The Modern Terrorist Threat to Aviation Security

By James J.F. Forest

During this busy holiday season, much is being said by pundits and policymakers about the potential vulnerabilities of today's global aviation system. While no specific threats have been reported, there is a widespread fear based upon an extensive history of attacks, ranging from hijackings and in-flight bombings to surface-to-air missile. Most recently, authorities from the Saudi Arabian interior ministry arrested 172 suspected terrorists in April 2007 after uncovering a plot to hijack several airplanes and fly them into oil facilities and other critical infrastructure targets in that country. [1]

In the summer of 2006, law enforcement agencies foiled a plot to simultaneously detonate homemade bombs on at least 10 U.S. airliners while en route from London to the United States (US). According to U.S. Homeland Security Secretary Michael Chertoff, the suspects planned to smuggle a relatively small amount of homemade liquid explosives onboard disguised as sports drinks. [2] "If they had succeeded, there could have been thousands of lives lost and an enormous economic impact with devastating consequences for international air travel." [3] Fortunately, arrests in Pakistan led United Kingdom (UK) and US officials to a British Muslim terrorist cell, which disrupted the attack on American targets. Airports in the United States and the UK were put on red alert (meaning a potential attack could be imminent), and all liquids were banned from carry-on luggage. Furthermore, numerous suspects were questioned, including 24 British-born Muslims and seven Pakistanis. [4] Government authorities tested the explosive liquids and established a three ounce liquid limit for carry on items to eliminate the possible risk. To date, passengers are still restricted when bringing liquids onboard and those rules may remain in place forever. [5]

 Following this attempt to carry out simultaneous suicide attacks on commercial aircraft, U.S. airports remained on high alert for nearly a year. Among law enforcement professionals, the plot resulted in a heightened awareness of the creativity and innovative thinking of today's terrorists. Thus, when officials discovered an Arabic-language video clip on the Internet in October 2007 illustrating how to convert a remote-control toy car into a detonator for a bomb, Transportation Security Administration officers nationwide stepped up their scrutiny of passengers carrying remote-control toys aboard airplanes. [6] Indeed, we should not be surprised in the future when other ordinary items that passengers would expect to carry on board without difficulty are suddenly given additional scrutiny because new intelligence indicates they could possibly be used in a terror plot. This dimension of creativity and innovation is a hallmark of the most lethal terrorist groups.

In truth, terrorists—at least the most sophisticated and lethal ones—learn from each other and are continually devising new and creative ways to wreak havoc and murder. [7] Attacks which have not yet occurred, but for which we are ill-prepared, could include using an aircraft's in-flight oxygen circulation system to infect the passengers and crew

with biological pathogens or unleashing a deadly chemical agent in the cockpit that renders the pilot and crew unconscious and causes the plane to crash. One could imagine a rash of in-flight food poisonings or attempts to corrupt signals from the air traffic control system in order to re-direct planes into each other or crash land in low-visibility conditions.

During the October 2007 "toy car scare", additional scrutiny was initiated in part due to intelligence, but also because—as one federal official noted—remote-control toys might have been used already by terrorists in Sri Lanka and India. [8] Overall, as Bruce Hoffman recently observed, we should anticipate that terrorists are constantly searching for new vulnerabilities and adapting and adjusting to our countermeasures. [9]

Another form of vulnerability stems from the contemporary aviation environment. This ever-expanding global system has seen increases in (1) the number of airplanes in the sky carrying passengers and cargo, (2) the size of these airplanes (like the new Dreamliner), and (3) the number of locations to which one can now fly. Terrorists—much like criminals, insurgents and other violent non-state actors—exploit vulnerabilities in the systems they target, and these systems are only as strong as their weakest link. Thus, as the commercial aviation system becomes more globally interconnected, the overall impact of these measures at U.S. airports has an important, but relatively minor impact on the aviation sector worldwide. While airports in Europe and North America responded to the rash of hijackings and bombings during this period, many other countries— particularly in Africa and Asia—found it difficult to impose most of these costly security measures, thus providing vulnerabilities that could be exploited. The globalized aviation system, which includes numerous developing countries, is vulnerable and plagued with substandard security capabilities, corruption, bribery, and weak governance. Additionally, the Internet provides worldwide access to all types of information that could be useful to terrorists, including flight schedules, specific details and diagrams of both aircraft and airports, and reports of successful terrorist tactics and countermeasures developed by governments.

In a related area of concern, the nature of our response to the global threat to aviation relies on the strength of the partnership between governments and the private sector and how involved each want to be in diminishing the threat. In general, the aviation sector is driven by free market competition. Thus, airlines must maintain an emphasis on convenience and cost-savings; making investment in costly security measures relatively difficult. Among governments, we have seen bloated bureaucracies, a lack of intelligence sharing, and an overarching tendency to implement security policies in response to an attack that has already occurred, rather than embracing measures that might prevent an attack from occurring.

Beginning in the late 1960s, increasingly robust layers of security measures were put in place in response to hijackings. Yet, after four decades, the aviation sector was still vulnerable, as demonstrated by the events of September 11, 2001. Since then, we have seen additional security layers such as reinforced cockpit doors, armed pilots, increased presence of air marshals, and an overall increased awareness of the threat worldwide.

Therefore, the post-9/11 security environment may be one in which the threat to aviation is lower than it has been in the past, but in-flight bombings are still a possibility.

On August 24, 2004, at approximately 11pm local time, two Chechen females, Satsita Dzhebirkhanova and Amanta Nagayeva , carried out separate suicide bombings on a Siberia Airlines flight and a Volga-Avia Express flight. Chechen field commander Shamil Basayev claimed responsibility for the bombings in an open letter published on the Chechen separatists' websites less than a month later. The letter noted that the bombings had cost his organization roughly $4,000—a small price to pay for killing 89 people. [10]

Responding to events is insufficient; modern aviation security requires preventive measures. While these new measures may inconvenience passengers and create some inefficiency, they will increase the breadth and depth of intelligence gathering and sharing worldwide. Additionally, government officials should no longer underestimate the adaptive nature of terrorists. Terrorism is a form of asymmetric warfare, where the statistically weaker enemy will try to attack its stronger opponent in ways they do not expect. The threat posed by innovative enemies requires a robust government response that does more than harden targets. In addition to examining the potential capabilities of terrorists to do harm to others by targeting airplanes and airports, we must commit ourselves to the study of terrorist ideologies, strategies, and motivations. We must educate both law enforcement and intelligence agencies in all countries about how our enemies might try to "game the system" and exploit new, perhaps even hidden, vulnerabilities in aviation security. Only then will we be able to respond to the threat with greater sophistication and success.

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NOTES:

[1] "Saudis foil 'air attack plotters,'" BBC News April 27, 2007. http://news.bbc.co.uk/2/hi/middle_east/6599963.stm.

[2] According to authorities, the formula included three components that would be assembled in flight. The main explosive was to be Hexamethylene Triperoxide Diamine (HMTD), a homemade explosive that has been used in several recent terrorist attacks. Another homemade explosive was to be used as an explosive initiator: Triacetone Triperoxide (TATP) that can be made from ordinary, commercial items like hair treatments, a car battery, drain cleaner and nail polisher remover. The third part of the formula involved an improvised detonator made from disposable cameras. Scientists at Sandia National Laboratory conducted a test using the formula, and when a small amount of liquid in a container was hit with a tiny burst of electrical current, a large explosion followed. See "Plot Would Have Killed Thousands: Homeland Security Secretary

Michael Chertoff Offers Chilling Details about 2006 Airplane Plot and Current Terror Threats," ABC News, 6 August 2007. http://abcnews.go.com.

[3] "Plot Would Have Killed Thousands: Homeland Security Secretary Michael Chertoff Offers Chilling Details about 2006 Airplane Plot and Current Terror Threats," ABC News, 6 August 2007. http://abcnews.go.com.

[4] Ibid.

[5] Ibid.

[6] Eric Lipton, "Airport Security Alert for Toys With Remotes" New York Times, Oct. 2,   2007. http://www.nytimes.com/2007/10/02/us/nationalspecial3/02tsa.html?th&emc=th[7]   For more on this, see James J.F. Forest (ed.), Teaching Terror: Strategic and Tactical Learning in the Terrorist World (Boulder, CO: Rowman & Littlefield, 2006).

[8] Eric Lipton, "Airport Security Alert for Toys With Remotes" New York Times, Oct. 2, 2007. http://www.nytimes.com/2007/10/02/us/nationalspecial3/02tsa.html?th&emc=th.

[9] Bruce Hoffman, personal communication and presentation at West Point, 14 Sept. 2007

[10] Nick Paton Walsh. "Russia blames Chechen sisters for suicide bombings." The Guardian,   (April   22,   2005), http://www.guardian.co.uk/international/story/0,,1465936,00.html; and "Explosions led to   Russia   crashes,"   CNN   World   Edition,   August   30,   2004. http://edition.cnn.com/2004/WORLD/europe/08/30/russia.planecrash/index.html