

# In the Unlikely Event of...

Not all of us are pilots, not all of us are engineers, not all of us fit into the myriad categories of aviation community membership, but there is one category into which all but a very few of us will fit at some time or other – the airline passenger.

Airline travel is a fairly streamlined process these days, especially compared to two or three decades ago – we book and pay on line, we can do our own check-in, we saunter though to the club lounge for a light meal or liquid refreshment and await our boarding call. After a briefly inconvenient security check, we are conducted down a long tube that connects with another long tube full of seats and overhead lockers.

Smiling, helpful flight attendants greet us, we shuffle down the aisle, and wait patiently (don't we?) while our fellow travellers get themselves organised, stowing their carry-on baggage and finding the right seat. Eventually the captain announces that the doors are closed and that we will soon be on our way. There is a short interruption to the background music while a safety video plays, with its own brand of soothing music, smiling actors and a gently reassuring voiceover. The attendants stand in the aisle waving a few things about and pointing occasionally with both arms. You don't take a lot of notice, as it's boring, and nothing ever happens anyway.

Here we go – the plane has lined up on the runway, there's a brief pause, then the engine noise increases to a roar; wow, feel that acceleration!

Meanwhile, over on the seashore, quite close to the runway, Jonathan Blackback has chanced upon a seafood dinner – the only problem is the hard shell around the outside. JB has a strategy for this, however, and seizes the meal in his beak for a quick flight to the nearest hard surface – the runway. Several of his kin see his prize, and thinking their entitlement is greater, all head for the drop zone to 'mussel in' on the feast.



Passengers evacuating an Airbus A340 after an overrun at Toronto – note that the slide has not deployed. Photo courtesy of Transportation Safety Board of Canada.

Some of the passengers in the left side window seats see a series of black and white flashes disappear down the throat of number 1 engine – JB, his mates and the grit have well and truly hit the fan. An enormous fireball erupts momentarily from both ends of the engine, with a loud accompanying “boof! – boof! – boof!” sound, which almost drowns out the chorus of screams and sacred expletives that fill the cabin.

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... safety briefing ...  
*sit up, look up, and  
pay attention!*

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Up front, the non-flying pilot has just opened his mouth to call “vee-one” when the whole plan changes. After the normal human reaction interval, the captain calls “STOP” and there is a well-rehearsed, orderly sequence of actions resulting in closed power levers, maximum braking and the roar of reverse thrust. Whew! Or not – something is not quite right. The cockpit voice recorder dispassionately records a statement from P2 hot mike, “Oh, (expletive) we're off the (expletive) end!” And we are!

To a renewed chorus of screams, the ride suddenly gets a whole lot rougher – there's a lot of bumping and jolting, during which some of the overhead lockers pop open and luggage drops out; you bang your head on the seat in front, and wind yourself as your chest jack-knives onto your knees. The aircraft lurches to the left, there is a final ‘thud’ and suddenly everything stops. Whew! Or not...

A few seconds of the ‘stunned mullet’ syndrome then the noise starts again – from the passengers. On the flight deck, the captain decides that the prudent course of action is to get everybody off the aircraft, and calls, “Evacuate, evacuate!” over the public address system. Flight attendants quickly unbuckle and move to their designated exits; a lot of people stand up and begin groping in the overhead lockers, and the attendant seated at the rear checks outside his appointed exit before throwing it open. Just in the nick of time he realises that the slowly-forming puddle under the left wing isn't water, and abandons the attempt. A lick of flame appears from somewhere, and the puddle catches fire, slowly at first, but then more and more vigorously.

Quickly, the flight attendant grabs the interphone and advises the captain that there is fire behind the left wing and that the left rear and left over-wing exits are not available. There is a fresh outbreak of screaming and scrambling in the rear half of the cabin as people see the flames, but by this time the front left and right door exits are open, and an able-bodied passenger has managed to open the right over-wing exit and toss it outside. People at the front are moving to the exits, assisted by those same pleasant, quietly-spoken flight attendants who have now assumed the persona of the drill sergeant of your worst nightmares.

**You have to do what they tell you to do!** Confiscated hand baggage is piling up between rows 1 and 2 on both sides of the cabin, and includes a guitar and a pair of tennis rackets!

*Always have a plan,  
and revise it every  
time you fly.*

Mid cabin, some passengers are reaching up for their carry-on bags as if nothing is amiss, but are soon disabused of that idea by the press of bodies and some pointed suggestions from the rear. There is a scrummage at the over-wing exit, but our able passenger has stationed himself outside the exit and is forcibly assisting people through. Another passenger, who turns out to be an off-duty crew member, is marshalling the passengers in a safe area upwind of the burning aircraft. The expanding fire eventually melts and burns through several left rear cabin windows, and a billowing cloud of acrid smoke invades the cabin.

Visibility drops, as do several passengers, who follow the floor-mounted emergency lighting to the right wing exit. Our flight attendant at the rear has donned his emergency smoke hood and checks the seat rows progressively from the rear, making sure that nobody is left behind. Seventy-two seconds after the call to evacuate, all persons are off the aircraft, and generally in good shape except for some sprains and grazes from the slide descent, some coughing and retching from the effects of the smoke, and some cut feet from walking over the rough ground in stocking feet. The latter were relieved of their high-heeled shoes before descending the slide.

By this time, fire crews have arrived and are attacking the seat of the fire. The last few occupants to leave via the front left exit are greeted by a welcome 'fog' from the first fire appliance, to protect them from the radiant heat of the now-intense fire.

A happy ending? Well, sort of. The scenario is fictitious, but has been based on a compilation of several accidents, not all of which had such a fortunate outcome. What can you, as a passenger, do to maximise your chances of survival in an aircraft evacuation?

## Before You Board

There are several things you can do before the flight that may make the crucial difference. One is to carry as little cabin baggage as possible, and if travelling overseas, stow your passport and money on your person. This should eliminate any need or desire to go hunting for your bag while everything is chaos around you. If you are buying duty-free liquor, do so when you get to the other end, not before departure. Most spirits do not require much encouragement to burn, and bottles can be lethal missiles in an accident sequence.

Wear clothing made from natural rather than artificial fibres to protect from flash burns, and the footwear in which you would be prepared to walk home. Open sandals, high heels and thongs (flip-flops) are not going to help you in any cabin evacuation where time is critical and conditions are hostile.



*This 4-year old amazed his fellow passengers by finding the briefing card himself, studying it and practising the brace positions during the safety demonstration.*

## On the Aircraft

As you make your way to your assigned seat and before you sit down, count the number of seat backs between your seat and the nearest exit. Then count again to an alternative exit, and memorise these numbers. Sit down, fasten your seat belt, and before you get too settled, pull out the safety briefing card and study it thoroughly. Work out and mentally rehearse how the exits open, reach under and touch your life jacket (it's a bit further back than you might expect), check which side of the aisle the emergency floor lighting runs. Undo your seat belt and refasten it a couple of times so that you can do it by feel if necessary. Just before takeoff, cinch it up that last extra bit, and keep it that way until well airborne.

If you happen to be seated in an exit row, a flight attendant will discuss the operation of the exit with you, and generally there will be a supplementary briefing card outlining your obligations if you accept that seating position. Be aware that 'armed' door exits can require a force of up to 35 kg to open, and that the over-wing emergency exits can weigh 15 kg or more. Take note of where the briefing card says to put the exit panel – most often outside the aircraft. You do not want people tripping over it on the way to the exit. Always check the outside environment for fire or other hazards before opening an exit.

Take note of the safety briefing, whether it be recorded or in person. Even if you

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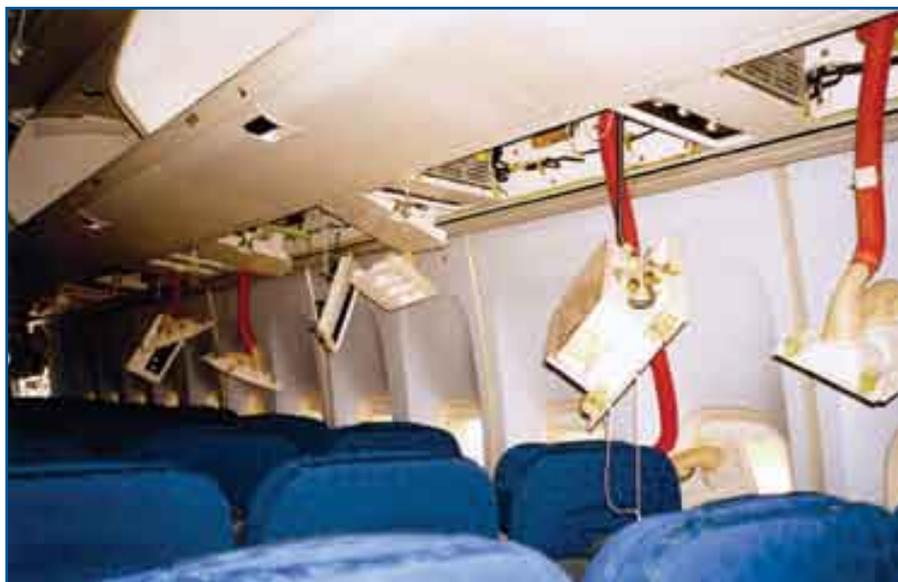
*Briefing card courtesy of Air New Zealand.*

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are a frequent traveller, **sit up, look up, and pay attention!** It's more than just according the flight attendants the courtesy they deserve, it may save your life. The aircraft type may not be the same as on the last flight, you may be in a different part of the cabin and several safety features may differ subtly. Yes, as we said in the heading, the event may be unlikely, but rest assured that when it happens, you will need to call on every piece of safety information that you (should have) learned beforehand. Remember, not all your flights will be on top-of-the-line carriers, and not all overseas operators have English as their first language. Always have a plan, and revise it every time you fly.

## In the Event

The event can be expected, as in an undercarriage problem before landing, or totally unexpected as described in our fictitious scenario. The cabin crew can cater for an anticipated event by passenger briefing, stowing potentially hazardous items more securely, moving disabled persons closer to primary exits, and selecting able-bodied passengers to assist them. Brace positions can be explained in detail and rehearsed, and crew commands can be explained in advance. All of this will result in a more orderly evacuation if it becomes necessary. In an unanticipated event, there are a huge number of variables,



Three passengers were struck by overhead passenger service units that came loose in this relatively benign overrun accident. A good reason to get your head down early. Photo courtesy of Australian Transportation Safety Bureau.

which have to be evaluated at the time, and very quickly so. One constant, however, is that **you must abandon your carry-on baggage.**

If there is fire, resist the urge to panic, even if all about you are doing so. Think about where you need to go and how to get there – crawling may be required to remain in breathable air. A hazard here is being trampled, but if the smoke and fumes are intense, this will discourage others from standing anyway. If the aisle becomes blocked, climbing over the seat backs may work, although this is generally easier from the rear if the seat backs fold forward.

Once clear of the aircraft, move to a safe distance upwind to minimise the risk of injury by fire or explosion, or even emergency vehicles. If you are able, help others less mobile than yourself. Do not worry about your baggage – in the best case, it will eventually be reunited with you; in the worst case, that's why you have travel insurance.

We cannot hope to cover all possible scenarios in a short article, but the keys to survival are preparation, forethought, and **taking notice of the safety briefing.** Think about it before the next time you fly. ■

## Area Minimum Altitudes

A new feature on the *AIP New Zealand Enroute and Area Charts* effective on 22 November 2007 is the addition of 'Area Minimum Altitudes' (AMA). An AMA is defined as

*"The lowest altitude to be used under instrument meteorological conditions (IMC) that will provide a minimum vertical clearance of 1000 feet, or in designated mountainous terrain 2000 feet, above all obstacles located in the area specified, rounded up to the nearest (next higher) 100 feet."*

AMA will be depicted on the charts in a similar manner to that used for Maximum Elevation Figures (MEF)

on the Visual Navigation Charts (VNC) series A to D. The larger figure represents thousands of feet, the smaller figure hundreds of feet. The AMA values will be shown for each one degree (of latitude and longitude) quadrilateral on Area Charts, and for each two-degree quadrilateral on the Enroute Charts. The computation of the AMA for a particular quadrilateral also includes a 5-NM buffer outside the quadrilateral border.

Note again that the AMA figures on the Enroute and Area Charts are not to be confused with the MEF figures on the



VNCs – the latter represent the highest known feature in the quadrilateral.