A SIMPLE IDEA:
NO WIND, NO CLEARANCE, NO RUNWAY COLLISION!

by Patrick Legrand

Who has never forgotten something?

Many years ago, when I was training as an ATCO in a control tower, I forgot a vehicle on a runway and cleared a military aircraft to take off. The workers ran from the runway and the aircraft took off avoiding their van by flying over it. I had some difficulties sleeping in the following nights and this memory is still carved in my mind. What went wrong? What was the situation?

There were two intersecting runways. The main one was long enough for any traffic using this airfield. The other runway was shorter but long enough to be used by the light aircraft on training flights that particular day. The main runway was occupied by workers undertaking maintenance on the runway lighting. For the young ATCO I was, the workload was heavy.

The military aircraft couldn't take off from the shorter runway and I thought it would want to depart from the main one as soon as possible – meaning when the steady succession of light aircraft flying across the main runway axis would allow sufficient spacing between two aircraft. I knew this could mean a long wait.

My strategy was to let the people work on the main runway for as long as I couldn't use it. When the opportunity presented itself, I would ask them to vacate the main runway and then clear the military aircraft to take off. Under such pressure because of the close timing, I accidentally skipped the "vacate the runway" step along with the usual runway clear visual check and the event occurred.

My strategy was wrong, but this is not the purpose of the article.

At least, two prevention barriers have failed. ATCO are human beings, and human beings make mistakes and can sometimes forget about something. It is part of Man's very efficient mind. We (really) can't do much about it. How could we design a prevention barrier to prevent this omission? What could we deploy to reinforce the existing prevention barriers? One possibility would be to introduce a system that would check the efficacy of ATCO-given clearances. If deployed at an Integrated Tower Working Position (ITWP) it would trigger an alarm each time a clearance was not consistent with the disposition of airfield activity. In this particular case, that would have been me clearing the military aircraft to take off on an occupied runway. But such a system would be complex to build, to deploy and probably too expensive anyway.

Analysing this locally, we decided to set up a new, very simple, prevention barrier – the inhibition of the wind velocity display when the runway was occupied for a long time. If I hadn't sight of the wind velocity, which was required for issue a take-off (or landing) clearance, I wouldn't have been able to issue a take-off clearance.

Since then, when a vehicle is cleared to enter a runway, the controller (among other actions) pushes a button that triggers a flashing light at his position and removes the display on the wind velocity screen. We also use this 'reminder' when aircraft are backtracking a runway. This simple procedure prevented many potential mishaps in the years following my own event.

The Wind Velocity Display 'On' – when switched off, the light at the lower right with the runway in use card next to it flashes

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started his career as first controller for 15 years and worked as tower manager in Lille airport over10 years. Keen on improving the quality of service he took on a job as safety investigator for three years before recently joining the French NSA DSAC.

Of course, it cannot be used where there is a continuous flow of aircraft departing and landing. Inhibiting and de-inhibiting the display very frequently would not only be time consuming but probably also unnecessary if not useless. In such situations, a controller is permanently aware of the availability of a runway because his attention is continuously focused on its occupancy. The case of a vehicle and workers is different – there is no dynamic exchange with the controller so that he may simply forget about them.

Temporarily disabling the wind display screen need not be difficult. At first, we had just interrupted the power supply. At another airport, they just hid the wind display screen with a piece of cardboard.

I can see someone raising an eyebrow. In this situation, how could a controller clear an aircraft taking off from the second runway?

Good question.

In fact, the wind velocity readouts are also available elsewhere at the ATCO working position. But when an ATCO needs the wind, he automatically looks towards the same screen, It's an automatism – in the same way that you would continue to look at your wrist all day long to check the time even when you've left your watch on the bedside table. Every single glance at your wrist reminds you that you have forgotten your watch today. It may seem totally useless to most people but it reminds the controller there is a vehicle on the runway.

Using this type of reminder the controller has a better situational awareness and may still use the wind indication for its intended purpose. I think this idea may be useful at some airports – those with variable and often low movements – where when it's quiet, ATCOs may fail to remember the traffic already on the runway.