Adherence makes the difference!

by Captain Wolfgang Starke

Sometimes it is hard to understand. There are markings, lit stopbars, runway guard-lights and standard phraseology on the radio – but still we see runway incursions by modern multi-crew aircraft. Looking into the flight decks, we find highly professional and properly trained crews working according to standard operating procedures (SOPs). However, there is a major problem which leads to serious incidents: distraction!

Looking back into the year 1981 the U.S. Federal Aviation Administration (FAA) introduced FAR 121.542 and 135.100. These regulations were supposed to prohibit flight crews from any non-essential task during critical phases of flight (the sterile flight deck concept), which included aircraft movements on the ground when under their own power. Several years later, Flight Safety Foundation published its Approach and Landing Accident Reduction Tool Kit where it was noted that 72% of 76 approach and landing accidents and serious incidents which occurred between 1984 and 1997[1] could be attributed to the lack of a sterile flight deck. Although this is by no means only a statistic about runway incursions, the basic problem still applies.

A little bit more than 30 years after the attempt to introduce the sterile flight deck concept by regulation and following the widespread best practice adoption of the principle in Europe, EASA published its Opinion 05/2013 on Sterile flight deck procedures. This Opinion defines ground movements under own power as non-critical phases of flight but urges that this phase of flight should be treated like a critical one, effectively extending sterile flight deck procedures to ground operations. However, this Opinion is still not yet incorporated into national regulations and so there are still airlines that do not design their SOPs accordingly.

Looking at the taxi phase of a flight, there is one significant difference from all other phases of flight – during taxi, the aircraft can be nearly instantaneously stopped. ▸▸

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1- http://www.skybrary.aero/index.php/Sterile_Flight_Deck_(OGHFA_BN)

Adherence makes the difference! (cont'd)

This fact is a good reason to not define the taxi-phase as a critical phase of flight. However, looking at the possible severity of accidents linked to the taxi phase of flights, which can be the result of runway incursions, this possible severity is one of the key reasons to treat the taxi-phase like a critical phase of flight, even though it is not included in the EASA definition. This is exactly mirrored in the above-mentioned Opinion of EASA.

In the light of the estimate of an average of two runway incursions per day within the European core area, EUROCONTROL published the European Action Plan for the Prevention of Runway Incursions (EAPPRI) which is available at Edition 2.0 (April 2011). To make this Action Plan an effective document, the stakeholders involved were invited to participate in the development of the Plan. As one of the stakeholders, the European Cockpit Association, representing about 38,000 European pilots, has contributed to the Plan with the expertise of pilots, gained in the course of their day-to-day operations and experience.

Taking a closer look at the recommendations for aircraft operators contained in the EAPPRI, it can be found that, for example, the sterile flight deck concept should be promoted[2]. Further, paragraph 1.4.11 deals with position uncertainty on the ground and paragraph 1.4.12. recommends the avoidance of "head-down" time during taxi. Is this all implemented and adhered to by airlines and flight crews?

A Turkish Airlines Boeing 737-800 was taxiing out for departure at Dublin Airport in October 2010[3]. As the Turkish aircraft reached the active runway 28, a German Wings Airbus A319 was on short final to land. With the German A319 one mile from touchdown, the Turkish aircraft was seen by the A319 to go past the holding point of Runway 28 and the crew decided to go around. The A319 overflew the B738 at a height of about 500 feet about 30 seconds after the latter had crossed the runway holding point. The Investigation Report says that in a post-flight interview with the Irish Air Accident Investigation Unit (AAIU), the Captain of the Turkish Boeing 737 stated that he was occupied with head-down tasks for departure while taxiing. During a brief heads-up he had only seen the number 34 on the combined holding point signage of runways 34 and 28.

Another example of a similar occurrence, also at Dublin[4] and similarly investigated by the Irish AAIU, happened when a Monarch Airbus A321 entered an active runway in May 2011 whilst a Ryanair Boeing 737-800 was taking off from it causing a high speed rejected take off to be made to avoid a collision. The AAIU Report cited a "possible distraction by cockpit tasks during a relatively short and busy taxi" as one of their findings.

What can be done to reduce these kinds of incidents and accidents?

First of all it is up to the airlines to provide standard operating procedures that mirror the recommendations from EAPPRI and take into account the information from FAA and EASA materials.

It must be the "sterile flight deck" procedure that heard of...

2- Section 1.4 Aircraft Operator Issues, paragraph 1.4.5 in the EUROCONTROL EAPPRI at: http://www.skybrary.aero/bookshelf/books/151.pdf
3- See http://www.skybrary.aero/index.php/B738_/_A319,_Dublin_Ireland,_2010_(RI_HF) for a full summary and the Official Investigation Report
4- See http://www.skybrary.aero/index.php/A321_/_B738,_Dublin_Ireland,_2011_(RI_HF) for a full summary and the Official Investigation Report

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But what should these procedures look like?

The sterile flight deck concept should be implemented as a standard during taxi. Simultaneously SOPs should require flight crews to perform all actions needed to be done prior take-off while standing still at the parking position. Actions such as switching or checking of Ice Protection systems, checking flight controls, completing mass & balance or performance calculations should not be done while taxiing. The same is certainly true for post-flight items like completion of the journey log or preparatory work for the onward flight. Yet there are numerous examples where exactly these actions are allocated to the taxi phase of a flight.

If you ask why procedures are designed like this, there is a simple answer. Every minute an aircraft is operating costs a certain amount of money. Multiplying a hypothetical two minutes additional preparatory work on the parking stand before commencement of taxi while the engines are already running with the number of flights of a major airline can easily add up to several hours of aircraft operating time each day. Depending on the aircraft type and its operating costs, this can be quite expensive.

But distraction sometimes has another origin. There are quite a few airports in Europe where it is normal to issue the departure clearance to aircraft while they are taxiing out. This in turn can interfere with the pilots monitoring the progress of their aircraft.

Something like this happened to me at the beginning of 2013. I was approaching Warsaw's Chopin Airport in heavy snow and with a low cloud base. During flare I had to take over control and reject the landing after an unexpected gust. We went around after a brief touchdown on the left main gear. As I instructed the First Officer to raise the gear having achieved a positive climb, ATC asked the reason for the go-around. You can imagine that this was by some margin not my number one priority at that moment.

There is also another issue with the recommendations even if they are adopted as SOPs - the problem of non-adherence to them. Among the reasons for this might be inappropriate haste on the part of the pilots or their complacency.

The issue of haste or complacency of pilots is not an easy to deal with issue. With tight schedules, hub-operations that make delays very expensive and night curfews which can lead to diversions on delayed flights can all explain a push to hurry things up from time to time. Also personal rosters planned with little margin over minimum rest times can put pressure on crews.

But even in the absence of time pressure, pilots sometimes tend towards haste, especially if it is the final flight of their duty.

Complacency affects flight safety very similarly to haste, especially on short haul operations where pilots often know their procedures and the airports they go to very well from flying up to 80 flights per month. If the airports are the same every day and their flights are routinely uneventful, pilots sometimes disregard some of their professionalism in the face of monotony.

To conclude,
there are three things to do:

- First, published recommendations have to be mirrored in airlines' SOPs. This might cost some money. But it is definitely needed for safety reasons.

- Second, Air Traffic Control should recognise the sterile flight deck concept and ATC-procedures should be designed in a way to distract pilots as little as possible.

- Third – and maybe this is the most important point on this little "do-list" – pilots and all other aviation professionals should not accept haste or complacency. Of course, chances of having an accident nowadays are relatively low. But the severity of accidents – especially landing and take-off accidents – is rather high. Therefore, ground movements of airplanes should be treated as a very critical phase of flight.

There is a huge opportunity to improve safety in aviation if everyone concerned accepts flight safety not just as a requirement but as a necessary professional attitude.