042/2003 of 20 November 2003. This regulation applies to design and production organizations as well as maintenance organizations (but not to air carriers). EASA is clearly leaving itself open to any reasonable implementation strategy.

[EASA has established its own goals for the task group, as follows:](#)

- * Review the rules and AMC to clearly distinguish between essential safety elements and non-essential implementation aspects; rebalance as necessary (implementing rule to AMC or AMC to implementing rule).
- * Adopt the provisions on processing alternative means of compliance, as proposed with Part-AR and Part-OR (AR.120/OR.120), to enhance transparency and support standardisation.
- * Evaluate the possibility for persons to apply for the approval of such alternative means of compliance, where this is currently not foreseen in Part-AR.

* Implement in Section A the management system provisions as proposed with Part-OR to ensure compliance with the relevant ICAO standards on SMS. SMS elements shall be fully integrated with the organisations' management system.

* As part of SMS implementation review and further develop as appropriate provisions addressing human factors, in particular to provide further guidance on how approved maintenance organisations should take into account human performance limitations, such as maintenance engineer fatigue⁵.

* Improve consistency in organisation approvals and review the concept of small/large organisation to align with the approach proposed with Part-OR (complex/non-complex organisation, where size is not the only criterion to be considered).

* Implement in Section B relevant provisions linked with the implementation of an SSP in the framework of the European Aviation Safety Programme (EASP), based on the proposal made with Part-AR.

This SMS project will be worked internally within EASA, although EASA has reserved to itself the right to call informal meetings with industry or National Aviation Authorities for additional feedback. This internal project mechanism is consistent with the process recently used by Japan to create its SMS rules for repair stations (they offered the proposed rules for notice and comment but did not otherwise seek input from the international community). It is different from the FAA's approach in the United States ... the FAA formed an Aviation Rulemaking Committee (ARC) made up of industry and FAA and took advice from the ARC on how to formulate the air carrier SMS rules.

EASA has a very aggressive timetable set for the SMS project. They expect to issue a Notice of Proposed Amendment (NPA) to seek public comment in the second quarter of 2012.