**AF447 and Germanwings investigations – What difference do or did they make?**

**by Philippe Plantin de Hugues and Arnaud Desjardin (BEA)**

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1. **Lessons learned from the AF447 investigation (by Philippe Plantin de Hugues)**

The Air France Flight 447[[1]](#footnote-1) accident highlighted difficulties that have hindered the timely localization and subsequent recovery of the wreckage and flight recorders. The BEA set up an international working group, chaired by myself and Arnaud Desjardin, to define the best solutions to ensure that nobody would ever have to face what we faced with AF447 sea search. In the BEA investigation reports, based on the results of the work of our international work, we proposed safety recommendations specifically on new requirements for underwater locator devices (ULDs), attached to flight recorders. We convinced the international working group to conduct a cost-benefit analysis as well as an analysis of all potential solutions to locate wreckage under water, in order to facilitate the application of our work by ICAO. It took a few months after the issuance of the safety recommendations to ensure that the ICAO FLIREC-P (Flight Recorder Panel) was designated to develop proposed amendments to Annex 6 for the installation of low-frequency 8.8 kHz ULDs. It was also proposed to extend the duration of ULD’s battery life from 30 to 90 days. My impression was that ICAO was very reactive on this matter, because the AF447 event was fresh in the mind of the Air Navigation Commissioners and the wreckage had, at that time, still not been found, in addition to the fact that the extension of battery life of ULDs was a low cost solution.

The recommendations on ULDs were implemented quickly by ICAO, leading to new carriage requirements becoming applicable on 1 January 2018. I, as chairman of the ICAO FLIREC, then conducted a survey on the implementation of the 8.8 kHz ULD Standard in worldwide national regulations. As of today, 37 countries have modified their local regulations. Among these, 32 are European. The other Regulations that have included these new provisions are coming from Thailand, United Arab Emirates, China Hong Kong Special Administrative Region, China Macao Special Administrative Region, and the Republic of the Philippines. Development of national regulations is under way in other parts of the world.

The acceptance of the other more complex recommendations relating to position reporting, localization of an aircraft in distress and timely flight data recovery took longer and they were rejected a first time in 2012 and a second time in 2013 by the ICAO Air Navigation Commission (ANC). This, despite the fact that Arnaud and I wrote safety recommendations, in the framework of the AF447 investigation, based on the results of the work of the international Triggered Transmission of Flight Data Working Group (TTFD), which had more than 100 members. We created this working group to assess the technical feasibility of triggering in-flight transmission of data based on indication of an emergency in order to help locate wreckage after accidents of fixed-wing aircraft over maritime or remote areas. We pursued this concept of detection of a distress situation despite some people explaining that it would not work, that detection would not occur with sufficient time before impact… It is true that the concept was more complex than the ULD issue. In order to ease the work of the ANC, we provided performance-based values (4 NM and 1 minute). The long term objective was also the certification of the means of compliance with the SARPs. Despite all these efforts the FLIRECP proposals for Distress tracking (ELT-DT) were rejected twice by the ANC. My perception at that time was that several members of the ANC were of the view that the disappearance of one aircraft was a unique case and because the wreckage was found, it was not a top priority anymore to get new amendments regarding the location of an aircraft in distress. The chart below illustrates the ICAO process on the two issues: ULDs and location of an aircraft in distress when using Autonomous Distress Tracking (ADT).



It was after the loss of MH370 that the ICAO ANC agreed on a new modified proposal from the FLIRECP on establishing new international provisions on location of an aircraft in distress and recovery of flight recorder data.

In response to a number of safety recommendations, including the ones from the BEA on the AF447 accident, EASA proposed, in Notice of Proposed Amendment (NPA) 2013-26, changes to the requirements for flight recorders and to mandate a long-range/low frequency underwater locater device (ULD) for certain aircraft in order to improve the possibility to locate a missing aircraft. This NPA was issued three months prior to the accident of MH370. This disappearance contributed to fast-track the preparation of EASA Opinion 01/2014 of 6 May 2014, which led to Commission Regulation (EU) 2015/2338 of 11 December 2015 establishing requirements for flight recorders, underwater locating devices and aircraft tracking systems.

1. **Lessons learned from the investigation into the Germanwings accident (by Arnaud Desjardin)**

The BEA investigation into the Germanwings accident in the French Alps in March 2015 was completed in March 2016. The BEA’s Final Report concluded that the process for medical certification of pilots, in particular self-reporting in case of decrease in medical fitness between two periodic medical evaluations, did not succeed in preventing the co-pilot, who was experiencing mental disorder, from exercising the privilege of his license. The following factors may have contributed to the failure of this principle:

* the co-pilot’s probable fear of losing his right to fly as a professional pilot if he had reported his decrease in medical fitness to an aeromedical examiner;
* the potential financial consequences generated by the lack of specific insurance covering the risks of loss of income in case of unfitness to fly;
* the lack of clear guidelines in German regulations on when a threat to public safety outweighs the requirements of medical confidentiality.

The BEA issued safety recommendations addressed to the World Health Organization (WHO), the International Air Transport Association (IATA) and European authorities/bodies in order to:

* define rules to require health care providers to inform appropriate authorities when a patient’s health is very likely to impact public safety, while still protecting patients private data from unnecessary disclosure
* define modalities under which EU regulations would allow pilots to be declared fit to fly while taking antidepressant medication;
* encourage operators to implement measures to mitigate the socio-economic risks related to pilot’s loss of license for medical reasons

Annex 13 to the Convention on International Civil Aviation, standard 6.10 and Regulation (EU) No 996/2010, articles 17 and 18, contain the requirements for the communication of safety recommendations, by a safety investigation authority, to the organization concerned. Those provisions require an addressee receiving a safety recommendation to respond within 90 days, informing the issuing authority of the actions taken or under consideration, where appropriate the time necessary for their completion, and where no action is taken the reason therefor. Regulation (EU) No 996/2010 also requires that within 60 days of the receipt of the reply, the safety investigation authority inform the addressee whether or not it considers the reply adequate and give justification when it disagrees with the decision to take no action.

Out of the eleven safety recommendations issued for the Germanwings accident, the BEA received a formal response for eight of them, as of June 2017. Among those eight responses, five were considered by the BEA as adequate. The safety recommendations without any response or with a response not assessed as adequate by the BEA include the following:

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| **BEA Safety recommendation FRAN-2016-019 issued on 15 March 2016** |
| Without waiting for action at EU level, the **BMVI**[[2]](#footnote-2) and the **Bundesärztekammer** (BÄK) edit guidelines for all German health care providers to:* remind them of the possibility of breaching medical confidentiality and reporting to the LBA or another appropriate authority if the health of a commercial pilot presents a potential public safety risk.
* define what can be considered as “imminent danger” and “threat to public safety” when dealing with pilots’ health issues
* limit the legal consequence for health care providers breaching medical confidentiality in good faith to lessen or prevent a threat to public safety
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| ***Summary of the response sent by the BMVI on 13 June 2016*** |
| “Immediately after the publication of the report, the BMVI had contacted the Federal Ministry of Health (BMG) as the competent authority for medical issues. Thereupon, the BMG invited us to participate in talks on this issue which was held in Berlin on 27 April 2016 and which were also attended by the representatives from the German Medical Association (…). It is important to note, that it is in principle possible under German criminal law to justify a breach of confidentiality to protect higher-ranking legal assets (…). The German medical Association promised to discuss with the competent bodies the revision of the recommendations concerning medical secrecy, data protection and data processing in medical practice which it had published together with the National Association of Statutory Health Insurance Physicians in order to provide clarity to doctors on the legal situation. (…)The BMVI will, in coordination with the BMG, monitor the work of the German Medical Association and, moreover, participate in the relevant work at European level.The BMVI and the German Medical Association will inform you about the progress achieved in the course of the revision of the safety recommendations. (…)” |
| ***BEA’s assessment of the response sent on 13 July 2016*** |
| The BEA notes that the BMVI has engaged discussion with the BMG and the BAK, and also indirectly with the National Association of Statutory Health Insurance Physicians. (…).However, the BEA understands that no decision has been taken yet to edit guidelines for all German health care providers.Consequently, the BEA **delays its assessment** until further details can be provided about the progress of the action taken or under consideration or, if no action is taken, the reasons therefor. |

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| **BEA Safety recommendation FRAN-2016-018 issued on 15 March 2016** |
| The **European Commission** in coordination with EU Member States define clear rules to require health care providers to inform the appropriate authorities when a specific patient’s health is very likely to impact publicsafety, including when the patient refuses to consent, without legal risk to the health care provider, while still protecting patients’ private data from unnecessary disclosure. These rules should take into account the specificities of pilots, for whom the risk of losing their medical certificate, being not only a financial matter but also a matter related to their passion for flying, may deter them from seeking appropriate health care |
| ***Summary of the response sent by the European Commission on 13 June 2016*** |
| “(…) The Commission agrees that the recommendation must involve the Member States because the confidentiality of medical data is regulated by national rules. It is important to note that, on 7 December 2015 the Commission adopted a new Aviation Strategy. It included a proposal for a revision of the EUs aviation safety rules (Regulation (EC) No 216/2008). We would like to highlight that this proposal addresses the issue of aeromedical data (…). Paragraph 2 of Article 63 states that: "*The national competent authorities, aeromedical examiners and aeromedical centres shall also exchange through the repository information concerning medical fitness of pilots*." (…) and we would like to highlight that Paragraph 4 contains the following proposal: "*Member States and the Agency shall ensure that data subjects whose personal data are processed in the repository are informed, ex ante, thereof*".With the above context, the intent is that the proposal aims to inform the patient about the process but not to seek their agreement. Paragraph 7 contains provisions to protect the information included in the repository from unnecessary disclosure. Therefore, we consider that this approach answers the intent of this safety recommendation (…)” |
| ***BEA’s assessment of the response sent on 13 July 2016*** |
| The BEA considers the European Commission response as **not adequate**. (…)The proposed revision of Regulation (EC) No 216/2008 does not apply to general/private healthcare providers outside of the field of aeromedical certification of pilot fitness. Therefore, without clear guidelines at the EU level on the balance between medical confidentiality and public safety, it is likely that private physicians in the EU would still be challenged in their decision process when they become aware that the a pilot, who they see as their patient, is very likely to impact public safety. (…) |

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| **BEA Safety recommendation FRAN-2016-017 issued on 15 March 2016** |
| The **World Health Organization** develop guidelines for its Member States in order to help them define clear rules to require health care providers to inform the appropriate authorities when a specific patient’s health is very likely to impact public safety, including when the patient refuses to consent, without legal risk to the health care provider, while still protecting patients’ private data from unnecessary disclosure. |
| ***Response sent by the WHO*** |
| None.The BEA’s multiple requests for a response, including a chasing letter sent to the Director General of WHO on 20 February 2017 were all left unanswered. |
| ***BEA’s assessment of the response***  |
| N/A |

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| **BEA Safety recommendation FRAN-2016-016 issued on 15 March 2016** |
| **EASA** define the modalities under which EU regulations would allow pilots to be declared fit to fly while taking anti-depressant medication under medical supervision. |
| ***Response sent by EASA*** |
| None. |
| ***BEA’s assessment of the response***  |
| N/A |

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| **BEA Safety recommendation FRAN-2016-015 issued on 15 March 2016** |
| **IATA** encourage its Member Airlines to implement measures to mitigate the socio-economic risks related to pilots’ loss of licence for medical reasons. |
| ***Summary of the response sent by the IATA sent on 15 June 2016*** |
| “lATA and its member airlines work with all tools at their disposal to prevent any accident from occurring. With specific relation to this tragedy, IATA will undertake a review of its Safety Management System guidance to determine if any related materials might be strengthened or improved. Additionally, any recommended implementation of new best practices that may be identified, or lessons learned in the area of risk management appertaining to pilot mental disorders, will be addressed. lATA believes that loss of license insurance for pilots is a matter of labor negotiation between employers and the employees or the unions; it is frequently regulated by national labor laws. The IATA mandate and scope does not include any involvement in such matters. However, IATA proposes to recommend to its member airlines the need to inform and provide guidance to their pilots with regard to the possible effects of the loss of ability to operate as a pilot for any reason. This guidance should also include explanations of the options available to pilots seeking the best available protection from the consequences of the loss of their license for medical reasons.” |
| ***BEA’s assessment of the response sent on 13 July 2016*** |
| The BEA considers the IATA response as **partially adequate**.Although, the BEA recognises that loss of licence insurance matters may be affected by national labour laws and local social context, the BEA believes that this would not prevent IATA from having a role in promoting more proactive actions by its member airlines on these matters. |

The status of these safety recommendations show that, although most stakeholders agree with the conclusions of the BEA, little or no actual progress has been made on these topics since the release of the Final Report.

This lack of progress may be partly explained by the fact that some of the safety recommendations were addressed to international organizations outside the European Union, like WHO and IATA. The provisions of Annex 13 apply to Contracting States; so technically, international or supranational organizations might not feel compelled to abide by the provisions of Annex 13.

More importantly, the delay in implementing the BEA safety recommendations is most probably due to the fact that they deal with broad issues, which go beyond the aviation community: medical confidentiality and mental health in the workplace touch upon core values of society and have various impacts on States’ cultural background.

Medical confidentiality is a key principle in ensuring trust between doctors and patients. The fact that people are encouraged to seek advice and treatment, with the guarantee that their personal information will be kept confidential, benefits society as a whole as well as the individual. Trying to change current regulations and practices with the aim of improving air safety, might, if not established and implemented carefully, have adverse effects which negate the intended benefits. However, in the view of the BEA, these more challenging recommendations are the ones which are the most likely to really make a difference on the issues raised by the Germanwings accident. Implementing such recommendations is likely to raise objections from a number of interested parties, and requires a balanced and careful, but determined, action. One may raise the hypothesis that addressees of those more challenging recommendations have not found the energy required to overcome the foreseeable resistance to changes. Would an event similar to the Germanwings accident trigger actions, just like a second loss of an aircraft at sea did on the issue of tracking of an aircraft in distress? At least, it would probably fast-track on-going initiatives that BEA is not necessarily aware of.

1. **Conclusion**

The question raised is: how many events do we need to progress complex and challenging issues despite efforts from Accident Investigation Authorities (AIA) to ease the ICAO process and certification? Do the AIAs have sufficient representation at ICAO or enough of a voice to support the proposals for safety improvements?

One of the many reasons why aviation maintains a high level of safety is the willingness to learn important lessons from events with catastrophic consequences. It took two major fatal accidents at sea and substantial international efforts to introduce new provisions ensuring better localization of wreckage and recovery of flight recorder data. What will it take to introduce changes in the aeromedical field drawing the lessons from the Germanwings accident? Will this investigation be sufficient to make a difference or do we have to wait for another similar event to really make a difference?

1. 1 June 2009 ‐ Rio de Janeiro to Paris ‐ A330 ‐ F‐GZCP [↑](#footnote-ref-1)
2. Federal Ministry of Transport and Digital Infrastructure (Bundesministeriums für Verkehr und digitale Infrastruktur) [↑](#footnote-ref-2)