Front Line Report:
Language and safety issues

By Bert Ruitenberg

Language is a wonderful phenomenon. I've attended quite a few Human Factors events where some of the participants must have felt quite out of place because essentially they were Human Resources people. Human Factors, Human Resources, phrases that are apparently easy to confuse even though I think that linguistically they're not really that close at all. At least not as close as the phrases Runway Incursion and Runway Excursion - now there's a pair of almost identical twins!

After targeting Runway Incursions as a safety subject it would therefore seem logical for the aviation industry to target Runway Excursions in a subsequent step. I'm not going to argue that Runway Excursions aren't a safety issue - far from it. What I would like to argue however, is that from a safety management perspective, there's a world of difference between Runway Excursions and Runway Incursions and that the remedial approach towards one of those safety issues is therefore not simply transferable to the other issue.

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He was recently appointed as the new IFATCA Safety Coordinator.

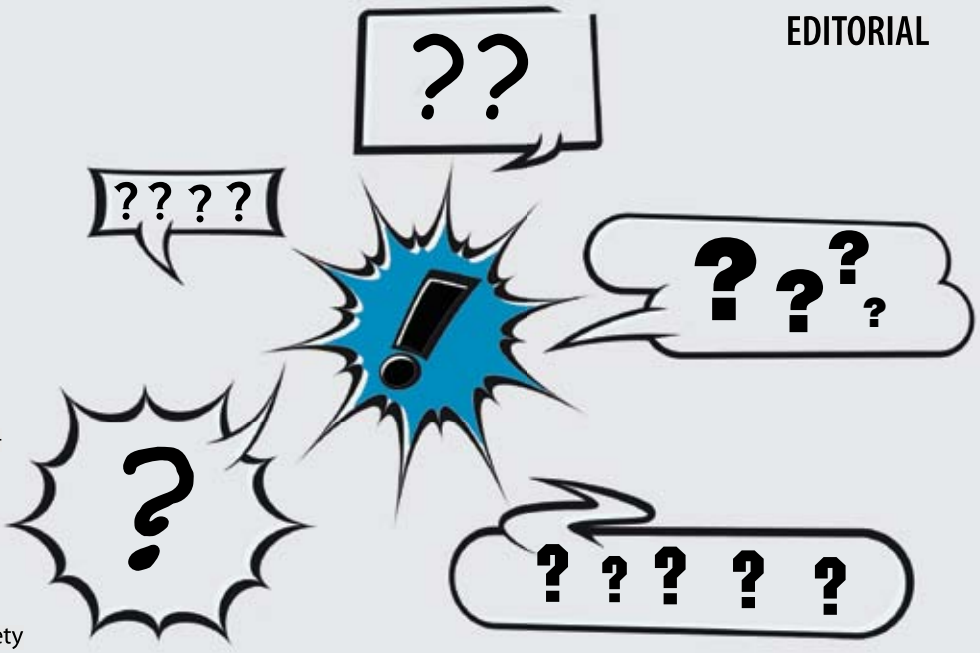
I think ATC also has a role to play when it comes to preventing REs. Just ask yourself this question: why do pilots and their aircraft sometimes end up too high and too fast on final approach?

Allow me to start by listing a number of attributes of Runway Incursions (RIs).

They happen on the ground and they have their origin on the ground. A RI does not necessarily have to result in a dangerous situation, since it may occur on a runway that is not active or on which no aircraft is landing or taking off at the time. A RI does not have to result in any damage. In terms of the Threat and Error Management (TEM) framework, a RI is an Undesired State that can still be managed to influence the outcome. RIs may involve vehicles or pedestrians. Differences in aerodrome lay-outs, signage and markings are cited as factors in RIs. Weather does not seem to be a huge factor in RIs, except that more RIs occur in good weather conditions than during low visibility conditions.

And here is a list of similar attributes for Runway Excursions (REs). They happen on the ground but they often have their origin when the aircraft still is in the air. An RE is always a dangerous situation, because it involves a veer off or overrun off the runway surface. An RE usually results in some form of damage (either to the aircraft or to the aerodrome infrastructure or both). In terms of the TEM framework an RE is an end state that cannot be managed to change the outcome. REs exclusively involve aircraft. Runway length and runway surface conditions are cited as factors in REs. Weather is a huge factor in REs, with heavy precipitation and strong wind as recurring elements in investigation reports.

You see the differences? The lists are not meant to be exhaustive, by the way. Now let's take a look at the remedial approaches for RIs versus REs. The European Action Plan for the Prevention of Runway Incursions (EAPPRI) has led to the successful establishing of a Runway Safety Team at many European airports. In those teams, representatives from the airport authority, the major airlines based or operating at



the airport, air traffic services, and other parties who perform their daily work on the manoeuvring area, all participate with the aim to come up with recommendations for local improvements to prevent RIs.

The recommendations from the Runway Safety Teams usually focus on items such as signage and markings, ICAO compatibility, lighting and more. They may also comprise items such as the airport infrastructure, names of taxiways and/or intersections, stopbar availability and usage, aeronautical charts (airport maps) and more. Moreover, Runway Safety Teams have organised dedicated campaigns to enhance the awareness of the aerodrome users on the subject of RIs, including ATC.

All those things are good things (at least in my book) to help prevent Runway Incursions, yet very few of them are any good at all when it comes to the prevention of Runway Excursions. The simplest form of action to prevent an RE after landing is of course to execute a missed approach instead of landing. But deciding on that particular action is not as simple for a pilot as it may seem. This is where the concept of a stabilised approach comes in: if certain flight parameters are not met at a predetermined point during final approach, the pilots are supposed to execute a missed approach. Notice however, that this does not address the issue of an RE during take off.

When analysing REs that occurred during take off, the factors that are often cited include; mechanical failure, wind conditions that were different from what the pilots knew or runway surface conditions that were different from what the pilots knew. Once again it comes down to pilot decision making, except of course in case of mechanical failure.

I am therefore not convinced that local Runway Safety Teams are the best platform to address Runway Excursions as a safety issue, as proposed by some. The power of Runway Safety Teams is the local knowledge of infrastructure and procedures that may be improved to prevent RIs. But the issues around REs are more universal in nature (no pun intended), which to me suggests that a more generic approach may be required to successfully address the problem.

In fact, this generic approach is already being taken by organisations such as the Flight Safety Foundation, which provides a Runway Excursion Risk Awareness Tool (available online in Skybrary). In it they cite a "failure to recognise the need for, and to properly execute, a Rejected Takeoff (RTO) and a failure to recognise the need for a go-around and to conduct a go-around at any time during an approach, flare or touchdown" as primary factors in runway excursions. The Foundation offers several strategies that pilots can adopt to help avoid the risk of an RE.

But I would go further than that: I think ATC also has a role to play when it comes to preventing REs. Just ask yourself this question: why do pilots and their aircraft sometimes end up too high and too fast on final approach? Did we perhaps put them there, or at least did they maybe keep up the speed in response to a request from us? In other words, are our ATC procedures and working styles adequate to facilitate airline pilots to always perform stabilised approaches? And who can provide the most up-to-date weather information to pilots?

I'll leave you to contemplate those questions and return to what I started this article with: language issues. To assist in overcoming language issues the concept of a "definition" was introduced. I found the following definitions for Runway Excursion on the internet. The first one is attributed to ICAO (although I haven't been able to trace it back to an ICAO document) and reads as follows: "a veer off or overrun off the runway surface". Skybrary contains this definition: "a runway excursion occurs when an aircraft fails to confine its take off or landing to the designated runway". Wikipedia states that a Runway Excursion "is an incident involving only a single aircraft where it makes an inappropriate exit from the runway".

The whole idea of putting a label such as "runway incursion" or "runway excursion" on a safety occurrence is to make it easier to file the data from the event somewhere and to compare it with similar occurrences. With the definitions above, a take off from a taxiway would be considered as a Runway Excursion when the Skybrary definition is used, but not with the other RE definitions (and rightly so, I say, better label it a "taxiway take off"). Moreover, in the ICAO definition, the B777 undershoot at Heathrow would not be a RE, but with the Skybrary definition it would be. Dear Safety Managers of the world, there still is a lot of work to be done...