

CHIRP

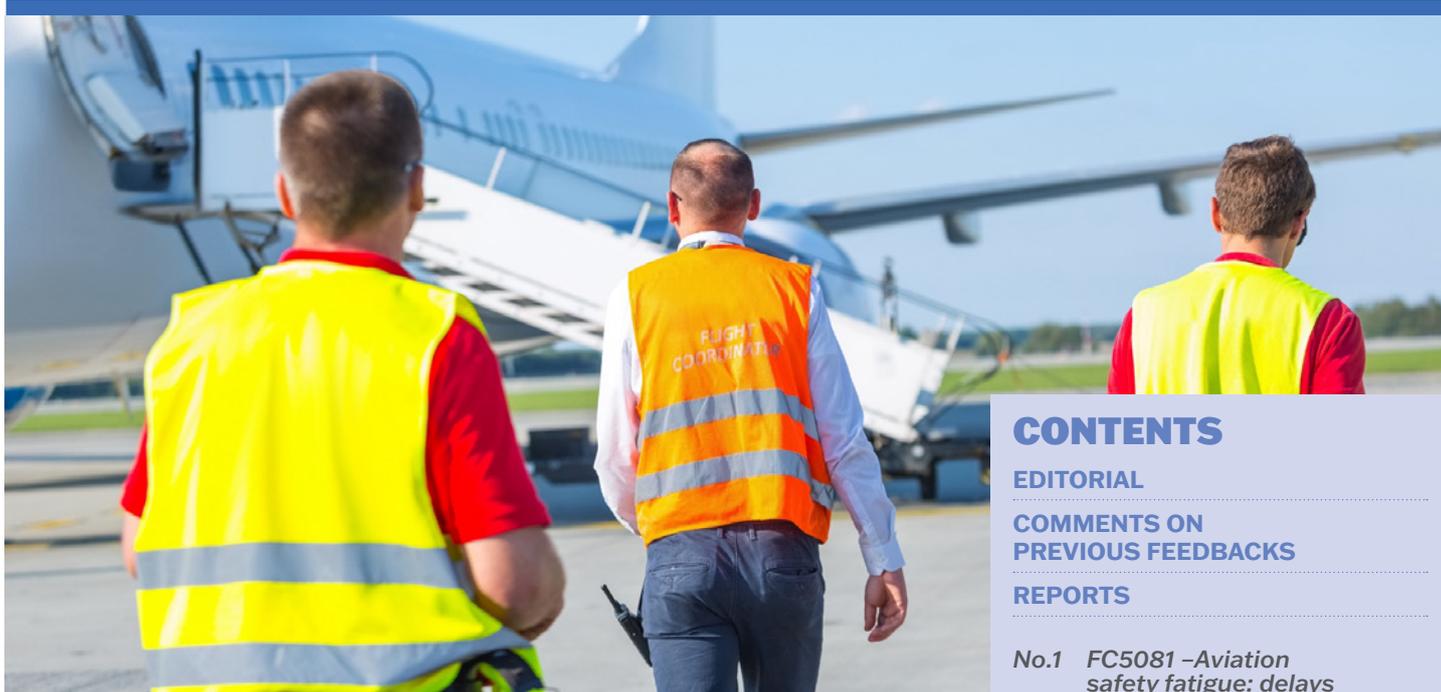
Confidential Human-Factors
Incident Reporting Programme

Aviation FEEDBACK



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AIR TRANSPORT



What went right – as well as wrong?

Getting back in the air will have its issues and good communication between management and crews is vital

There's an understandable tendency in aviation safety to focus on retrospectively fixing things that have gone wrong when what we really need to do is anticipate problems before they arise and prevent such failures in the first place. Reporting retrospectively generates reactive lessons that are known as 'lagging indicators'.

Contemporary safety management systems should also try to focus on precursor lessons (also known as 'leading indicators') from reports about the behaviours, cultures and corrective actions that are applied in routine, normal operations before an accident or incident occurs. But, in order to do so, we need healthy reporting cultures where people feel that they can report without fear and in the knowledge that concerns will be actively considered and addressed in an anticipatory manner.

In short, we also need to focus

on reporting 'what went right' when problems were dealt with during normal day-to-day activities rather than simply 'what went wrong'.

Looking at hazards, previous accidents and incidents to prevent future bad things from reoccurring is of course necessary, but learning from what people have done to prevent such deviations in the first place means that we can promote real safety management over simple risk assessment as we try to ensure that as much as possible goes right.

That requires people to report things that 'almost happened' when they don't have to, therefore highlighting safety-related issues that could draw attention to potential problems that have yet to manifest themselves. In an operator with a meaningful safety culture, such reports will constitute the majority of safety reports, with relatively



Director Aviation:
STEVE FORWARD

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few others falling within mandatory reporting requirements. An inclusive Safety Culture requires this continuum of reporting, not just a focus on the failures.

All very interesting I hear you say but, so what? As we emerge from the pandemic, we must not lose sight of 'what went right' in our responses over the last few months as well as 'what went wrong'.

It's tempting to be lazy and opine that "not much went right" but that would belie the significant achievements made by all those who were battling against a previously unexpected phenomenon in very uncertain circumstances. Those lessons need to be documented for the future so that we don't begin the next crisis from a standing start. But we can also all look ahead as the aviation world wakes up again and try to identify 'leading indicators' that might serve to highlight things that could be about to become a problem.

What went right when resolving problems during your last sector, engineering activity, controlling period, ground handling task etc? How can you make sure that those lessons are brought into yours and others' routines? Are there things that others would benefit from knowing about when you 'saved the day' that one time over the Atlantic?

One such leading indicator is the reports of fatigue/FTL/FRM that we're beginning to receive at CHIRP. Although it's a little too early to form any conclusive pattern, we can expand our horizons to look at other industries and learn from them.

The hospitality sector is suffering from lack of staff (as my son tells me as he works 60+hr weeks to cover the gaps), HGV drivers are perilously few and overstretched, and some airlines will soon be trying to fill full schedules with fewer crews than they had before because of lay-offs/furlough during COVID-19. Crewing departments will be working to maximise their resources and that's when mistakes can creep in.

There's a report in this edition of FEEDBACK where a pilot was rostered to exceed FTL limitations but, fortunately, noticed the error and it was resolved before it became an issue. We all need to be super-aware that, as aviation gears-up again, everything needs to be checked thoroughly, be they route briefs, NOTAMs, rosters, tech logs or fuel loads etc.

There are many new faces in the supporting roles of aviation, some of whom are pretty inexperienced and may not fully understand all the nuances of what they're producing; cut them some slack if errors are made, but make sure that within your TEM (Threat & Error Management) assessments you're alive to potential mistakes from all areas in the system: ground handling, flight operations & crewing, engineering, ATC and, perhaps most importantly, yours and other crews.

Finally, a repeat of my request from the last edition of FEEDBACK. One of the best ways of learning can be from using the experiences and tales of those who have been there before. I have in mind setting aside an occasional page or so in future FEEDBACKs to publish stories in the vein of 'I learnt about flying from that' (ILAFFT). I'm sure that there are plenty of things that happen that don't necessarily get written up because the situation didn't escalate and was dealt with at the time but which might just give someone else pause for thought in a similar situation. If anyone has any such engaging tales that have a definite safety message then please do send them in, we promise full confidentiality!

Steve Forward, Director Aviation

'If anyone has any such tales that have a safety message please send them in'

Engineering Editorial

I have previously touched on the potential for disaster when multiple organisations work together. It is an ongoing concern for us all and has generated some regulatory change based on experience. These dangers are not just confined to Part 145/Part CAMO/Part 21 organisations working together.

An example of a serious consequence of multiple organisations not working safely is the incident over Norfolk of a Boeing 737-700. The aircraft fell from FL150 to just 5,600ft, losing height at a rate of up to 20,000 feet per minute. The aircraft had been released from a maintenance check and was undergoing a Check Flight / Customer Demonstration Flight (not to be confused with a Test Flight for Part 21 - Prototype or New Aircraft Type).

There is a great organogram of all the parties involved in the [AAIB Boeing 737-73V G-EZJK 9/2010 Incident Report](#) and these included the current operator, the aircraft owner and the next lessee, including their acceptance engineer. There was a consultancy company with an on-site representative.

There was one Part 145 organisation with a second consultancy company, including an on-site representative. There was a second Part 145 organisation whose staff carried out the work. There was a third Consultancy company with Tech Records staff and, you've guessed it, an on-site representative. There were also the current operator's support staff and the operator's pilots. Simple!

Some important information about elevator trim, relayed by word of mouth and from memory led to a breakdown of communication in relation to the adjustment of the elevator balance tab. This in turn very nearly contributed to the loss of the aircraft in the subsequent 'Power Off Manual Reversion flight control check' due to an incorrect adjustment and the pilot's incorrect response to it during the





check flight. Also refer to [AAIB Bulletin S2/2009 SPECIAL](#).

Another example from organisations working together is the story of a privately operated DC8 that spent a year on the ground during an extensive avionics modification. Eventually the aircraft was ready to fly but the approval for the modification was not forthcoming.

Someone in the MRO suggested that pulling the circuit-breakers to the new equipment would mean the modification wouldn't apply! Luckily it never flew in this configuration, especially as several pounds of swarf had been generated during the mod through drilling and altering the aircraft's structure. Pulling the CBs is not going to replace material drilled out of the frames to attach P-clips for example.

There was also a case of a Dassault Falcon 900 that required engine work beyond the scope of the Part 145 organisation's A1 approval rating. A Part 145 organisation with a B1 rating was contracted to assist. A bracket was not installed on restoration of the

engine and was found by the customer in the engine cowling after the aircraft returned to service.

One Human Factors issue here was that the bracket is not fitted to every derivative of the engine, with the result that a general inspection would not necessarily highlight its absence. The second HF issue was the T-word, Trust. Even if you build up a relationship with staff in another organisation over several years it does not mean that they might not have an HF-performance off-day.

The Part 145 contracted for the work by the owner/operator must still see a representative sample of the work being carried out. You can't, for instance, delegate Part 145 A1 approval-rating work to a Part 145 B1-rated organisation — for example, although staff in a B-rated organisation can top up engine oil and check for leaks in a test cell, they cannot certify the same tasks for an engine on a wing.

All of this does not detract from the need for good non-ambiguous communication between individuals, whether verbal or written. A Tech Log

entry that only says; "Work Pack (WP) 12345 carried out" does not tell the oncoming crew, or even the engineer on the following shift, what has been inspected or more importantly what has been disturbed.

There are two points to remember when multiple organisations work together; the first is the need for robust communication, and the second is that the Part CAMO must be aware of the serviceability of the aircraft at all times in order to comply with PART CAMO.A.315. They, hopefully, will be able to pull information from varying sources together. This should be in all the various organisations' procedures under the scrutiny of their Safety Management Systems.

Phil Young,
Engineering Programme Manager



COMMENTS FROM PREVIOUS FEEDBACKS

Comment No 1 – FEEDBACK format

Before I begin can I first say I think that CHIRP is great, I read every one cover to cover. I do, however, have a problem with the new formatting of the document; it has gone from a joy to read to quite tricky. The columns in the document are miniscule, such that when I'm reading on my laptop I have to scroll up and down continuously to follow a section of text.

By all accounts (<https://baymard.com/blog/line-length-readability>, https://en.wikipedia.org/wiki/Line_length), the correct length of a line is around 50+ characters in length. Where newspapers use columns and can fit in 4/5, they generally aren't full page height meaning your eyes aren't all over the place, and further they're made to be read on paper rather than being distributed and read electronically. Anyway, my suggestion would be to either make it a single/two column format or to just ignore me completely! But I do think it would be beneficial. Thanks for your time reading this and I look forward to the next issue!

“CHIRP Response”

When we changed the format of FEEDBACK our intention was to make it more engaging to read with a fresh new format. We've

achieved the latter but the result is that there's a compromise by using a 3-column format. We've investigated developing an html version that will morph to the size of the screen that it's being viewed on but, sadly, resources (money!) are tight and we need to limit the hours and costs spent producing different versions. However, there is a work-around. If you open FEEDBACK in Adobe Reader on a mobile device then there's an option called 'Liquid Mode' that can be accessed by selecting the ink-drop symbol shown. Whilst not quite as pretty as the published version, this will convert the document into a single-column, indexed document that will be more readable on smaller screens.





Reports

Report No.1 –FC5081 – Aviation safety fatigue: delays at border security

Report Text: I am an aircrew member who regularly operates and / or positions into and out of the UK in the course of my normal duties. The time I spend travelling in this capacity is subject to strict ICAO rules pertaining to maximum legal duty hours and minimum legal rest periods which, if exceeded, can cause the delay or cancellation of onward flights which I am scheduled to operate. This in turn can then have a major impact on travel into and out of the UK for the wider public. Additionally, undue delays at the Border can significantly increase fatigue amongst air crew members which can have serious Aviation Safety implications.

On [date], I joined the queue at [Airport terminal X] at 16:40. I passed the desk at Border Control at 18:10, after a 1 hour and 30 minute delay, because I had to queue along with a non-socially distanced public. This is a regularly occurring event at [Airport terminal X]. There is a crew lane at [Airport terminal X], but it is restricted to [Airport] pass holders only. The vast majority of crews who position and/or operate into [Airport terminal X] do not hold an [Airport] pass, so therefore must queue with the general public.

Why is there no policy at [Airport], whereby ALL operating and / or positioning crews can either use the crew lane or at least be waived past the general public? This is SOP at virtually every other airport through which I operate, both in the UK and overseas.

On this occasion, I saw at least 5 other crews from various airlines along with me in the queue. When one of the captains approached a Border Officer and politely explained about his crews' rapidly approaching legally binding maximum duty and minimum rest time limitations, he was told by

the Officer that no exceptions would be made, everyone must wait in turn. This situation requires an urgent review. Aviation Safety due to fatigue is at stake.

At [other UK airports] and [Airport terminal Y], Border Force proactively waved me past the queue when I airlined in. (They saw my uniform). My Passenger Locator Form and passport were checked and I was on my way. Only [Airport terminal X] Border Force insists that uniformed crew stand in the queue and wait in sequence behind passengers. The [Airport terminal X] policy is inconsistent with the rest of Border Force.

Allowing uniformed crew to "jump the queue" in no way conflicts with the Border Force mission of securing the border, adds minuscule delay to passengers, and significantly shortens the queue thereby reducing the chance of spreading the virus. But, most importantly, allowing uniformed crew to "jump the queue" mitigates the clear and present threat to aviation due to crew fatigue.

Border Force Comment: Any arriving operating (working) airline crew who are arriving and leaving within seven days should not use the primary control points (PCP) within the arrivals halls but are processed through [other building] on the [Airport] estate; all airlines should be aware of this facility for operating crews.

Arriving non-operating crew are required to be seen by a Border Force officer at the PCP. This includes those who were operating on an inbound flight but are not operating on a flight leaving within seven days, and those arriving as non-operating crew but subsequently operating on an outbound flight.

Border Force is not able to offer a crew lane across [all Airport terminals]. When passenger control becomes very busy, then a concession is made to permit operational crew to join the 'Passengers Requiring Support' lane, behind passengers who require this service. This helps to speed up

crew processing, and crews are able to request the use of this lane at the discretion of the Border Force staff (although it is not possible to be given priority over other users in this lane, and it will depend on circumstances pertaining at the time whether this request is allowed).

There is no difference in Border Force policy at the [Airport] terminals, although there are differences in the time taken for passage through the control areas due to document scrutiny because [Airport terminal X] is predominantly for international arrivals where crews have variable levels and quality of paperwork compared to standard UK versions.

“ CHIRP Comment ”

Aside from crew just being annoyed because they've had a delay at security, or an operative hasn't perhaps been the most empathetic, there is a valid point about the potential safety risks caused when crews start coming up against roster deadlines. Hopefully things will ease as COVID-19 restrictions reduce, but the problem is that delayed flight crew can easily end up breaching their flight time and rest limitations, which impacts their availability for the next flight.

There is also an issue with flight crew queuing with passengers, not only regarding COVID-19 bio-security, but also in that they may be in close quarters with passengers whom they may have had to deal with firmly during their inbound flight, with associated bad feeling.

International FTL regulations are complex, but suffice to say that most airlines deploy their flight crews to very fine tolerances in respect of duty times and time zones so, if there are delays, flight crew may either be tempted to fly when they should not (with obvious fatigue and safety implications), or airlines will be required to replace the affected flight crew at short notice when they report themselves as 'unrested' thereby potentially causing associated flight cancellations or knock-on effects to airline rosters.





Recognising that all crews need to be seen by Border Force for obvious security reasons, there is no suggestion that a change to the PCP/ [other location] policy or stringency of checks is required, simply how the policy is executed.

Rather than having to ask specifically as at present, it would seem to be a simple matter for Border Force staff to automatically guide crews to the PCP restricted mobility/assistance channel (provided that flight crew are recognisable in uniform and have passes) so that they can then proceed without delay – this should be normal procedure, not just on a case-by-case basis at the discretion of the Border Force staff.

It is also not clear to CHIRP why UK Border Force cannot offer a dedicated crew lane for all inbound crews, not just [Airport] pass holders – other nations seem to be able to do so at their international airports.

‘It is not clear to CHIRP why UK Border Force cannot offer a dedicated crew lane for inbound crews’

Report No.2 – ENG698 – Non-conformance and quality alert

Report Text: I was at [Organisation] for a number of years where I worked on multiple aircraft seating products. There was a major non-conformance and quality alert discovered in the summer of 2019 that was applicable back to 2018 and I know that all shipsets from 2018 do not conform to drawings. An e-mail was issued that exposed that all rivets used in production throughout all applicable factories and areas from January 2018 were incorrect strength (weaker). I came across the e-mail

whilst sorting things out prior to leaving [Organisation].

The rivets in every designed seat at [Organisation] are [Rivet type 1] but [Supplier] had been issuing [Rivet type 2] and it was agreed by both [Organisation and Supplier] as stated on the e-mail chain I discovered, that they would continue to put [Rivet type 1] on the labels because it would cost too much money to change all drawings.

The major problem being that all assemblies have been erected with incorrect rivets that are weaker in strength, I do not have the exact number of rivets per seat and, again, this would vary between single, double, rear row etc. It also affects everything that required a rivet from monocoque to final assembly.

This is a safety concern for any customer that has had a seat delivered from 2018; seats might have been tested at 14G, 16G, pitch and roll test, static test and head-path test, with the correct stronger [Rivet type 1] rivets but are being supplied with a seat that doesn't conform to drawing specification and have used weaker rivets in all major assemblies.

The above list [sample of potential effected customers] is not all customers but they have multiple variants of seats/shipsets. Also in the e-mail was that sheet metal did not conform to drawings, again weaker in strength. From what I understand, this has never been verified before the issue with rivets arose. This again is a major issue for testing, safety and conformity.

“CHIRP Comment”

Having packs of rivets incorrectly identified is something of a loaded gun for the aviation supply chain from a Human Factors aspect.

The CAA were contacted with the reporter's consent and they subsequently provided CHIRP with a comprehensive response detailing how these concerns were investigated as a whistleblowing report and the issues were addressed. Specifically, a material

equivalency report was submitted to the CAA from the organisation's Head of Design confirming that the substituted rivets were equivalent to those referenced in the design data. The outcome confirms the value of confidential reporting and it is important that we continue to receive reports from the Part 21 side of the industry; issues and problems can only be addressed if they are reported, and this report resulted in a thorough and appropriate review of the organisation's processes

Report No.3 – FC5084 – CAA medical records system (Cellma)

Report Text: I've just been for my annual Class 1 medical renewal, my first since the CAA introduced its mandatory Cellma computer software. What used to be a one hour event took three hours. The AME was so engrossed in the evidently complex process of data entry that it seemed to me very detrimental to the primary purpose of the medical, i.e. assessing how I am.

The system was hard to sign in to and logged out twice during the medical unprompted. As a result of the IT frustrations, I felt that there was almost no discussion about physical health, lifestyle or mental health other than in a cursory box ticking way. The whole appointment was driven by the IT and did not feel nearly as useful as previous medicals have been.

Lessons Learnt:

1. The software is very slow and seems unreliable. My AME told me that Cellma is based on 20-year old American medical software that has not been supported by Microsoft for over a decade.
2. He told me that medicals are now taking so long that the airline is having to recruit another AME just to maintain the throughput of pilots.
3. If you answer a question from memory and get it slightly wrong compared to the existing data held on you, the program rejects it. I feel the medical should not be a memory





test, if the CAA already know the answers about previous conditions don't ask again.

4. Cellma seems to add no value to the pilot or the AME, and to be just about saving the CAA money by transferring data entry time and cost from them to the users

CAA Comment: Cellma has replaced the previous PIMS/MARS system (which is now obsolete), but, despite extensive Beta testing, has suffered from a number of problems that the Cellma project team are working hard to resolve.

Initial issues with portal registration (which provides access to the system) caused delays and inconvenience to customers as the system became overwhelmed and this resulted in frustration and distracting delays for pilots, controllers and AMEs.

There were numerous software bugs that affected the efficiency of both the aeromedical examiners and medical assessors, and issues with the quality of training for AMEs that meant that many were learning as they went along (the system was not as intuitive as it should have been). This unfamiliarity with the system led to the sort of frustrations that the reporter highlighted.

On the positive side, these issues had been identified as business risks but the mitigations in place did not resolve the problems sufficiently. A Cellma Crisis Response Team has now largely resolved the portal access issues, and they have also resolved many of the associated system performance issues. Notwithstanding, this is a very large and complex medical database system and there are considerable challenges involved in harmonising the data and ensuring efficient functionality; it will probably be a few more months before the system is fully bedded-in.

An ongoing communications strategy has been put in place to better inform pilots, controllers and AMEs about the system and how to use it. It is accepted that the software was initially very slow, unreliable and difficult to use, but the

major faults were rapidly identified and resolved. Software developments continue, and most significant issues will soon have been fixed — on the positive side, Portal reliability towards the end of September was reported as 99.6%.

AMEs were reporting that medicals were taking longer to conduct due to unfamiliarity with the system and the additional steps required to capture data. Many AMEs anticipated this and reduced their number of medicals per day. This situation is improving and the number of medicals conducted has recovered to pre-launch levels.

AMEs need to ensure that the software and data entry do not distract from the primary activity of assessing the fitness of the candidate and this message has been reinforced to all AMEs.

With regard to the 'memory test' aspect, the intention is not to be obstructive in asking detailed questions at every medical but a history needs to be created for the subject that can then be used for future consultations and overall database analysis. The new system is not a money-saving initiative, Cellma has cost a significant amount of money, time and resources to set up but this was required because the old system had become obsolete and was insecure. The better data within Cellma will also allow the CAA to better identify emerging or long-term safety issues in a more secure and comprehensive way.

“CHIRP Comment”

In recent years, CHIRP has received many reports about the introduction of inadequately tested or barely usable software (ranging from Electronic Flight Bags to online safety reporting systems), and we were concerned that Cellma was yet another system that had come into service with what appeared to be many problems and associated frustrations.

How extensive had the Beta testing been? Although the CAA confirmed that extensive testing had been conducted pre-launch (6-months' worth), the system was very complex and the volume of traffic had greatly exceeded that which it had been possible to

test (approximately 30 million bits of information had passed through the system on launch as it migrated from the old system and the software coding had not worked as expected under that loading).

The important lesson from the roll-out of the new system was that of change-management and the need to have robust processes and mitigations in place in case of problems. Although all eventualities could probably not have been foreseen, those introducing changes should look at worst-case scenarios, conduct realistic stress-testing and avoid wishful thinking; despite extensive attempts to test the system beforehand, the reality of the migration exceeded the capacity of the system and those who were attempting to use it.

In this respect, the CAA conducted a 'hard' switch across to the Celma but underestimated the training requirements and complexity; either a pilot-programme or a phased introduction might have avoided the problems seen with a 'big bang' introduction, and this should be considered by all those developing critical software for aviation users.

'We are now having to work with a confusing notification system'

Report No.4 – ATC820 – Notification of danger area activity to NATS controllers

Report Text: There have been a number of danger area infringements at my unit (Swanwick AC) over a prolonged period of time (at least 10 years). Over that period we have been promised a technological solution (LARA - Local and sub-regional airspace management support system)



but this has been constantly delayed and, as a result, we are now having to work with a confusing notification system and multiple different ways in which those danger areas are activated/ cancelled. This problem has been exacerbated over recent years by the drive for flight efficiency and flexible use of airspace; many more flights are sent direct to shorten aircraft routings.

Information on danger areas is received from a wide variety of different sources, including the PIB (Pre-flight Information Bulletin) which is incredibly difficult to decipher, phone call notifications, sheets of paper, faxes, and phone calls. There are also a multitude of different processes and procedures across different sectors as to how danger areas are managed.

The notification display for controllers runs on 30-year-old technology which is heavily constrained by data memory, and on sectors which can have numerous danger areas, is difficult to read with multiple levels and times, often for the same area. The Information display (SIS - Support Information System) is maintained by a number of different people and is often changed by someone without the knowledge of others and, again, is not automated.

Danger areas can be displayed on the radar displays but this is not automated (so that they are automatically displayed when they become active) but need the controller to notice that an area is active and then select it themselves. When Danger Areas are inactive they are blue, but need to be manually changed to red when they are active. The system relies on controllers noticing the times or colours changing.

We have long called for an interim state where the area is shown as about to become active — there have been several incidents where the area has become active while an aircraft was in them in recent months. There were plans that the danger areas would be displayed on screen automatically, and that technology would monitor aircraft trajectories and warn controllers when they were about to enter an active area. This has never been delivered. Instead

we have had a never-ending series of workarounds, ranging from the banning of single-person ops during the day on some sectors, to annotated maps on others, and mandating supervisors to notify controllers of the information that is already displayed on the information screen to the controllers. Military and Civil controllers use different terminology, which further complicates the issue.

Lessons Learned:

Danger area incursions have occurred because controllers have made honest mistakes brought about by a poor notification system and a lack of support tools; the solutions to which already exist at other ANSPs across Europe.

NATS Comment: Danger Area

Infringements are acknowledged throughout the NATS team as one of the top risks in the current operation. LARA and its integration into the toolset in future systems will ensure consistency of information display and information flow into our Operation, reducing confusion around activity status.

Evidence shows us that where Danger Area infringements do occur, it is rarely as a result of confusion around activity status but more often is Human Error (Forget / Not-See / Mis-Judge). This Human Error element is the subject of a set of Danger Area Briefings delivered to all Swanwick AC controllers in May 2021, and the risk is continually highlighted in communications with the operation.

There are also various other threads of work ongoing, including alignment of Mil/ Civil MATS, reviews of current procedures & LOA's, and consistent policies on Danger Areas across the operation. These threads should help to mitigate the risk of infringement in the medium term as they deliver.

Notwithstanding the above, the NATS Senior Leadership team have commissioned a high priority Feasibility & Options paper, due to be delivered by the end of June 2021, which will ensure that all potential avenues for improved Danger Area Information Systems which could be delivered in a more expedited timescale

than the multi-stakeholder LARA product are explored.

Military Comment: LARA is not a solely NATS-delivered solution – the Military are heavily involved in LARA delivery, and the majority of the stakeholders are military (i.e. the agencies, squadrons and units booking Managed Danger Areas (MDA)). LARA will replace the current booking system of emails and spreadsheets by allowing stakeholders direct (albeit strictly controlled) access into the LARA system to propagate any empty “slots” in the MDAs either through a desktop or (most likely) a web-client solution.

LARA has a direct link with Flight Planning systems in continental Europe, and allows the UK Airspace Management Cell (AMC) to create an Airspace Usage Plan (AUP). The AUP is the mechanism that switches airspace constructs, and flight planning routes, on and off. The AMC are also extensively engaged in educating military stakeholders about UK airspace management practices and policy obligations, in an effort to maximise the understanding around airspace planning and the tactical day-to-day management of areas.

Regarding rollout timescales, although NATS and the MOD both find the delays frustrating, full LARA delivery is delayed whilst projects wait for funds and the incorporation of further software advancements and connections into the system itself. In the meantime, LARA is in daily use now within the AMC, which is forging ahead with delivery of a Web-Based Client for Pre-tactical planning. This should be in place with main military stakeholders in Q1 2022.

“ CHIRP Comment ”

The NATS comment that Danger Area infringements are “... rarely as a result of confusion around activity status but more often is Human Error (Forget / Not-See / Mis-Judge)” rather glosses over what might be driving the human error in the first place. In the case at hand, the human error could plausibly be a result of confusion over Danger Area activity status: if there were a better tool for displaying this, or trajectory prediction which showed that an aircraft was likely





to penetrate an active Danger Area, then there would likely be less human error. Ultimately, if a controller has “mis-seen or forgotten”, then the system that allowed that to happen should perhaps be called into question.

The reporter also commented that infringements can occur if the system that displays Danger Area activity is not correctly updated in accordance with daily NOTAMs. Controllers do not have access to daily NOTAMs and therefore rely entirely on this single source of digital data being accurately updated by multiple parties in the operation. Any disparity between the Danger Area activity displayed to NATS and that of other units could lead to infringements if not noticed as part of the coordination process.

Sadly, CHIRP understands that the LARA trajectory prediction tool will be unlikely to be fielded until late 2023. If NATS really do believe that Danger Area infringement is one of their top risks then they should act now by addressing the current controller interfaces before a serious incident occurs in the interim.

Hopefully, the associated NATS high priority Senior Leadership ‘Feasibility & Options’ paper will have identified potential avenues for improved Danger Area information systems that might provide mitigations whilst we await the roll-out of the multi-stakeholder LARA product. CHIRP has no visibility of this paper but we are aware that NATS have recently issued a series of Temporary Operating Instructions (TOIs) regarding controllers’ use of direct routing near Danger Area airspace; however, this just deals with the symptoms rather than the fundamental problem itself.

Report No.5 – FC5086 – Late roster publication

Report Text: July roster publication is constantly being put back and, as of today, (22 June) another delay has been announced with no indication of roster publication date (8 days before the roster period starts). This makes it very difficult when it comes to childcare/ domestic arrangements. When this happened on previous occasions

the company said that the CAA had sanctioned the event.

Whilst I understand these are exceptional times, surely the CAA cannot keep giving permission (if indeed they have) for such late roster publication. There is a culture of fear developing in the Company. [Name], our post holder, [...] does not take prisoners, I am seeing an air of despondency when flying the line and also training: something I haven’t seen before in the Company and which isn’t associated with COVID directly. Luckily I will be retiring soon!

CAA Comment: We have no immediate concerns or further evidence to suggest the loss of Just Culture for this carrier, but we will keep this matter under close review. It is inevitable that difficult decisions have been made by many operators in recent months and the impact of these decisions have to be continuously monitored and challenged by the CAA as required.

The oversight team will discuss this, along with other matters raised, during the next Accountable Manager Meeting. The oversight team will also target their activities to ensure pre-pandemic safety standards are being maintained.

HMG decisions and international requirements change rapidly and often with short notice. Recognising the challenges to meet roster publication standards and to support roster stability when the roster is being issued, operators may contact the CAA to seek for an agreement to postpone the roster publication timeline. This will only be granted on exceptional circumstances. The CAA did give an alleviation to the company for the delayed roster publication but exact details of the alleviation cannot be released for commercial reasons.

The CAA were not particularly comfortable with such alleviations but have conducted a review within our processes to understand the likely consequences in the circumstances pertaining, alongside other discussions that were being conducted with

the company about mitigations for associated issues. The reasons for the company requesting the alleviation were understandable, and the mitigations that were put in place were considered acceptable, recognising that some company employees would be faced with very short notice of roster schedules.

Company Comment: Roster publication has been extremely difficult over the last 18 months while the company has necessarily been responding to changing circumstances with customer flying (red, green and amber lists) and also seeking cargo opportunities which, for a significant period of time, have been our main revenue options.

We have also had to deal with changing requirements in the countries we fly to as well as an ever-evolving testing regime both here in the UK and internationally. We felt that publishing delayed rosters that we were actually likely to fly would be better than publishing something on time that would significantly change afterwards with associated substantial post-publication resource challenges.

At every stage we were engaged with the CAA, BALPA and UNITE, and the CAA granted us alleviations from the normal 14-day requirement for roster publication. This allowed us to roster more effectively and accurately and take on flying that we would not otherwise have been able to support thus safeguarding more jobs within the Airline.

Whilst we considered various options to publish earlier, or publish 2 week blocks, or perhaps even just the days off, the impact of doing this would have resulted in significant complexity elsewhere that would have increased operational and compliance risk as well as being hugely disruptive to our pilots and crew.

We considered simply rostering blocks of standby and days off, and then crewing everything a couple of days out, but that would have been





significantly more disruptive for the majority, impact our ability to deliver training, and compromise protections in the roster which are often better managed at the planning stage than in the more disruptive day-to-day crewing environment.

Notwithstanding, we're pleased to say that the July, August and September rosters have all been published at least 14 days in advance even though we have the CAA alleviation until the November roster. Just to be clear, we are not working to the alleviation we have, it is purely there to provide flexibility if we need it, we really want to publish on time or early, and that is always what we plan to do.

“ CHIRP Comment ”

Given the rapidly changing context of international restrictions at the time, it's understandable that companies wanted to avoid publishing nugatory rosters that became obsolete before they went live. It seems that a number of options to avoid disruption were considered by this company but the best final solution was deemed by them to be late publication.

Although this is more about inconvenience to personal planning than a safety issue per se, such concerns can be a source of stress and distraction in themselves and this should be acknowledged not only by companies but also as part of a crew's TEM assessment prior to any flight to ensure that all crew members are in a fit state of mind to conduct operations. The comments about a culture of fear building up in the company are cause for concern, and CHIRP is encouraged that the CAA will be monitoring this in future.

Report No.6 – ENG694/695 – Propeller Blade Balancing and Labelling & Parts Control

Report text: Propeller Blade repair fill damage mapping, is non-existent. Management are swamped and seem blind to the risk of future imbalance

and loss of a blade. The propeller issue is a lack of experience on damage mapping and master blade weighing. One cannot just blob an unknown quantity of glue in a hole and paint over it on a long-term basis! This is an issue at [Manufacturer] where they set the criteria for blade repair. The Bay [Supervisor] at [Location] was shocked at the lack of forethought and basic, dare I say it, ignorance about the subject by the poor production bloke, trying to fulfil this project's pressures and training course coverage for all nations. We had approved data but utterly poor, including translated material or holes in it due to lack of knowledge so far gained on the project.

[Component] robberies are also concerning, concessions are out the door and now, with [a foreign based] company overseeing maintenance, I feel there are major concerns with this whole project, including the repair side by the [previous organisation]. There is little or no control of components being removed or swapped from one engine to the next.

The 'ident' label is a concern, it again leaves so much open for inexperienced mechanics to miss or leave out. It is unacceptable and does not even have a P/N or S/N box. It seems as if it was produced 'off the cuff' (possibly by the guy in stores on the spot), and then printed. The shocking thing was the management could not see the obvious issue, or any issue that may come from its design or easy misuse etc. I had just spent a few days sorting a blade that had had the S/N recorded incorrectly and shipped to the Prop Bay direct instead of via the standard route.

I was employed by the organisation to highlight the issues and gain alignment with EASA regs and formatting. I think most of the forms are based on old military-formatted stuff because that is what they have been brought up to know. Requesting a label of the correct type caused serious consequences for me. The team are either from a [Military] or 'green' aviation background with few staff being experienced in the mishaps that can happen within the industry through complacency. All I wanted

was a way to ensure components aren't muddled during exchanges/ QEC builds etc. Management refuse to see any issue and say they are in compliance. The project seems to be a complete mess, even cleaners are being poached to be employed as [OEM] staff. The place has such a bad reputation because of the people at the top.

“ CHIRP Comment ”

In addition to the safety concerns, CHIRP was disappointed to hear both of alleged lack of competency at management level and Approved Data failings in this report.

The Military Aviation Authority (MAA) offered to arrange an anonymous phone communication between the reporter and the Officer Commanding Engineering at their base but this was declined by the reporter due to concerns about maintaining anonymity. The MAA were extremely forthcoming with information but were constrained in what could be published due to the need for balance between transparency and protecting individuals and organisations.

They were, however, willing to inform CHIRP that an associated investigation had been completed and that a number of appropriate recommendations have been implemented. They also commented that they encourage all such concerns to be raised within the Defence Air Environment ASIMS (Air Safety Information Management System) or DCORS (Defence Confidential Occurrence Reporting Scheme) processes that are available at the following link: <https://www.gov.uk/government/collections/reporting-air-safety-concerns>

Report No.7 – FC5091 – Max flight duty period (FDP)

Report Text: On [date] I was on Standby from 04:30z until 14:00z. At 13:10z I was contacted by Crew Control to fly a 4 sector day with the end of duty (initially planned at 23:50z. Whilst I was reporting for duty I realised that this duty would





bust my max FDP and so I called the duty pilot, explained the situation to him and discussed the timing for that duty. He acknowledged the information I'd given and undertook to call me back once he double-checked the situation.

In the meantime I recalled Crew Control, raising my issue regarding my max FDP for that day and advising them I was in contact with the Duty Pilot about this issue. Crew Control assured me that my duty was within the legal limits because they recorded my activation from standby at 10:30z (which was not the true time).

The Duty Pilot called me back and confirmed that I was not legal to fly all the 4 sectors and told me he or Crew Control would call me back to give me further information regarding my duty. The first flight departed on time and the duty was completed with only 3 sectors without busting any limit of FDP (the 4th sector was cancelled and an overnight stop was introduced for all crew due to operational reasons (the A/C was needed in another base the day after)).

No limit of FDP was violated in the end, but I'd like to bring to your attention the fact that the company pushed me to fly a duty, playing with the standby activation times, which would have caused me to violate my max FDP. Thinking about the event afterwards, I suppose it could have been a new employee who, in a time-pressure situation, didn't apply the FTL calculation correctly but the lesson learnt is not to trust the FDP calculated by the company but to do my own calculation before accepting any duty approaching limits.

“ CHIRP Comment ”

One of the things concerning CHIRP is that as aviation starts to ramp up again then crews will be given busier rosters and we may return to an environment where FTL limits are regularly approached as companies try to fill their flight schedules with fewer crews than they might previously have employed.

There's also a risk that people who have been newly employed in support areas such as Crew Control may not be fully conversant with the regulations

and so errors might be made. CHIRP cannot say that that was the reason in this case, but it's something that crews need to be aware of (along with scrupulously checking tech logs, flight plans and NOTAMs etc which may all have been compiled by people who might be inexperienced or new to their roles).

Although we don't have access to all the information, if the reporter had an FDP with extension then the timings stated might in fact have been permissible – but it was a close call. However, the reporter did the right thing in contacting their Duty Pilot and Crew Control, although it's a shame that Crew Control's initial response did not acknowledge the issue and that they then didn't get back to the reporter. But at least the Duty Pilot was able to intervene and make sure that the regulations were observed.

The bottom-line is that FTL limits are intended to be approached only with careful management; regularly rostering to the limit is not sensible and indicates a system under stress. Although current flight time regulations are complex, and there are Apps and programs that can assist in making the calculations, ultimately it's a licence-holder's personal responsibility to make sure that they do not exceed the stated regulations in respect of FDP.

Report No.8 – ATC821 – Integration of new communications system

Report Text: Since the start of a large asset replacement for all aspects of the Voice Comms at our Unit there have been an increasing number of events (reported) where radio transmissions and phone calls (- those critical to the operation) have been plagued by problems which are not being solved and causing a huge lack of trust in the system to build up.

The radio network was replaced in 2017/2018 to a more modern system which has been linked through legacy systems. Those systems were due to be upgraded at the same time (by the airport operator) to a fibre network, but that has been delayed and even now has not been completed, over 2 years late.

When the new radio system went online there were a number of what initially appeared to be teething issues. As time went on, it became clear that this was not the case and, for whatever reason, the RT coverage on the airfield had changed - blackspots, areas of increased interference.

When the Voice Communication Control System (VCCS) was also upgraded to fully digital in 2021, this further exacerbated the issues being faced with the interface with legacy analogue systems and led to events where transmissions have been dropped (unknowingly), systems have unexpectedly re-booted and radio blackspots seem to be on the increase.

The current list is as follows: lack of serviceability due to analogue not being compatible with the new digital VoIP technology; continued evidence of missed transmissions due to receiver issues and the VCCS not alerting staff to these drops; significant RT dead-spots meaning Flight crew, Tug crew, and Airport vehicles are unable to hear ATC either adequately or at all; call-clipping, continuous feedback and noticeable beeping etc affecting transmit serviceability — this has been especially apparent in recent months.

Despite temporary mitigations from an operational point of view, the more senior management team are either unwilling, or unable to accept that there are a significant number of problems that have not been fixed and are impacting our ability to provide a safe operation.

All the operational staff continue to feel unnerved by this, and, coupled with other issues around the primary and secondary radar systems - blind spots, reflection issues and RIMCAS (Runway Incursion Monitoring and Collision Avoidance System) issues, it has reached a point where there is a feeling that refusing to plug into a position - to protect the individual and their licence - is now very close to happening. The work of the engineering team to try and solve these issues is hampered by a lack of support and direction from their senior team and those operational engineers feel totally embattled as a result.





With the likelihood of traffic increasing in the coming weeks and months as some stability returns to aviation, the biggest fear is that these issues - notably those surrounding the VCCS system - will occur on more regular occasions and would make operational safety 'unstable' for want of a better word. There is no clear plan or timetable for any resolution of these issues and all staff here are [asking] reasons why it has failed and no path to rectification. It appears, rightly or wrongly, that commercial focus is completely at odds with safety focus and, as a result, there is a real risk of the swiss cheese forming that perfect holed route. There have been over 20 MORs filed on the system and I am led to believe more incidents have occurred since.

Company Comment: The digital VCCS transitioned into service in May 2021 and extensive testing was carried out prior to transition, with delays to its introduction because of observations picked up in acceptance testing. The system is compatible with the analogue line network and this was assessed during testing prior to implementation. However, call-clipping incidents occurred in early June 2021, the cause was determined, and the issue was resolved with no further similar incidents.

Other issues were observed and reported and were investigated in line with our safety reporting process. In this respect, perceived blackspots are thought to be attributable to: changes in airline operating locations meaning more aircraft being focused in one location; a large number of parked aircraft due to COVID that may be interrupting transmissions; changes in personnel resulting in changes in behaviour and use of radios in tugs and vehicles; and interference from construction lights installed around the terminal. To investigate these reports, a radio coverage/reception survey was carried out by a specialist external communications team on 13th August. Initial results confirmed that the radio strength in all areas was to the required standard.

Two isolated incidents were reported as VCCS faults during the weekend of 24th/25th July and 1st August. Both incidents were not caused by the VCCS

but were confirmed as line faults. We took immediate action to ensure the safety of the operation as a live critical incident following the occurrence of the VCCS system issues on 1st August, including establishment of our 'Silver' incident response and management structure being stood up and the implementation of a system-split to remove the link to the Tower to stabilise the VCCS system. The Silver team met on a twice-daily basis, with work on the resolution being supported by at least 10 specialists. We also reached out to other ANSPs to share our experience and understand if any learning can be gained from similar projects. We can confirm that the VCCS/ EVCS has operated in a stable state since 2nd August 2021.

It was recognised that one of the key elements of our new Data Network project was to upgrade the obsolete and shortly unsupported legacy network infrastructure and we now have a detailed plan to replace the legacy infrastructure with fibre but, due to the complexities, this remains a longer-term goal for 2022. Notwithstanding, fibre connectivity was re-established as a reliable digital connection on 17th August, and updated OEM software was also installed at the same time in order to address issues from the initial implementation.

Since implementing these changes, the system and network have been operating stably on the improved core digital network link. Further options to transition to a fully-digital network infrastructure will bring the entire ATC communications onto a reliable digital network by no later than the end of November.

We appreciate that the compound effect of all these issues over a relatively short period, in combination with a possible lack of understanding of the possible causes, resulted in a perception that the VCCS was the cause of the issues and was unreliable. We hope that our communications in relation to these contributing factors have now addressed these perceptions and increased confidence in VCCS and the wider system. The CAA have been informed at all stages, and have stated that we are dealing with the issue appropriately.

“ CHIRP Comment ”

This is another report where the introduction of a major new system has not gone well despite reported extensive pre-installation testing. Although the Company have taken positive steps to address the issues, it's clear that communications with the workforce about the changes and subsequent problems were not effective, to the extent that the workforce felt that their concerns were not being addressed; hence the report to CHIRP.

Transparent and clear communications are a key part of Change Management, as are channels for reporting problems by the workforce which must demonstrably be seen to be effective if they are to retain confidence and work with the management team to resolve issues. To repeat our comments from FC5084, *“Although all eventualities could probably not be foreseen, those introducing changes should look at worst-case scenarios, conduct realistic stress-testing and avoid wishful thinking; despite extensive attempts to test the system beforehand, the reality of the migration exceeded the capacity of the system and those who were attempting to use it”*.

Report No.9 – FC5087 – Captain's authority

Report text: I was, as a line training captain, assigned on a 4-sector training flight ending late at night. At crew briefing I was informed that the cabin crew No.1 was also under training and checking by an experienced Purser. In this configuration the Purser would seat as No.4 close to the No.1; thus leaving the two less experienced cabin crew members seated in the rear galley as No.2 and No.3. Those two cabin crew members were considered inexperienced (having only between 10 and 20 preceding working days).

I discussed with the Purser the issue of having two inexperienced crew members at the back alone. I checked the manual, and our operator doesn't currently have any restrictions so I then contacted operations who quite impolitely berated me for raising a





non-pertinent issue, saying that the cabin is not the Captain's business. We therefore maintained the configuration with me wondering if the two at the back really understood the importance of their role.

It is company policy that the No.1 asks 3 tech questions per cabin crew member at the briefing. On this particular day, I decided to make a specific briefing to the No.2 and No.3 addressing the case of an aircraft technical failure causing communication breakdown between the front and rear galley; I also gave them a few suggestions without evaluating their technical knowledge. I included a non-standard instruction to call the flight deck even during sterile phases of flight for anything that might have occurred. With this done, I asked the No.1 to "leave them relaxed for today" and not to ask questions. However, being under check, the No.1 apparently misinterpreted my request and still gave standard tech questions to the both of them.

The flight was uneventful but, at the end of the day, some crew members left without waiting for the Captain, which is the normal procedure. I later learned that we landed (at night) with the light at the rear galley at maximum brightness because none of the rear galley crew were able to dim the lights.

Although the event is of minimum relevance in itself, I felt that the Captain's authority as perceived by the cabin crew and Company was much less than what I believed. I wasn't happy with this situation and

even more disappointed with the Company's position. What happened in the cabin demonstrated that SOPs took precedence over a Captain's instructions; I wouldn't have minded delaying the approach while the Purser dimmed the rear galley lights, but nobody called me because of the sterile flight deck.

“ CHIRP Comment ”

Captains have primacy at all times during an aircraft's operation but SOPs should be followed unless there are clear reasons not to do so. Associated authorities and responsibilities should be clearly detailed in the Company Operations Manual Part A, wherein it should make it clear that the Captain has final authority for the aircraft during all stages of flight.

Although the company will rightly dictate how operations will be conducted, the Captain is not there simply to fly the aircraft and, in this case, it was not unreasonable for them to take extra precautions when they became aware that 2 inexperienced cabin crew members would be situated alone away from direct supervision — the 2 crew members may well have been qualified to conduct their tasks but that is not necessarily the same as being fully competent.

That being said, by directly raising issues with the crew concerned during the briefing, the Captain likely increased their nervousness to the extent that they might then have feared contacting anyone to ask how

to control the rear lights in case they were then further embarrassed (the CABIN READY signal implies that all checks (including lighting) have been done and that clearly wasn't the case here). Captains need to be very careful how they engage with cabin crew during briefings and procedures in case a well-intentioned interjection is misinterpreted as intimidating or overbearing supervision.

Nevertheless, the Company response was particularly disappointing, the Captain had every reason to take the cabin crew experience into account during his threat & error management (TEM) deliberations, and this is recognised in the fundamental ICAO and EU regulations concerning the safe operation of aircraft (ICAO Annex 6 – Operation of Aircraft: Part I – International Commercial Air Transport – Aeroplanes, Eleventh Edition, July 2018 and [EU Regulation 965/2012 Air Operations](#) (CAT.GEN.MPA.105(a)(3) **Responsibilities of the commander** and CAT.GEN.MPA.110 **Authority of the commander**).

As an aside, this was a good example of pro-active reporting by the Captain in raising an issue of concern with the operation of the flight to the controlling body. To then receive a berating and curt response from operations for doing so was completely counter-productive and against the ethos of a positive safety culture; the Captain may well be hesitant to raise concerns in future, thereby reducing safety effectiveness overall.

CHIRP

Aviation and Maritime Confidential Incident Reporting

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