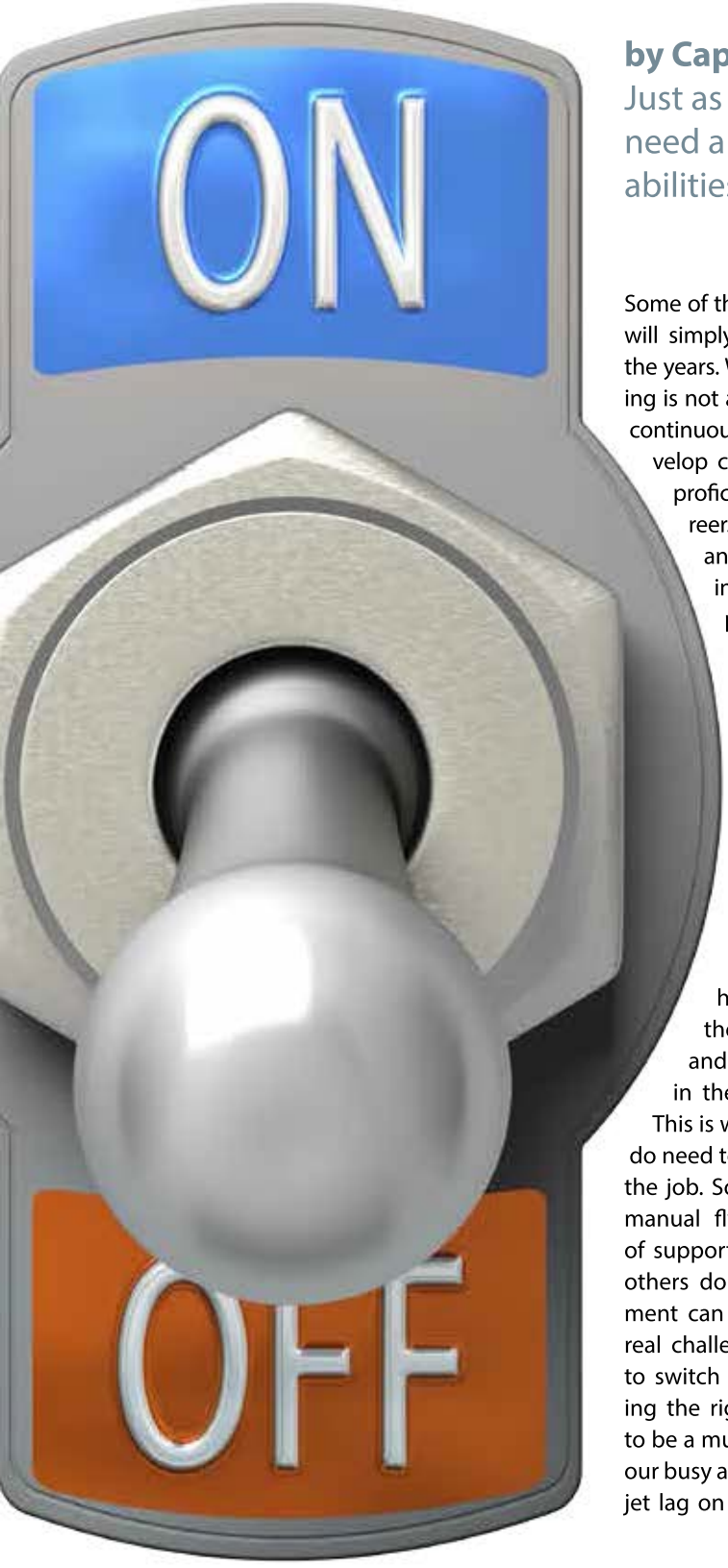
Switching off automation: we know why, but not when



by Captain Wolfgang Starke

Just as is the case for Air Traffic Controllers, pilots need a very unique set of skills, competencies, abilities and personality traits as a prerequisite...

Some of these can be trained but others will simply have to be developed over the years. What is clear is that pilot training is not a one-off exercise but rather a continuous effort to train skills and develop competencies so as to remain proficient throughout an entire career. All this is possible thanks to and – at the same time – despite increasing automation and the proliferation of technology. Many pilots feel the very tangible threat to the erosion of basic flying skills, pressure to strike the right balance between automated and manual flying and the multiple challenges of on-the-job training.

Despite sophisticated technology, the laws of physics have remained the same and the good "old-fashioned" stick-and-rudder was not only crucial in the past but remains essential. This is why, as is widely known, pilots do need to do some of their training on the job. Some airlines mandate regular manual flying without the assistance of supporting aircraft systems whereas others do not. This necessary requirement can turn out in practice to be a real challenge. We seem to know why to switch off the automation but finding the right moment to do so seems to be a much more difficult task. Due to our busy and sometimes tiring rosters or jet lag on long haul crews may be less and less willing to risk going "back to basics".

It was the first day after a roughly three weeks' vacation. On my first day back to work the alarm went off at 4am. The duty scheduled was a set of five domestic and European flights with a domestic deadhead flight afterwards, a total duty time of 12:30 hours in the company of a First Officer with low experience.

We decided to use as much automation as we could to reduce workload on this long and exhausting day. The clearly-communicated objective was to "keep it simple, keep it standard". It all went well and eventually we ended up in a hotel at Stuttgart Airport tired but content with a job well done.

With the benefit of hindsight, our decision to use automation that day was correct. But it only feels correct until you stumble upon a phrase in your manual that tells you to regularly disengage automation for training purposes. This on-the-job training should only be done when workload, weather, traffic density and other factors which may affect the safety of flight, are suitable. But now we can ask ourselves, how often does this happen? When is the right moment to do so?

Any airline which wants to survive needs to be efficient. It is self-evident that crews and aircraft must be scheduled in view of efficiency and return

on investment. This results in rosters in which the above-mentioned long day is not an exception but rather the norm. Sometimes, such long days are made more complicated by technical issues which do not directly affect flight safety as well. Such issues can be for example an inoperative auxiliary power unit so that air conditioning on the ground does not work.

If we now decide to train, or not to train our manual flying skills, one major factor during decision making is fatigue. When tired, we are all inclined to reduce workload as much as possible. Looking at our work around Europe, we see that the weather, a factor for flight safety, is sometimes good, sometimes not. Sometimes we fly to and from major hubs, sometimes remote airports. It can be a challenge to find a flight where traffic density is low and weather is good.

This all affects fatigue and alertness levels and ultimately has an impact on our capacity to deal with the tasks we have to perform.

Of course, there are other factors affecting fatigue, not just the operational ones that have been mentioned. High temperatures during summer time, poor sleep, issues brought from home, uncomfortable clothing or out-of-favour colleagues, or physical work / exercise can all make a difference.

Therefore, occasions where on-the-job training can safely be done can quickly become very rare. And sometimes, crews must say "no".

Recently, I was scheduled on a line training flight with a newly employed First Officer. The duty started with a domestic flight of roughly 50 minutes and back to my home base. After the first flight we were scheduled to change aircraft and on the second one, the autopilot was inoperative.

Hand flying is excellent training, so why not accept this aircraft? Well, it is a training flight where supervision of the new colleague means extra workload. The impossibility of workload relief due to the unserviceable autopilot imposes even more workload. This can easily exceed the capacity available of the crew. Eventually I agreed to fly as the First Officer involved had relevant previous experience. Weather and traffic density were also acceptable.

On another occasion – few years ago – I was expected to fly without an autopilot and without a flight director into the London TMA at a peak time accompanied by an inexperienced colleague. Even though the weather was relatively good, I refused this opportunity for training because I considered that the traffic density in the London TMA was simply too high.

All this shows that there are occasions where on-the-job training can and should be done. But these occasions, depending on the operation you are flying, can sometimes occur infrequently.

Worthwhile on-the-job training needs proper planning from the airline but to the same extent it needs appropriate pre-planning of private, off-duty time by the crews. Attention and alertness can be managed and should be managed on both sides in order to allow training to be performed safely.

No doubt, on-the-job training is needed in times where automation takes a bigger and bigger part in modern aviation. Automation and technology clearly set new requirements for training. Eroding basic flying skills is a reality today among the pilot community and the looming threat of over-reliance on automation systems is already manifesting itself. This is why ECA, the European Cockpit Association, has identified pilot training and airmanship as a key priority for the coming years.

Coming back to the best practice of on-the-job training, the question is if we can safely do this training without compromising safety. In theory, the answer is "Yes. Let's switch off the automation." But looking into the potential challenges – and this may sound familiar to all operational staff -the answer is rather: "Yes. But when?" And the ultimate answer is that each time a training opportunity is sought, it is up to us – pilots and controllers – to take a responsible decision on whether it is feasible taking the operational reality into account.

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