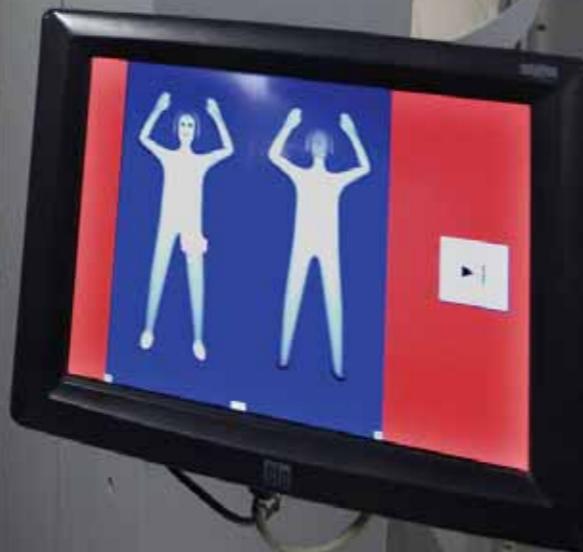# AIRPORTS EXPOSED

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Airport security is a top priority again following the December 2009 attempted bombing of a transatlantic aircraft but, as Tony Kingham explains, the solutions will have to be far more robust than those currently being touted

This article was originally scheduled to be a follow up to the article published back in July when we explored the threat posed by suicide bombers carrying explosives internally onto an aircraft and the ethical issues surrounding the use of body scanners as a means of identifying perpetrators. A lot has happened since then, however. Firstly, later that same month, al-Qaeda suicide bomber Abdullah Hassan Tali al-Asiri inserted around half a kilo of explosive and a detonator into his anus and blew himself up in the presence of the Prince Nayef of Saudi Arabia, killing himself but thankfully only causing minor injuries to the Prince.

The bomb was detonated by the use of a mobile sim card attached to the detonator, and the bomb was triggered by mobile phone call. At the meeting Prince Nayef was persuaded to call another "militant" in Yemen who was supposedly considering handing himself in. It was this call that was the signal to an accomplice in Yemen to trigger the device in al-Asiri's body by mobile phone.

There has also been a lot of talk about why the attempt failed, with many commentators saying the bomber's body absorbed the blast and therefore it would not work on an aircraft either. Not so. Our sources tell us the blast, though directed downwards, blew a six-foot hole in the concrete floor, which is enough to be devastating virtually anywhere in the pressurised cabin of a soft skinned aircraft. This attempt was the first time we know for sure the internal method was used, but it is extremely ominous.

The second major incident you couldn't have failed to miss, unless you have been snowed-in somewhere, was the attempt on 25 December by the so-called "underpants bomber", Umar Farouk Abdulmutallab, to bring down Flight 253 from Amsterdam to Detroit using an improvised explosive device with the explosive component carried through security and on to the aircraft concealed in his underwear.

Clearly these were unrelated attacks by separate al-Qaeda groups, using entirely different methods and on completely different targets. So what is the relationship? Well, the method used on 25 December was an attempt to blow up an aircraft; the Prince Nayef assassination attempt used a method that will be used to target an aircraft at some time, probably soon. Why do I, and many other commentators, believe this to be true? And if it is true, why was the latter used in an attempt on the Prince first and not an aircraft? The first point is that, although the intended al-Asiri target survived, al-Asiri took two flights and passed through two airport security screening systems to reach his intended target. Presumably he must have also passed through the Prince's own, very tight, security before being allowed into the Prince's presence.

The attempt would have confirmed to this particular al-Qaeda group what they already knew or pre-supposed – that there are no detection systems currently deployed to screen embarking airline passengers which will detect explosives carried inside the body. They would also have assumed that, once this method of attack was used for the first time and the security services had woken up to the threat, their chances of using it again for high-profile assassinations were slim. It is much easier to secure an individual VIP, building or organisation from this kind of attack than it is to secure the air travelling public. In other words, this method could be used again and again to attack aircraft until we plug this gap in security.

Those responsible for protecting VIPs and other high-value targets can, relatively easily and quickly, introduce the use of through-body X-ray scanners of the type currently being used for drug interdiction at a number of airports worldwide. These systems will identify anything carried externally or internally and, in the hands of trained professional security personnel with the time to analyse each scan, these scanners will effectively make this type of attack impossible. It also means screening can be carried out well away from, and long before, the would-be assassin ever reaches their intended target.

The more sophisticated al-Qaeda group involved in the Prince Nayef assassination attempt would have known this and would have realised their first shot would be their best shot, as they had the element of surprise on their side, and countermeasures were bound to be sought after it. This reaction has been borne out by the sales activity around through-body scanners; according to Jan Steven van Wingerden of OD Security which produces the Sotor RS system, the company has seen a dramatic increase in enquiries since the attack, particularly in the Middle East.

What can we therefore do to secure air travel from this type of attack? In the frantic search for solutions created in the wake of the 25 December attempt, the US Transportation Security Administration (TSA) and the UK authorities initially at least seem to be putting their faith in millimetre wave and back-scatter scanners. But these systems can only identify objects carried about the body, and even then there are serious doubts as to whether one of these machines would have picked up the explosives carried by Abdulmutallab, or whether an operator would have spotted it in that position. What is certain is they are of no use in identifying explosives carried internally.

So why not use the X-ray body scanners to scan everyone getting on an aircraft? Speed is one factor; an X-ray scan takes too long for mass scanning. Then there are also the ethical and privacy concerns still to be addressed by the regulatory authorities, and although the scans emit very low safe doses of X-rays, there will inevitably be some reservations to be addressed on behalf of the travelling public. As the manufacturers themselves will tell you, X-ray body scanners are best used for targeted individuals who have been identified by other means. As yet the only machines of this type being used for screening boarding passengers are, ironically, in Nigeria and were paid for by the US government, but they are being used exclusively for drug interdiction and only and for passengers flying directly to the USA. All the other machines in airports around the world are being used in arrivals for catching drugs mules.

There are other methods available, but the main problem for the screening of aviation passengers is the sheer volume of traffic – around 2.5 billion passengers per year. Millimetre wave and back-scatter scanners are very useful as a part of a layered security system for carried weapons and other materials carried upon the person, but as we have already said, no use in this scenario. Explosive trace detectors of the "puffer" booth variety may be ▶

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X-ray screening would catch internal devices, but is slow

▶ useful, but up to now they have not yet been qualified for use and some systems at least have proved too unreliable for mass screening. They work by blasting a puff of air past the passenger inside a booth and collecting tiny particles for analysis using ion mobility spectrometry (IMS) technology or mass spectrometry (MS). Mass spectrometry technology promises higher trace accuracy for more substances, and the National Academy of Sciences recommends the use of MS technology over IMS, calling it the "Gold Standard for resolving high-consequence analyses". But whether they have got over the problems associated with the earlier systems remains to be seen.

The hope would be that terrorists would leave some trace particles during insertion or swallowing, either on hands or clothes, or that there would be some naturally occurring seepage that could be picked up by detectors. Hand-held trace detectors using the same technology may also be of use for this purpose. These systems are promising for the future but the "puffers" are not yet widely deployed and, as far as this writer is aware, have not been tested for identifying explosives carried internally. So whether they would work or not can only be speculated upon.

Another technology that could be of real value is behavioural-analysis software. This software is designed to work in conjunction with CCTV systems to screen travellers for unusual behaviour patterns and the involuntary physical and physiological reactions that people exhibit in response to a fear of being discovered. These systems are available now and, as CCTV systems and control rooms are already in place, could be another relatively easily deployable, non-intrusive layer to airport security.

The essential fact remain, however, that right now the global airport security community has no mass-screening detection technology currently deployed to counter the threat of the IED carried about the person, let alone carried internally. Nor is there any likelihood of developing one in the short to medium term. Some stop gap measures can be taken such as some very well publicised use of hand-held trace detectors during screening and perhaps more use of explosive dogs to check the passenger queues. This may provide some deterrent and reassurance for the public. It may also add to the general discomfort of would-be suicide bombers, making them easier to spot.

What we really need to do then is change the system. We need to start with an intelligence-led system, and what is most desperately needed is a shared international watch list, as lobbied for consistently by Borderpol for the past five years. This will ensure those individuals known to the authorities and identified as posing a possible threat, are spotted from the moment they present themselves at the airport. It is then at the discretion of professionally trained security staff to use the appropriate screening techniques or technology such as pat-downs, body scanning, swabs, cavity searches, etc, and if they are still not satisfied, a no-fly order. If such a list existed, Abdulmutallab would have been picked up at Lagos or Schiphol.

For the individuals that are not know to the intelligence community, proper profiling techniques are needed; there is no point wasting time and effort applying the same screening techniques to a little old lady from Bergen op Zoom as is used on a young Muslim man heading for the USA, who has bought his ticket in cash, is travelling with no checked baggage and maybe asks for a particular seat. If that means channelling passengers into separate lanes, so be it.

We should make sure effective technologies, already available elsewhere in the system, such as these types of through-body scanners and explosive trace detectors are made available to officers for pre-flight screening. Finally, we should keep a random and unpredictable element to our security screening and use of technology. The terrorist will watch for patterns and seek out the inevitable flaws in the system. Maybe the terrorists will send a woman with a baby; maybe the terrorist is a home-grown extremist like shoe-bomber Richard Reid. The terrorist has the luxury of time and surprise; target switch is part of their stock-in-trade as we struggle to plug one gap our enemies are already looking for the next one. ■

Tony Kingham is publisher of World Security Report and www.worldsecurity-index.com, specialising in information products and public relations within the defence and security markets. He is also Media Director for Borderpol. If you have any questions or comments about this article, please email us: comment@intersec.co.uk

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