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The Laptop Flare-up *The NTSB Rekindles Objections to Onboard Electronics*

Aviation Safety

The world's largest PC maker Dell is in the midst of one of the biggest safety recalls in the history of consumer electronics. Dell is recalling 4.1 million Sony-made laptop batteries after several dangerous incidents involving the lithium-ion batteries bursting into flames. The Dell initiative is likely to interest safety agencies that have been reviewing the dangers of battery packs used on many common electronic devices, from iPods to DVD players and cell phones.

The U.S. National Transportation Safety Board held a hearing in July about the safety of lithium batteries on aircraft after a fire last February on UPS1307, a DC-8 cargo-plane. The United Parcel Service plane was carrying bulk lithium-ion batteries when it caught fire just before landing safely in Philadelphia. The plane burnt out after landing.

On Aug. 7, 2004, a shipment of lithium batteries was involved in a fire at the Memphis, Tenn., hub of all-cargo carrier Federal Express. The carrier's ramp personnel detected smoke coming out of a cargo container in the aft section of the incident aircraft. After the container had been removed from the aircraft and placed on the ramp, the container burst into flames (Air Safety Week, July 26, 2004 & Dec. 6, 2004 "The Lithium Battery Fire Hazard"). For the 2004 Inspector General's report, see: www.oig.dot.gov/StreamFile?file=/data/pdfdocs/sc2005015.pdf As the report notes: "FAA has concerns that standards for testing and packaging lithium batteries are not sufficient for their safe shipment by air."

Recalling Earlier Incidents

Apart from security concerns post August 10 about carriage of all electronics, the use and carriage of laptop computers on airliners could now be banned entirely because of a mounting series of

(See Laptop on p. 5)

Tabloid Sensationalism in Air Safety	3
Security Roundup	7
Accidents and Incidents	8

table of contents

The Liquid Bomb Threat *Heathrow Plot Highlights Need for Improved Checkpoint Screening*

Aviation Security

By Norman Shanks
and Steve Wolff

The London arrest of a terrorist team plotting to blow up multiple airliners over the Atlantic has brought into sharp focus the pressing need for a wholesale re-evaluation of how airports worldwide conduct checkpoint screening.

Major advances have been made in many areas of aviation security, but checkpoint screening has not kept pace with the developing threat. Existing equipment and procedures are better suited to preventing hijackings than detecting explosives and suicide bombers.

It is very unlikely that the recent plot could have been intercepted by current checkpoint technology and screening methods. The attack appears to have been foiled as a result of human intelligence and infiltration. Without an effective technology layer, along with robust and efficient screening, plots that are not uncovered through counterterrorism efforts will inevitably succeed. Human intelligence needs to be augmented with updated technology and processes to ensure a multi-layered defense is in place.

Expanding Vulnerabilities

The hijack threat after 9/11 remains high but past vulnerabilities that have allowed hijackers to take control of flights have now been largely addressed (i.e., secure cockpit doors, flight crew operating procedures and Air Marshals). In addition, passengers understand the role that they may have

(See Liquid Bomb on p. 2)

Liquid Bomb (Cont'd from p. 1)

to play to protect themselves in any future attempt and a similar hijacking is now much less likely to succeed.

However, the overall spectrum of aviation security threats has broadened dramatically since the 1980s and 9/11, to include:

- A wider range of substances and the means of initiation or use, including liquid explosives, as used in the Yousef plot, Korean Airlines 858 and planned in the U.K., plus other threat materials, including improvised explosives such as TATP, sheet and distributed explosives, corrosives, gases, aerosols, and incendiaries.
- The growth of suicide attacks has dispelled previous assumptions that hijackers and bombers are unwilling to die to achieve their objectives.
- Bomb components carried by persons acting in consort are considered a major threat and may have played a role in the U.K. plot.
- The increased likelihood of explosive devices or components concealed on or in the body has become a critical area of concern. Recently, several governments have conducted trials of millimeter-wave, trace portals and X-ray backscatter systems in response.

Unfortunately, current screening methodologies for hand baggage and passengers do not adequately address the range and scope of these new threats. Terrorist groups have repeatedly demonstrated the ability to identify and exploit weaknesses in the checkpoint screening process, as reflected by the small weapons carried onboard on 9/11, the attempted shoe bombing and now liquid explosives. Liquids were first employed in Asia in 1995 (the Bojinka plot) and now appear to have been the material of choice for the plan curtailed by the arrests of August 10.

Terrorists will always return to the means used suc-

cessfully in prior attacks to infiltrate explosives onto aircraft. Although the recent plot planned to use liquid explosives, and this vulnerability must obviously be dealt with, prior attempts have employed other materials. These include plastic and sheet explosives, which are both widely available and extremely difficult to detect using current techniques.

Measures to address the threat from liquid explosives alone will not prevent tragedies on the scale of 911, or the potential of the narrowly avoided U.K. plot. The piecemeal response of the past where screening processes have been adapted to narrowly counter the last incident is analogous to preparing to fight the last war. Terrorist groups will simply move on and exploit another perceived weakness in the system. The industry needs to move rapidly toward comprehensive screening of passengers and carry-on bags for a much wider range of explosives and novel weapons in various configurations, in addition to maintaining detection of conventional weapons.

Technology Solutions

It appears inevitable that allowing passengers to carry-on liquids, pastes and gels will now be reevaluated against the capabilities of existing and emerging technologies. Given the limitations of available technology and process options, stringent restrictions must be expected in the short to medium term. However, it is critical not to dwell solely on this menace at the expense of neglecting the wider range of anticipated threats.

The X-ray systems in use around the world today address the threat of hijack using handguns or knives. They are extremely effective when supported by the other measures mentioned above. However, despite many claims to the contrary, since the introduction of dual energy X-ray systems, these (conventional) X-ray systems cannot automatically or effectively detect a wide

(See *Liquid Bomb* on p. 4)

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Through a Glass Darkly

Media Reporting of the Cabin Air Quality Issue

Dr. Simon A. Bennett.

In May 2006, Sarah Mackenzie Ross of University College London (UCL) presented the results of a clinical audit of the cognitive functioning of aircrew exposed to contaminated air to the U.K. government's Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT, for short).

Mackenzie Ross explained the report's limitations. These included the fact that the report was not a research study. Rather, it consisted of a "clinical audit of aircrew seen for clinical purposes." The "aircrew seen for clinical purposes" were in fact a self-selecting sample of pilots. This sample was not compared to a control group. Consequently, said Mackenzie Ross, "The conclusions that can be drawn from these findings have limitations." Under the rubric Terms of Reference, Mackenzie Ross stated: "The author ... makes no attempt to ascribe causality." In other words, while the report investigated the cognitive functioning of a small self-selecting group of pilots (the majority of which had reported chronic health problems) it did not seek to rationalise observed symptoms.

The report's conclusions were ambiguous: "There was no evidence of ... intellectual decline, language or perceptual deficits Indeed pilots were intact on the vast majority of tests. However, there was evidence of under-functioning on tests associated with psychomotor speed, executive functioning and attention [T]he evidence available to us in this audit does not enable us to draw firm conclusions regarding a causal link with exposure to contaminated air." In her audit, Mackenzie Ross did not associate (limited) observed deficits with exposure to contaminated air.

The Mackenzie Ross findings were interpreted in a variety of ways. The way in which the findings were represented by Dagbladet.no, a Scandinavian news-based Internet site, tells us much about that publication's editorial policy. Dagbladet.no concluded: "This report ... adds weight to the hypothesis that compounds resembling nerve gas in cabin and flight deck air have caused irreparable neurological damage to aircrew." It must be asked how a report that was careful not to ascribe causality could be seen to support the hypothesis that organophosphates in flight-deck and cabin bleed air cause neurological damage among aircrew?

Communications theory, specifically Kasperson's theory of risk amplification, can help explain Dagbladet.no's construction. In his essay 'The Social Amplification of Risk' Kasperson notes how "receiving stations" like newspapers and TV news channels reproduce ("amplify") stories that complement their editorial line, and discount or attenuate stories that do not. As

Kasperson puts it: "[S]ignals that are inconsistent with previous beliefs or that contradict the person's values are often ignored or attenuated. They are intensified if the opposite is true." Regarding the Mackenzie Ross audit, it is clear that Dagbladet.no ignored those findings that contradicted its editorial line on organophosphates and intensified those findings that were supportive.

Another characteristic of Dagbladet.no's reporting was its sensationalism. One article carried the banner headline: "You are being gassed when you travel by air." This headline gave the impression that cabin air is routinely contaminated. This is not the case. As Dagbladet.no itself explained in another article: "When asked by Dagbladet.no for information, the Norwegian Civil Aviation Authority's analysis section ... revealed 13 mysterious incidents which may be connected with contaminated cabin air in aircraft [between 2001 and 2005]."

It would seem that media sensationalism is ubiquitous: In an article titled "Death in the Air", *The Thamesmead Gazette*, a newspaper sold to those living close to London City Airport, claimed that residents were being crop-dusted with organophosphates by arriving and departing aircraft: "The lubricant leaks into the cabin, but it also leaks into the air. This means that Thamesmead could be crop dusted by organophosphates as much as 200 times a day."

Bizarrely, the Gazette also claimed that "aircraft are using OPs [organophosphates] as their main lubricant." In fact, it is synthetic oil that is a jet engine's main lubricant. Potentially hazardous OP-type compounds may be produced if the synthetic oil reaches a very high temperature. *The Thamesmead Gazette's* report was subtitled: "Every day, planes flying in and out of London City Airport are slowly killing us." Curiously, this report reproduced a statistic that seemed to undermine its own argument: "The DETR [Department of the Environment, Transport and the Regions] confirmed recently that the failure of oil seals occurs in one in every 22,000 flights."

In an article titled "Flight Fumes Warning", the Newcastle paper *Sunday Sun* opened its report with the hyperbolic "North people jetting off on their summer holidays are under threat from deadly chemicals which leak into planes Independent air industry pressure group Aopis has warned that air crews and frequent flyers could even suffer brain damage caused by breathing in the toxic fumes." The oddest aspect of the Sun's report was how it sensationalized the issue despite printing a statement from the U.K. Civil Avi-

(See *Cabin Air* on p. 6)

Liquid Bomb *(Cont'd from p. 2)*

enough range of secreted explosives. Furthermore, even advanced technology X-rays and the costly cabin baggage computed tomography (CT) based systems under development would likely not by themselves detect the full threat spectrum, particularly if device components are distributed between multiple passengers or bags. To achieve robust explosives detection, a combination of technologies along with upgraded processes and procedures is required.

Given these gaping holes in the current checkpoint screening capability, there is a temptation to adopt the systems currently being used for hold baggage screening, but regulators must also take into account the fundamental differences between the threat in hold baggage versus the threat against the cabin.

Fortunately, the technology, processes and know-how to deal with this far more effectively are available today for both baggage and personnel screening. With the right equipment and measures, it is possible to dramatically boost checkpoint screening performance and realize a screening system that's both operationally viable and that lacks the systematic flaws that have permitted the tragedies and close calls of recent years.

A number of existing and near term technologies are available that, when combined appropriately with each other, can complement or replace existing systems. Examples are Thermal Neutron Analysis (TNA); millimeter-wave; X-ray backscatter; and Quadrupole Resonance (QR). Notably, TNA is being revisited as a complementary technology for the checkpoint as a means of screening items such as laptops, given its ability to penetrate dense metals that are difficult for other techniques, and to analyze liquids for elemental composition.

The incorporation of QR into X-ray systems is another example of how a new technology can be used to enhance the performance of existing systems without necessarily requiring widespread revamping of operator training and having only a minimal effect on operating procedures. The combined X-ray/QR systems now available represent the first example of combining mutually independent (i.e., orthogonal) technologies in a layered approach, as recommended after 9/11 by the U.S. National Academy of Sciences. Both General Electric and QRSciences have developed QR technology for passenger and baggage screening applications and have devices that have recently completed (or will soon complete) testing by the U.S. Transportation Security Administration. QR technology products for both shoe and baggage scanning are available and immediately deployable as part of this broader solution. As such, it is worth discussing QR further as a case study for improving checkpoint security.

Combining QR with other systems has demonstrated important synergies and advantages. Notably, QR is a "chemical fingerprint" technique that is tuned to detection of specific explosives resulting in high detection probability and a low intrinsic nuisance alarm rate. This is especially important for minimizing congestion at secondary search. Similarly, this forensic character makes QR particularly suited for detecting explosives transported as bomb components, because it is not dependent on the presence of other telltale signs of an assembled bomb such as a detonator, battery or other initiating means. This is a recognized limitation of X-ray technology and current primary screening processes.

Another example of where new and existing technologies can be integrated or used in concert to address current loopholes is in the area of passenger screening. Trials have been undertaken in the U.K. using new whole-body imaging systems such as millimeter-wave and X-ray backscatter. Such devices would benefit from the integration of QR or trace-based detection systems. For example, it is possible to operationally augment these technologies with a standalone QR based shoe-scanner. The capabilities can also be combined in a fully integrated unit. This would allow whole-body imaging systems to counter the strategy used by Richard Reid on December 22, 2001 when he breached security and attempted a shoe-bombing on American Airlines Flight 63, between Paris and Miami.

Screening Process Solutions

Some of the technologies mentioned above and others that are currently available may be too slow or costly to be used for every passenger, so it is important to explore effectively segregating and screening passengers to different standards according to passenger profiling and watch lists. A known/pre-approved passenger could be subject to a faster "standard" search whereas someone on a watch list might, if allowed to fly at all, be subjected to a much more detailed inspection using a combination of advanced technologies.

The remainder (the unknowns) would potentially be subject to a more thorough evaluation than known passengers, but nowhere near the screening detail to which profiled candidates might be exposed. This can be achieved either by implementing several lanes with a varying equipment mix or identical lanes with the ability to switch screening modes dynamically on a passenger-by-passenger basis based on profile. This approach would ideally be mixed with the random selection of passengers believed to be low threat for more detailed screening.

Taking this concept further to help address the potential threat from carry-on liquids, pastes and gels, the ability to carry-on these items, or any other specific items, might be dependent on the passenger profile

with pre-approved passengers permitted to carry-on a wider range of these materials and cabin baggage items generally. Those passengers not pre-approved may end up being severely restricted in the type and amount of cabin baggage they are permitted.

Historically, there has been a tendency for governments to “make the perfect be the enemy of the good”. They delay deployment of effective technology while waiting for the “perfect” system to be developed. With the recent U.K. attempt, terrorists have shown this contrived delay to be an unaffordable luxury. Available technologies can be effective for detection and deterrence of future exploits. By acting sooner rather than later, the industry can better meet the challenge of integrating different complementary technologies into an effective system-of-systems.

It is also important to evaluate both operational and detection capabilities simultaneously to ensure a fast-track deployment of updated systems and avoid the serial approach that has delayed new technology in the past. The current focus on assessing performance of individual devices in isolation must also give way to system-of-systems test processes and methods that evaluate entire systems, including operators and operational procedures.

After 9/11 checkpoint upgrades went only part way in addressing the increased range of cabin threats. A new or substantially revamped checkpoint is now needed to

counter an expanded range of threats, sophisticated and organised adversaries and a new security landscape.

No perfect inspection technology is possible for such a broad range of threats. However, combining new and existing technologies with procedural changes will keep terrorists guessing, act as a deterrent, and improve detection of the wide assortment of attacks. Several mature technologies, including QR, millimeter-wave, X-ray backscatter and TNA can play complementary roles at the screening checkpoint and should be part of a reconfiguration of the screening system.

Targeted screening based on profiling coupled with tailored hand-baggage restrictions may be the most effective method in terms of cost, space requirements and throughput for upgraded security.

The U.K.’s “liquids plot” should serve as a wake up call for governments to move forward aggressively with development, operational trials and deployment of multi-technology, layered systems taking advantage of available technologies and processes to better defend against the omnipresent terrorist threat. ➔

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Laptop (Cont’d from p. 1)

incidents involving inflammatory batteries. The Federal Aviation Administration (FAA) has recorded six on-board incidents in the past two years and 60 incidents overall since 1991 that involved laptops and other battery-powered devices. FAA Tech Center testing of lithium batteries began in 2004. In that year, a television news crew’s battery exploded aboard an aircraft carrying vice presidential candidate John Edwards, forcing the airplane to divert.

In a May 15, 2006 incident a passenger’s laptop burnt in an overhead locker as Lufthansa Flt 435 taxied for departure at Chicago’s O’Hare International Airport. It was pitched out a door onto the tarmac where it contin-

ued to burn.

Problems with overheating rechargeable batteries have led to recalls by other laptop manufacturers, including Hewlett-Packard and Apple. The U.S. Consumer Product Safety Commission has documented 339 cases in which lithium and lithium-ion batteries overheated, began to smoke or exploded since 2003.



Lufthansa laptop incident, Chicago O’Hare Int’l Airport, May 15, 2006

The danger to airlines first surfaced in 1999 and involved the original lithium battery (precursor of the LI-ion model). About 120,000 of those, stacked on two pallets, burst into flames at LAX airport, shortly after being unloaded from a passenger plane’s cargo hold. The batteries were then banned for carriage in passenger cargo.

However, the South African Truth and Reconciliation Commission in its 2002 review of the Nov. 27, 1987 downing of Flt SA295, the SAA 747 Combi “Helder-

(See Laptop on p. 7)

Battery Incidents & Recalls Since 2003			
Item	Incidents	Injuries	Number Recalled
Laptops	55	1	277,100
DVD Players	49	5	430,000
Cell phones	36	3	1,190,000
Cameras	4	0	200,000
Total	144	9	2,097,100

Source: Consumer Product Safety Commission

Cabin Air (Cont'd from p. 3)

ation Authority to the effect that the risks presented to the travelling public were “negligible”: “The preliminary findings show the constituents of the oil cause no long-term harm. Leakage into aircraft cabins is a very rare occurrence and only happens if there is a fault on the aircraft. The risk is negligible as far as we [the CAA] are concerned. The chances of any aircraft having oil vapours leak into the cabin is very small.”

Sensationalism is not confined to the popular press. In December 2003, the U.K. broadsheet *The Times* reported on this author’s research into flight crew fatigue and stress. Despite its positioning as a “quality” newspaper, *The Times* produced a determinedly skewed account of the research. Important facts — like the limitations of the research methodology (the research paper was based on interviews with just 11 pilots) — were not mentioned by *The Times*.

For a detailed analysis of the paper’s bias in the matter of reporting the research see: “Bennett, S.A. (2005) The Role of Social Amplification and News Values in the Representation of Risk Research: A Case Study. *Risk Management: An International Journal*. Volume 7, Number 1.” For a wider review of media bias when reporting on the aviation industry, see this author’s latest book *A Sociology of Commercial Flight Crew*, published by Ashgate.

As to why the media seem drawn to bad news, the answer lies in the public’s appetite for misery and gore. Bad news sells, in part because it makes readers, viewers and listeners feel better about their own tedious existence. Good news cannot do this. As Alan Bonner explains in his book *Media Relations*: “[N]ews organisations are often accused of ignoring the good to concentrate on the bad Well, yes. Who, after all, is going to rush out and buy a newspaper ... to learn that everything worked the way it should that day?”

Sensationalist reporting on commercial aviation is irresponsible. It may sell newspapers, magazines or airtime, but it does so at great cost to passengers’ peace of mind and the industry’s reputation. Sensationalist reporting is a cruel disservice to all those women and men who labor long and hard to make commercial aviation one of the world’s most dynamic and successful industries. Commercial air transport creates wealth, drives scientific and technological innovation and facilitates cultural exchange and understanding. It deserves serious journalism.

It’s not all bad news, however: some newspapers and journals do exercise their power and influence responsibly. Surprisingly, perhaps, the British satirical magazine *Private Eye* published a remarkably considered review of the Mackenzie Ross report. In its July 7-20, 2006 edition, the magazine commented: “[T]he study is limited because there are no ‘controls’.” It also noted: “The preliminary

findings ... while not providing any kind of causal link, might suggest otherwise (my emphasis).” In its February 14, 2006 edition, *The Daily Telegraph* cited the U.K. Defence Evaluation and Research Agency’s observation that “... a conclusive link between ‘fume incidents’ and staff sickness could not be found.”

With regard to the cabin air quality issue, two conclusions can be drawn: First, the quality and safety of flight deck and cabin bleed air merits further rigorous scientific investigation. As Mackenzie Ross says: “Given the scientific uncertainty regarding the potential hazards of inhalation of pyrolyzed engine oil, further research ... is definitely warranted.” Until the results of such investigations are made available, however, protagonists should behave responsibly.

I recently spoke to the Safety Manager of a large U.K. airline who complained that a certain pilots’ union had been encouraging his flight and cabin crew to query cabin air quality. The subject airline had no history of organophosphate contamination. Its aircraft were powered by engines whose bleed-air architecture minimized the risk of contamination. Engines were maintained to the highest standards by a reputable international aero-engineering company. The airline purchased only new aircraft (that were fitted with the latest filtration technologies). Despite the airline’s positive safety climate and commitment to high quality flight operations, the union insisted on pushing the cabin air quality issue.

At what point, it might be asked, does health and safety “consciousness raising” become scaremongering, or even intimidation? Secondly, sensationalist reporting on the cabin air quality issue is a disservice to safety campaigners. Far from helping them in their work, it undermines their credibility and makes rational debate impossible. Media sensationalism is self-serving, its purpose being solely to improve the “saleability” of reportage. Media corporations’ prime concern is the maximization of shareholder value — as any media mogul would confirm.

It is important that aviation professionals remain alert to the media’s proclivity for bias and sensation and to its tendency to be — as a member of the U.K. parliament once put it — “economical with the truth.” Media reporting on the industry is schizophrenic. Flight and cabin crew are portrayed as either heroes or villains. They are either canonized or demonized. In the world of the mass media there is no happy medium. An appropriate degree of scepticism is therefore required when reading, viewing or listening to reports about the industry. ✈

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Laptop (Cont'd from p. 5)

berg” off Mauritius, named lithium batteries as a suspect. At the time of the original crash inquiry, it was not appreciated to what extent lithium batteries in bulk were incendiary (i.e., could cause an accelerated fire).

If the FAA Tech Center is unable to now endorse the manufacturers’ claims of a new and safer design of

Lithium ion battery and declares it to be HAZMAT, a whole generation of road-warrior businessmen will be leaving their beloved laptops at the office. They’ll then be looking to the airlines to provide business class keyboards and Internet access – and their firms to conjure up online Virtual Private Networks (VPNs) to support their enroute info-addictions.➔

Security Roundup	
DATE	INCIDENT
04 Aug	LAN flight 763 flying SCL-CCS-MIA was forced by US Authorities to divert to Nassau because of “security reasons”. Apparently there were 8 Cuban pax who were holding Venezuelan passports with fake US Visas. After the plane landed in Nassau, pax were forced to stay aboard for almost 6 hours because Bahamian police wouldn’t let them out and stationed armed cops at the door of the plane, threatening to arrest anyone who dared to climb down. Six hours later, the plane was refueled and sent back to CCS where pax arrived at around 5am on Saturday.
08 Aug	A Chinese pilot who belongs to the banned Falungong spiritual movement wants political asylum in the United States, saying he fears punishment if he returns home. Captain Yuan Sheng of China Eastern Airlines said he abandoned his crew after his flight carrying about 300 passengers from Shanghai landed in Los Angeles on Aug 8. Just before his flight took off from Shanghai, he said, airport police questioned him and wanted to detain him for talking to ground safety staff about alleged withdrawals of members from the Chinese Communist Party and persecution of Falungong practitioners.
08 Aug	A man drove on a Southwest Florida International Airport runway for about 15 minutes Tuesday — at one point alongside a departing 737 jet — after entering the restricted area by crashing through the gate of a service center reserved for private jets. Dispatchers called Lee County Port Authority airport police, who then chased the man on the runway for about 15 minutes. That’s when he lost control and drove into a drainage ditch, crashing his car.
10 Aug	A Jetblue flight bound for Richmond was disrupted Thursday by the removal of two passengers. The plane was traveling from Boston’s Logan airport. The jet was taxiing when the captain decided to return to the gate and have two antagonistic men removed from the plane.
10 Aug	Federal air marshals flying out of the Dallas Ft. Worth airport were dismayed to learn they would be subject to searches by airport contract security guards. An internal memo issued yesterday in the Dallas Field Office instructs FAMS “not to carry any type of liquid, including water or gel (toothpaste)” and to identify themselves as air marshals prior to inspection of their bags.
12 Aug	Investigators said hairspray was the root of the problem that spurred a three-hour terminal evacuation Saturday at Dallas/Fort Worth Airport. More than a dozen gates around Terminal E Gate 31 were evacuated around noon after a piece of luggage was found emitting smoke and liquid, investigators said. Several flights were delayed and passengers had to wait outside the terminal until security personnel determined it was safe to return.
13 Aug	A British Airways flight from Heathrow to New York has been turned back after a mobile phone was heard ringing at the back of the plane. No-one on board the plane admitted owning the phone, banned under current security restrictions, so flight BA179 returned to the London airport. The scare came as the Department for Transport downgraded the UK terror threat from critical to severe.
14 Aug	“If a plane on a regular flight approaching important facilities fails to obey our orders and the crew is replaced by terrorists, naturally, measures will be taken to shoot down such an airliner,” Commander-in-Chief General Vladimir Mikhailov said recently, quoted by the Interfax news agency. Backing that up... Russian President Vladimir Putin signed into law earlier this year an anti-terrorism measure that calls for the shutdown of hijacked aircraft when they threaten vital facilities.
15 Aug	POLICE are investigating how a 12-year-old runaway boy with neither a passport nor a boarding pass was able to walk on to an international flight at Gatwick and seat himself at a time when security staff were supposed to be on high alert. He was intending to travel on the Monarch Airlines flight ZB784 to Lisbon.
16 Aug	“Our highly trained transportation security officers can see if a shoe has been tampered with when they view it on the X-ray machine,” TSA’s Chief Kip Hawley said. An April 2005 study by the Homeland Security Department had stated that X-ray images “do not provide the information necessary to effect detection of explosives.” A research scientist who has studied the issue said the truth lies somewhere between the study’s findings that X-ray machines can’t detect bombs and the TSA Chief’s assertion that they can. Terrorists contacted for their opinion opined that: “only time will tell”.
16 Aug	A flight from London to Washington DC has been diverted to Boston after the pilot declared an emergency because of a “passenger disturbance”. United Flight 923 from Heathrow Airport, with 182 passengers aboard, landed at Logan International Airport. At least one passenger is reported to have been involved in a confrontation with the crew on board the flight.

Significant Regulatory Activity		
Aircraft	Federal Reg Date	Subject Matter
Fed Reg 15 Aug NPRM	Docket No.: FAA-FAA-2005-21332	commercial space transportation....adds procedures for including a safety approval in a license application. Once the FAA issues a safety approval, the holder could offer the approved safety element to prospective launch and reentry operators for use within a defined and proven envelope.
Fed Reg 16 Aug NPRM	Learjets 23 thru 55 2006-NM-083-AD	to prevent inadvertent stby fuel pump operation, which could result in inadvertent fuel transfer by the left or right wing fuel system and subsequent over-limit fuel imbalance between the left and right wing fuel loads

ACCIDENTS AND INCIDENTS ¹				
DATE/SITE	AIRCRAFT & REGN	CIRCUMSTANCES	DEATH & INJURY	PRELIMINARY ANALYSIS ² Imagery at www.iasa.com.au/210806.htm
30 Jul 1625L Midland Intl Texas	737 of SWA Flt: 500	10 mins after parking, ramp agent noticed brakes were on fire & ext'd	Nil/122 pax +5 crew	Flt 500 to Albuquerque and Phoenix got a new airplane & depltd 50mins late
31 Jul ~1045L Albuquerque NM	757 of American Flt: AA953	Diversion & emergency landing after losing one engine enroute	nil/>200 pax	heading from San Francisco to Miami
01 Aug 0912L Blackpool UK	Beech 200	A/c landed in full emergency conditions after an engine failed	Nil/9 o/b	Diverted in at short notice
02 Aug afternoon Hong Kong	A300 of DragonAir	Freighter returned after 30 mins and became crippled on runway 07L	nil	Flt:KA590 (on wet lease) lost its hydraulics in the climb
02 Aug 1515L Karachi Pakistan	MD80 of Aero-Asia Flt: E4102	A/c re-landed after burnoff, following an engine failure soon after takeoff	Nil/126 pax +9crew	Islamabad bound from Quaid-e-Azam International Airport Karachi
03 Aug morning Denver Colorado	737 of United Flt: UA112	Food-service truck struck a/c at 20mph, hitting it near the fwd exit.	1 injured	West-facing airplane then faced South with substantial damage
03 Aug Heathrow UK	A330-200 of Emirates Flt:EK7	Crashed into a JetBridge at the new T3 pier on arrival, holing port wing	nil	A6-EAD was repositioned at T5 for a repair. Outbound Flt EK 8 cancelled
04 Aug ~1230L Tenerife Sur A/P	767-200 of Excel Reg: G-BNYS	A/c turned back to TEN about 45mins out with a cabin fire alarm	Nil/188 pax +7 crew	Tenerife Spain to Cardiff Wales
04 Aug Puerto Ayacucho	LET-410 reg: YV-867CP	Depltd La Venurosa Colombia & was forced to crash by Colombian fighters	unknown	Illegal flt crash-landed 145km WNW of Puerto Ayacucho Venezuela
07 Aug El Fasher Sudan	AN24 of Sudan Air Force	Crash-landed near runway 05 threshold, destroying the #1 engine	unknown	claimed shot down by Darfur rebels (the NRF), however claim is false
07 Aug Cody Arizona US	Brasilia of SkyWest	Flt 3727 evac'd during taxi due to heavy smoke in the cabin	nil/24 o/b	aircon unit had failed
07 Aug ~1545L Orlando Florida	A320 of NWA Flight 529	A/c blew two tires while stopping after an engine fire on takeoff	nil/146 pax	Detroit bound
08 Aug 1634Z Culebra Puerto Rico	Beech 18 of Tol-Air Inc N498BH	Ditched in Luis Pena canal after experiencing engine problems	2 inj	returning from cargo run to Antigua, ditched on W side of Isle of Culebra
08 Aug ~1400L Incheon Sth Korea	A321 of Asiana	After 30 mins aircraft captain discovered he was without cabin crew	6 abandoned	.. & returned promptly to collect them. Planned destinations Taegu and Cheju
08 Aug day Seville Spain	MD87 of Spanair	Crew mistakenly flew to Seville (SVQ) instead of schedule destination Santiago de Compostela (SCQ)	nil	Operated by Nordic Airways wet lease. Flight's scheduled destination was 700kms distant from Seville.
08 Aug Narita Japan	A340-300 of Turkish	Istanbul-Narita flight hit severe turbulence injuring six (inc 4 pax)	6 injured	30 mins before landing
08 Aug day Philadelphia Pa	MD80 of AA Flt: AA1883	A/c blew a tire on takeoff 27L, burnt off gas and re-landed runway 27R	nil	Philadelphia to Dallas Ft Worth. Pax deplaned on the runway
09 Aug 1404L Sao Paulo Brazil	Fokker 100 of TAM PT-MQN	Flt JJ3040 lost the L1 door 18mins after t/ff. Door fell on a supermarket	nil/79 o/b	departing Congonhas airport. Known problem for doors with integrated stairs
09 Aug day Al Hayma Yemen	MI-17 of Sa'ana Governate	Helo crashed into a mountainside while flying low due to bad weather	5 dead/3crew + 2 pax	all military casualties
10 Aug ~1156L Tampa Florida	Cessna Citation	Blew left tire on takeoff and returned. Landed safely after burning off fuel	nil	arriving from Fort Myers for pax pickup
10 Aug McAllen Miller A/P	MD-83 of Allegiant Airline	Engine blew out after takeoff for Las Vegas and a/c relanded McAllen	nil/150 pax	McAllen Miller A/P Texas
10 Aug night Jackson Mississippi	767-300 of Delta Flt: DL670	N143DA for Atlanta, diverted because of weather and got bogged	nil/>245 pax	Atlanta to San Francisco flt ran off taxiway B into the Mississippi mud
10 Aug 1654L Hong Kong	777 of Cathay Flt: CX719	Returned to Hong Kong after 11 mins with a report of smoke in the cockpit	nil/184 pax o/b	bound Jakarta
11 Aug evening Kochi	A320 of Indian Airlines IC515	A jammed up nosewheel was finally freed and a/c landed undamaged	nil/135 o/b	Chennnai-Kochi-Goa-Kuwait
11 Aug ~0230Z Hashemabad Iran	MI-8 of Mountaineer Fedn	Helo crashed on 5671m tall Mount Damavand during a resupply mission	7 dead/7 o/b	helo overloaded with iron girders crashed on appch about 6 am local time
11 Aug 0215L Saipan Micronesia	PA32-300 of Taga Air	Forced landed half mile SE of upwind end of runway 25 after takeoff	7 serious inj/7 o/b	enroute to Tinian. Crashed on farm at Upper Dandan. Aircraft burnt out
12 Aug ~1130L Amsterdam Nethlds	737-9K2 of KLM Flt: KL1002	PH-BXP nosewheel slipped off paved surface & a/c became bogged	nil/190 pax	arr from Heathrow on runway 18L in heavy rain & high winds
13 Aug ~2020L Piacenza Nthn Italy	C130 of Air Algerie 7T-VHG	Civil C130 crashed on the outskirts of Piacenza, a small northern Italy town	3 dead/3 onboard	Vicinity of Milan. L100-30 left Algiers 1812Z for Frankfurt estimate of 2123Z
13 Aug 1215L Mumbai India	A340 of Jet Airways 9W-118	Called for a priority landing on arrival with a no 1 engine shut down	nil	Arr from Heathrow. 2nd eng failure in a month for the Jet Awys new A340's

¹ Air carrier accidents, or other incidents involving serious failures or fatal injuries, investigated by aviation safety agencies of various nations.

² DISCLAIMER: These assessments are not intended to assert probable cause or liability, but rather are intended to provide insight pending publication of a final report of investigation. Preliminary analysis by J. Sampson, International Aviation Safety Association (IASA).