

Modern times



by Eileen Senger

In the last 12 months, two important new aircraft types have begun appearing in Maastricht airspace and elsewhere in the world: the Boeing 747-8 and the Boeing 787. ...

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I found out by coincidence. Before, I had read in newspaper and flight magazine articles that both were about to be introduced into service. I had also read about the usual development problems and setbacks and about the expected performance. And then at once it is there, in my airspace, a square symbol looking like all other aircraft. And I have no clue how it will behave and perform on its climb out from Frankfurt. I had received no briefing, no information sheet with indicative performance data, nothing.

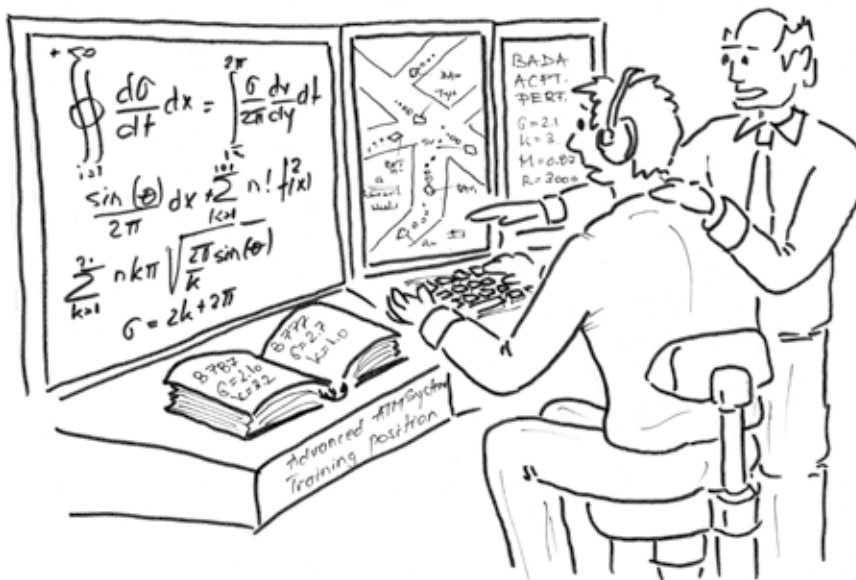
When the Airbus 380 entered into service a few years ago there was more activity beforehand. There were concerns about the wake turbulence. So we received briefing sheets about the introduction of this type of aircraft but all they said was: Do not worry about it in upper airspace, it is only an issue for Tower and Approach. Again no performance data, speeds, climb rates etc. So what do you do? You expect the worst. Take an A340-300 on a hot summer day and downgrade from there. I must admit that so far the A380 is doing better than that but that is not the

point. The point is that all of us have to gain our own experience with new aircraft types from scratch. The -8? It is a 747 so we can expect it to climb well and fly fast! And we guessed right. But the 787? No clue what to expect. The first time I had it on the frequency it climbed like a rocket and I was very pleased, the next time it climbed like it came from the aircraft factory from the other side of the pond... So how does it perform? I still don't know.

Is all that guesswork really necessary? The data is available and it would be such a nice service to air traffic controllers to provide them with a quick data sheet giving them a rough overview of what rates of climb and speeds to expect.

Now another issue! In these 'fifth generation' aircraft, the pilots' task has shifted from aviator to input operator. It is the computer which is really flying the aircraft. When it comes to automatic flying of a TCAS RA manoeuvre, I think this is a real improvement. Pilots sometimes overdid what TCAS told them to do, not on purpose but in the context of the surprise and the urgency of the situation, occasionally even making the potential conflict worse. A computer has no emotions so it flies the manoeuvre exactly as it is calculated. In our busy airspace, it uses minimum airspace for maximum effect, thus not involving other aircraft. On the other hand this will lead to fewer and fewer TCAS RA manoeuvres





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being flown manually – what if the Autopilot is not available? And then there is a TCAS RA? With the ever increasing automation one should not underestimate the impact if that automation fails. The training challenge increases and more visits to the simulator for additional and different training become more and more important.

When it comes to estimating what performance an aircraft will be able to deliver, it has become a guesswork as well – for the pilots! “Are you able to climb with 1500 ft/min until passing FL300?” I can only recommend a re-read of Philip Marien’s article “The “OTHER” level busts” from Hindsight 10¹.

In the section “Climb? YES WE CAN!” he sheds light on exactly those situations where “the pilots seem as least as surprised as the controllers to see the aircraft reduce its rate. It seems that predicting or knowing what the aircraft (i.e. the computers) will decide is possible and what is not has become more difficult over the years.” Perhaps this is not all that surprising given the greater capability of automation.

And lastly, we are entering a period not only of change but of uncertainty. One of the newest phenomena resulting from the economic crisis in Europe which has put airlines under even more pressure than usual to cut costs is aircraft flying at very low speeds during cruise. Of course this is a result of company policy rather than the performance of modern aircraft types. However, it is mainly due to modern computers and GPS, which monitor every second of a flight in terms of fuel economy vs. time flying, that this is now exercised as rigorously as it is by one German airline. Pilots are given a cost envelope in which their flight has to operate. When I was training I learnt by heart: An A320 cruises Mach .78, when it is in a hurry up to M.80. Today, I see them flying at speeds between M.62 – M.64. And when they are behind schedule M.80. So I never know what to expect. Sequencing has become an adventure. Some pilots are happy to deviate from their slow speed “on ATC instruction”, others answer, when asked to speed up, that they do not mind becoming

last in sequence. The general opinion amongst air traffic controllers is now that it is impossible to work properly with that airline anymore. Why make an effort to get them in quicker when they are flying so slow anyway! Meanwhile, it seems other airlines have noticed this fuel-saving strategy and have started crawling as well. I am curious to find out whether this is merely a short-term phenomenon or whether this is the start of a change of approach. All we air traffic controllers can do is watch, learn and adapt our way of working.

EDITOR'S NOTE

This problem of the wide range of speeds which controllers now see an aircraft type being flown at is even more complicated where aircraft operators take a comprehensive view of costs. A significant influence on whether fuel-saving by slow flying is conducive to overall cost-saving is dependent on the extent to which scheduled maintenance costs are predicated on flight hours rather than flight cycles and on whether aircraft are owned or leased and, if leased, on the applicable payment terms. Since these factors can and do vary both between and within the aircraft type fleets of different operators, there is little prospect of simple clarity in speeds anytime soon...unless speed declarations on flight plans are to be “enforced”! ¹

