

ASK THE PILOT?

ADVANCED COACHING PROGRAMME

A photograph of a pilot, Captain Simon Lewis, smiling from the cockpit of an aircraft. He is wearing a white pilot's uniform shirt with gold stripes on the shoulders and a dark tie. The cockpit instruments and controls are visible behind him, and a cloudy sky is seen through the windshield.

CAPTAIN SIMON LEWIS

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INTRODUCTION

Welcome to the Ask The Pilot – Advance Coaching Program. I would strongly recommend that you first complete the Turbulence Cure Online Course before moving on to this additional Q&A session.

I hope you've enjoyed the Turbulence Cure course, and as you now know, turbulence is really nothing to be afraid of as it's simply a normal flying condition and no different to a bumpy road. It's certainly not dangerous to the aircraft!

But you're probably reading this because turbulence wasn't your only fear. It may have been the biggest tree in the forest, but in fact many people who have had a fear of turbulence have told me it was simply the thing that triggered their general distrust of flying. That once the plane started moving it reminded them of where they were and that would start a series of negative thoughts and concerns about other aspects of flying.

Of course, having taken our Turbulence Cure course you now know a lot more about the general science behind flight and some of the tools at the disposal of a commercial airline pilot to ensure a safe flight. But it's obviously more in depth than that. So the purpose of this Q&A session is to give you a further insight into commercial aviation so that you can stop thinking the worst case scenario every time you fly. Instead, you will now have some basic and key knowledge about the things you used to worry about and that will help you settle back, relax and even enjoy flying! Who knows, with this new found knowledge and confidence, maybe you'll even think about learning to fly.....!.

**So let's get into the questions:
ASK THE PILOT – Advance
Coaching Program**

1 WHY DOES THERE SEEM TO BE WATER DRIPPING AND SMOKE COMING OUT OF THE OVERHEAD COMPARTMENTS?

Well let me start by saying it's not smoke and it's nothing to be alarmed about. It's actually caused by the air conditioning which has a powerful cooling system and that can create condensation, not smoke, and it can very occasionally cause drips.

Because if super cold air is pumped into the humid air in the cabin, this will result in condensation.

It probably does look a little bit like a disco from the 1980s but it's perfectly normal. It's something that you'll perhaps see in hot destinations where it is very humid and if you do, it's nothing to worry about!



2 WHY IS THERE A SMELL OF FUEL AS WE SET OFF FROM THE DEPARTURE GATE?

Again, let me reassure you that this is nothing to worry about. It's more than likely that the first movement of the aircraft will be backwards. This is normally achieved by affixing a tug to the aircraft and then pushing it back, hence this movement is known as the "Push Back".

When the aircraft is being pushed back, some of the smell of the engine exhaust can make it's way into the cabin via the air conditioning system, due to it's location at the rear of the plane. Hence this can happen when the plane is going in a backward direction. However, once it stops reversing the smell will dissipate as the air conditioning continues to pump in fresh air.



3 CAN 2 PLANES COLLIDE?

In short no! There are a number of aids available to the crew including air traffic control who have an alerting system, as well as the aircraft's on board radar. But more importantly you may have heard of something called TCAS. This is short for traffic collision avoidance system.

This is a key piece of equipment installed on all commercial planes and it continually monitors other aircraft's relative distance. It will give audible warnings to the crew in the event that there is another aircraft in close proximity.

Here is a TCAS screen shot taken from an aircraft during a flight. The central cross at the bottom of the image represents the

aircraft that is seeing this reading and the broken semicircular lines are the distances ahead of it with the first being 20 miles, then 40, 60 and 80. This range can be changed to see further away if the pilots wish to.

The diamond shapes with numbers by them are other aircraft.

A minus figure by any of those aircraft means it's below the aircraft in question and a plus means it's above. A -00 means it's at the same altitude (or height). Then the number is the number of ft x 100 that it is above or below. So let's look at the aircraft on this display. We've circled the 5 of them to help you see them.



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So the one nearest the aircraft is about 15 miles away and is at 2100 feet below. The next closest one is level and about 50 miles away, the next is level again and about 60 miles away, and so on.

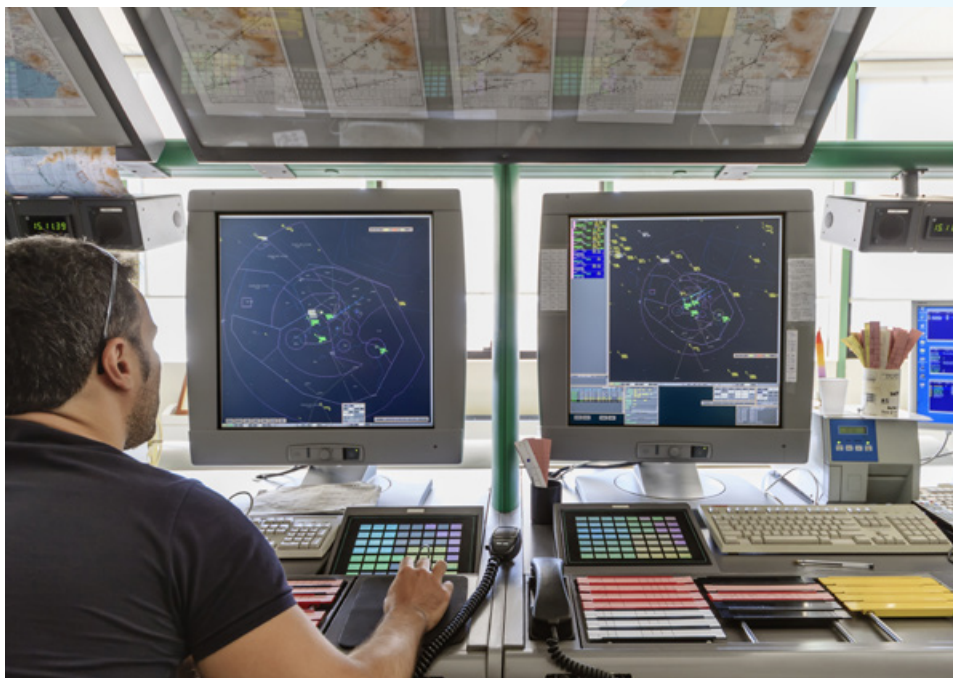
It is also highly likely that the ones on the same level are travelling in the same direction and even those at 2100 and 2400 below us are likely to be travelling the same way too. How do I know this? Well, aircraft travelling in opposing directions will operate at different heights with a vertical separation being a minimum of 1000 feet.

So all the planes heading one way may be at say 38000 feet where as those coming from the opposite direction may be at say 37000 feet.

And this is where TCAS comes in to play. If for any reason 2 aircraft are heading towards each other and the system senses they may get too close for it to be deemed safe, then it will automatically give the crew an instruction to fly in a certain direction.

But here's the clever part. As all commercial aircraft use the system, the other aircraft will also have TCAS on board and their system will also give an instruction but theirs will be in an opposite direction (as the 2 systems communicate with each other) thus ensuring both aircraft are moving away from each other until they are a safe distance apart.

So in summary, the combination of air traffic control and the on board systems available to the pilots will ensure that aircraft keep a safe distance from each other at all times.



4 HOW DO YOU FLY IN FOG?

Basically the same way as we do when we're flying at night or in clouds. Remember from the instrumentation I showed you during the lightning question on the course. Well we use the same instruments during fog. So whilst the human eye might not be able to see we still have all of our other aids available to us. And landing in fog is not a problem either.

In fact, modern aircraft are capable of landing without the pilot seeing anything at all so long as the airport that it is arriving to has the appropriate system too. It's truly impressive.

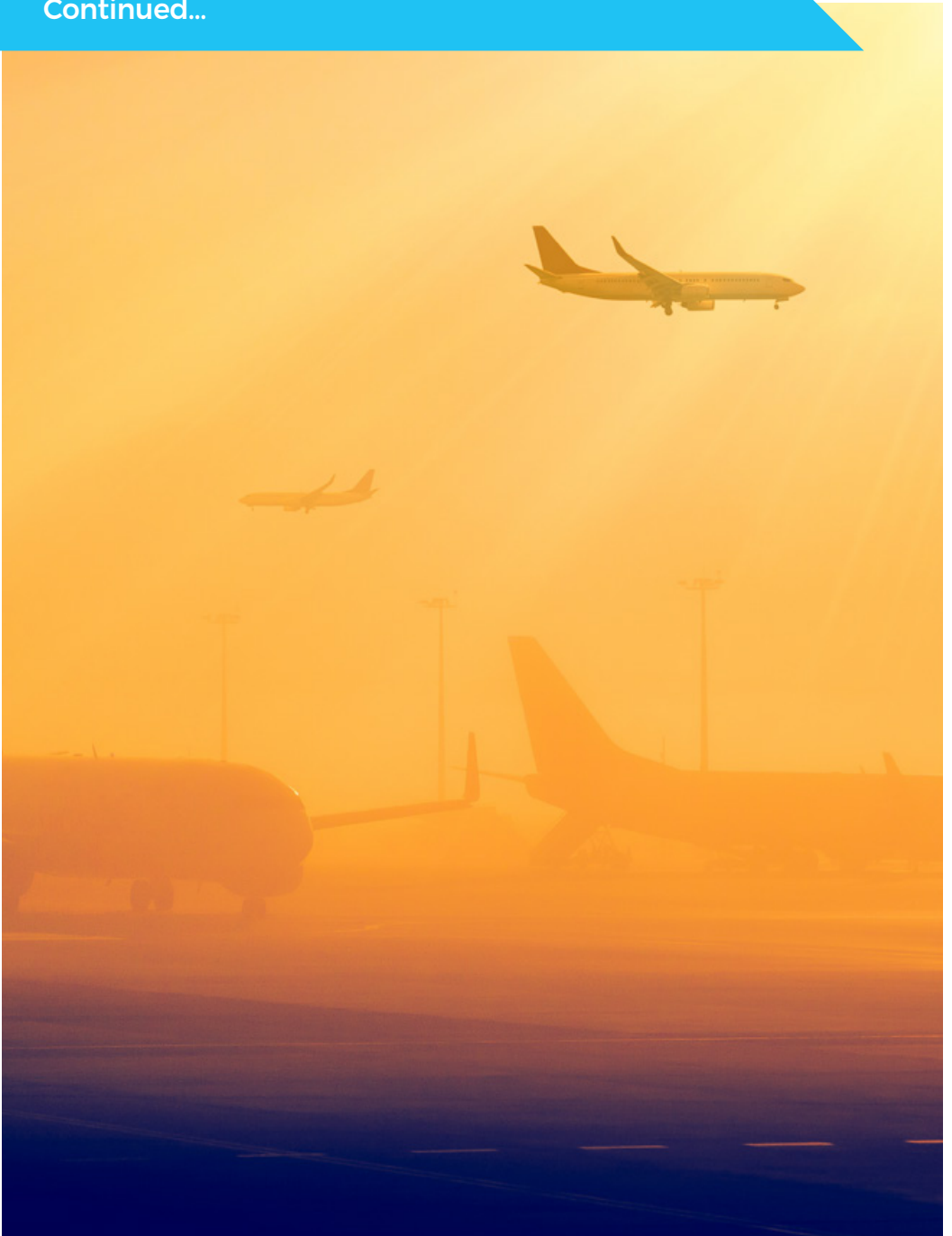
And if the destination airport didn't have the necessary equipment, then we would simply fly to an airport that did and all of this would be factored into the journey before we even set off to ensure we had more than enough fuel for any diversions that may be necessary.

But I suppose the only real problem with fog is that unfortunately it can cause delays because ground movements are restricted and separation distances are increased in low visibility.

But other than that, fog is neither here nor there.



Continued...



5 HOW DOES THE PILOT ACCURATELY LAND THE AIRCRAFT AND WHAT ABOUT CROSS WINDS?

Ok, so that's 2 questions but I thought we'd link them together as they are relevant to each other.

The first thing to consider is the fact that each pilot is highly trained and very experienced in landing the plane. But there are also a number of aides available to ensure that every landing is exactly as it should be.

Let's also just clarify what is a good landing! A good landing is not, as you would imagine, a landing that you barely feel. A good landing is for the pilot to ensure that the aircraft is in the right place, at the right time and at the right speed.

During the descent of the aircraft, air traffic control will be giving the pilot instructions as to which speed and which height they should be at.

Usually systems on the ground will help pilots locate the airport and guide them towards the runway with the final approach also having visual judgement from the pilot.

One aid available to the pilots is the ILS (instrument landing system). This consists of beams that guide the aircraft towards the runway. Within the cockpit the pilots have indicators that will tell them if they are at the wrong height or not lined up correctly.



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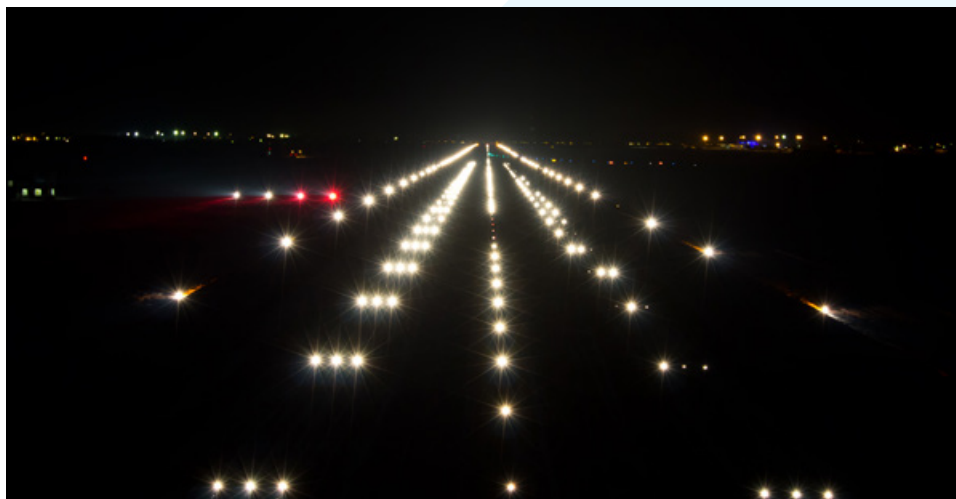
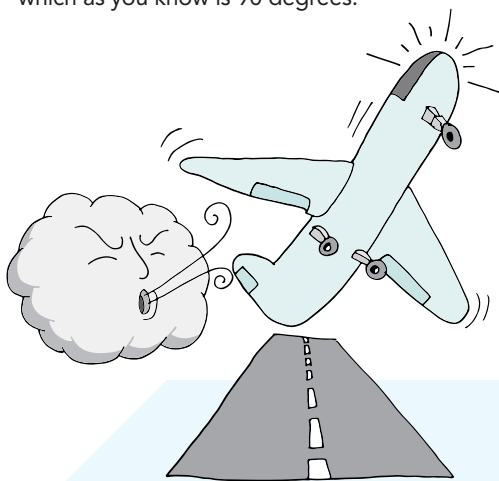
With the exception of fog landings (where the plane will rely on automatic systems subject to the airport having the correct systems to enable this), for the final part of the approach, the pilot will use a visual reference to assist them. These are known as PAPIs or Precision Approach Path Indicators. It's a very simple but clever system.

On the side of the runway, there are 4 lights. Each can be either red or white. But not both at the same time. If the pilot is at the correct height and maintaining the correct approach angle of 3 degrees, 2 lights on either side will be white and 2 will be red.

This picture taken at night shows them on the left of the runway but they are also clearly visible to the pilots during the day.

If the aircraft is too low, either one or both of the lights will be red (depending on how far below the glide path they are) and the reverse is the case if they are too high because then one or both of the 2 lights will be white.

With regard to cross winds, first of all I need to explain that if there is a wind present, an aircraft will always try to take off and land into that wind. But a wind doesn't always blow straight down the runway. There are times when it will be coming across the runway, sometimes at just an offset angle but sometimes it could be straight across which as you know is 90 degrees.



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But let me reassure you that a cross wind landing is not dangerous and the pilots are well practice in this type of procedure. Naturally it's a little more engaging for them as the wind will be a factor in their positioning of the aircraft and they will probably be making minor adjustments all the way through the landing to ensure they are in the right place at touchdown.

But they will only land an aircraft within the cross wind limits permissible for that aircraft type and, importantly, those parameters are laid out by the manufacturer, and NOT the airline, and are calculated as a result of extensive tests at the design stage. These limits differ depending on the surface condition of the runway.

So the pilot does not have discretion to go beyond the parameter and if the cross wind is beyond that permitted by the manufacturer, then the pilot will have no option and must divert to a different airport which is one of the reasons for carrying extra fuel. They would of course know in advance that it might be a windy day at the destination airport so they would have planned for a possible diversion before they even set off.

So, in summary, with regard to landings and possible cross winds, due to the training of the pilots and the aids available to them, you are guaranteed an accurate and safe landing every time.



6 HOW WELL TRAINED ARE THE PILOTS?

Let me assure you that pilots are incredibly well trained. In fact, it's probably fair to say that they are possibly the most regulated profession on the planet.

Let me quantify that statement.

Firstly, to become a pilot takes a huge amount of training, and then, that only entitles them to become a First Officer, not a Captain. It takes many many more hours to be promoted to a Captain.

But whether you are a First Officer or a Captain, every 6 months you have to undergo 8 hours in the simulator and take technical exams to prove you are competent to continue to be a pilot. I also

think an appreciation is needed of what the professional simulators look like.

I'm not talking about a few tv screens and a joystick, like you see in video arcades. The simulators we use cost a few million dollars each and are raised above the ground and you access them via a drawbridge – like this one here. And once the drawbridge is raised and we are inside, it gives the identical sensation to flying.

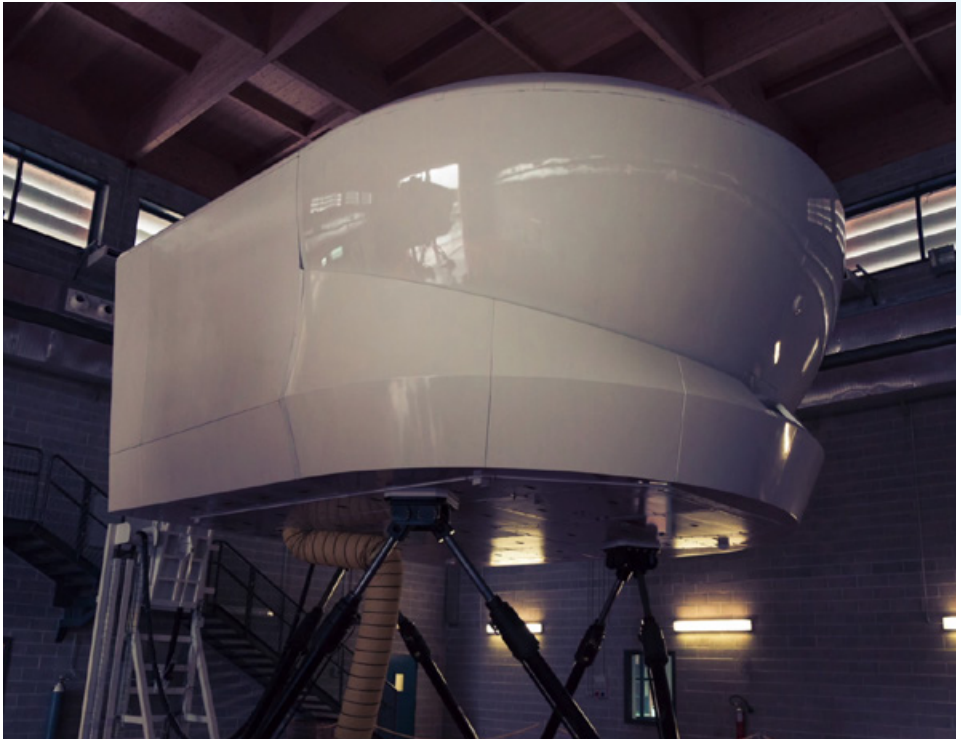


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In addition to our simulator training, we are also required to undertake an annual medical check.

I'm not sure the same is true of any other passenger moving service. For instance, when did your taxi driver last get checked on his or her ability to drive. Do you even know the state of their health? The same is true of train drivers and so on. But yet we all jump into those modes of transport without really thinking about it.

So if this is a concern to you when you fly, please rest assured knowing that we are closely monitored and checked regularly and have to prove we are capable of doing our jobs at least twice a year.



7 WHAT HAPPENS IF THE LANDING GEAR DOESN'T COME DOWN?

This is a very simple answer and here's the good news. We have multiple ways of getting the landing gear into position for landing. And if any of those fail, the final solution is simply using gravity, and even the non scientists among us knows that there is always gravity.

So it's very simple. On this image you can see the "Gravity Gear Extension" release. And all we need to do is raise the handle, turn the handle three turns and the landing gear doors will open manually. Due to its weight, the landing gear will then simply drop out and lock into position. That's it.



8 WHAT HAPPENS IF THERE'S A FIRE?

Let me start by saying that in reality a fire on board is incredibly rare.

Also, let's differentiate between an engine fire and a fire inside the aircraft itself.

In the highly unlikely event of an engine fire, each engine has 2 fire extinguishers and they are activated from the cockpit. You can see the control for this here.

And don't forget, any fire in the engine will be trailing itself to the side of the aircraft as that's where the engines are located so it wouldn't present a risk to the fuselage itself but naturally we would initiate the extinguishers to put it out as quickly as possible.

Of course we would also cut off the fuel to that specific engine as this is the only thing that would be keeping it alight. So once the fuel was cut off, even without the extinguishers, the force of the air passing through the engine at considerable speed would help to extinguish it quickly.



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As for a cabin fire, again a very rare event but nonetheless, the crew are trained and experienced in putting out all types of fire.

And to be clear, this is not just some theoretical classroom training, it's my understanding all recognized airlines put their crew through practical training to tackle fires to ensure they are fully versed and capable of dealing with such an incident.

In addition aircraft have particularly sophisticated smoke detectors throughout to alert the crew so the aircraft is likely to know about a fire before us and should this extremely unlikely situation arise, the aircraft is equipped with very powerful halon gas fire extinguishers, which simply removes oxygen to smother a fire.

So let me reassure you, the possibility of a fire is extremely rare but should it ever happen the aircraft has the appropriate equipment and the crew are highly trained to deal with it.



9 WHAT ABOUT BIRD STRIKES?

This is an understandable question because birds and aircraft are not ideally suited to each other.

So first of all let me explain that all airports have strategies in place to help keep the area clear of birds. They do this a number of ways including regular loud noises to scare them off (like the sound of a shotgun) and also with the use of Birds of Prey as they will naturally keep their distance from a predator.

But if a flock of birds are in the vicinity the airport, then air traffic control will also issue warnings to pilots so they are aware.

But if all of that fails then let's discuss the situation of a bird strike on an aircraft.

Given the speed of the aircraft, the bird is only likely to fly directly into the leading edges of the aircraft, so the nose, the windscreen, the front edge of the wings or the engine.

In terms of the cockpit windscreen, this has multiple layers and the aircraft will still be still safely pressurized if only one of those layers were intact. So whilst a bird that did hit the windscreen would normally deflect off without causing damage, in an exceptional case, if it did cause damage, it's only likely to affect the first layer of windscreen leaving a number of layers undamaged.



Continued...

Should it hit the nose or wing, it may give some very minor superficial damage or leave an indentation but that wouldn't affect the integrity of the aircraft.

With regard to the engines, these are rigorously tested to handle bird strikes and that's done by firing dead birds into the engine to ensure it can sustain the bird passing through it and maintain thrust for a period of time. And don't forget, even if a bird strike did affect the performance of an engine, the aircraft can still fly with just one good engine!

You will of course be aware of the Hudson River incident in 2009 where a commercial aircraft was affected by a bird strike soon after take-off which affected both engines. But this was a perfect example to positively demonstrate a number of the issues:

1. The pilot's training came into play and he immediately identified the most suitable place to land
2. The plane didn't just drop out of the sky as a result of the engine failure as he was able to glide to his chosen landing strip
3. The plane landed on water and as you can see from this image, it floated and everyone got out and stood on the wings while they waited for the rescue services to come and get them. It did eventually submerge but not until everyone got off and only because the button to close all of the air holes wasn't pressed so it would have remained afloat had that happened.



10 WHAT HAPPENS IF THE PLANE RUNS OUT OF FUEL?

Ok, I understand the concern about this question but first let me ask you, if you drive a car, have you ever run out of fuel? I would hope you're sitting there saying NO!

The reason being, because you will plan your journey. In other words, you will work out how far you are going, and you will check you have enough fuel to get you there. And if not, you will add some before you go, or even on the way. But not only that, you will also ensure you have enough to get you to the next fuelling station.

Well the same is true for pilots and their aircraft but with even more accuracy. It's not simply a case of putting in some fuel and setting off. Everything is calculated. First of all we calculate the weight of the plane (including the passengers using average weights that are more than generous to ensure we always overestimate).



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Then we work out the specific route, distance, as well as wind speed and direction to the destination, then we choose a suitable diversionary airport (and check the weather forecast there in advance), then we take more fuel again to allow for additional flying time and then take additional fuel on top of that.

In addition to that we use an amount of extra contingency fuel which is based on historic data on that route. So what I am saying is that it's a very carefully calculated plan and the accuracy of the plans is staggering.

So we know our exact requirements including all of the contingency required which is why we always have enough fuel and more!



11 WHAT IS A GO AROUND?

Actually although the media call it a 'Go Around' or an "Aborted Landing" we refer to it as a "Missed Approach".

In short, it's when, for whatever reason, we are coming into land and it is deemed not safe to do it so we go back up and come around again for a new landing.

This could be for a multitude of reasons.

There could be a flock of birds in the area, the runway could be blocked by either a landing aircraft not vacating the runway in good time, or an aircraft that's due to take off is taking a little longer than estimated to get going. It could even be that the pilot feels they are not in the right position and would prefer to come around again.

But whatever the reason, please rest assured that a missed approach is NOT dangerous. It will probably feel quite sudden because as a passenger you won't expect it because in your mind you're coming in to land, so it will feel a bit odd when you suddenly hear the engines spool up and the aircraft change its pitch to a climb angle. But it's all perfectly safe.

In fact, all the way through every landing in every commercial aircraft, the pilots are briefed and prepared for a missed approach so that they can exercise it at any time, should they need to. It's perfectly routine for them.



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The best way to imagine it, if you drive a car, is when you are parking. There is the odd occasion, where, for some reason you might have to pull out and try again. It's really no different to that.

Don't be surprised if the pilots don't immediately speak to you if they are carrying out a missed approach. It's not because it's dangerous or for any other reason than their primary objective at all times is to ensure a safe flight and to achieve that, their priority is flying the

aircraft above all else. Once they have completed the manoeuvre they will of course give you an update but this can take a few minutes. Their order of process is best summarized as Aviate, Navigate, Communicate, hence talking to the passengers is the last of their priorities at that moment in time.

But in summary, a missed approach is perfectly safe and totally routine for the air crew.



12 IF FLYING IS SO SAFE, WHY DO YOU HAVE A SAFETY DEMONSTRATION?

This is mandatory for all airlines and is just precautionary.

But it also demonstrates, no matter how safe it is, that the industry still looks to ensure maximum safety at all times, no matter how remote the possibility of a situation will be. In fact, if you ever go on a cruise, they do exactly the same there with a lifeboat drill (or practice) before every sailing and every passenger has to take part at the start of every sailing.



13 WHY DOES THE AIRCRAFT SOMETIMES START SHAKING DURING OUR DESCENT TO LAND?

If you look at this image of the wing you will see that part of it has been raised. These are our speed brakes. The pilot can extend the speed brakes to increase the rate of descent and to help slow the aircraft down.

It could well be because air traffic control has advised that the aircraft can land earlier than was being planned so the bonus to you as a passenger is that you will get to your destination a little earlier than expected.

But it's also a demonstration of just how well an aircraft flies that despite reducing the thrust and descending in a glide which is part of the landing procedure, the pilot also needs to increase drag to get down sooner or just slow the aircraft down (like a brake on your car or bike).

Below 10,000 feet we will also extend our landing lights into the slip stream from the

belly of the aircraft, and this will cause a little rumble which you may feel.

Occasionally we even elect to put the landing gear down early to make us less aerodynamic as this also helps to slow us down a little bit too. So any of those shakes and vibrations you may feel on landing are all planned and for a reason. We're just slowing the aircraft down.

It's worth mentioning that as you get closer to the ground, you also may feel a little more movement in the aircraft as the air closer to the ground is denser and that air is also being affected by structures on the ground (like buildings etc) and the natural landscape (like hills and trees). So this may give slight air disturbances over the wing that we discussed during the main Turbulence Cure course but again, this is all perfectly normal and safe.



14 HOW SAFE IS THE AUTOPILOT AND WHAT ARE THE PILOTS DOING WHEN IT'S ON?

Let me first of all explain autopilot. It's a little like cruise control in a car. Autopilot is effectively flying the aircraft on the course and speed selected by the flight crew. It's not thinking for itself. It's simply flying on a predetermined course, at a predetermined height and at a predetermined speed.

If for any reason the course, height or speed needs to be changed, then the pilots will do this manually by changing the selection and the autopilot will follow accordingly. Also, as you would expect, we have two pilots so we also have two autopilots, so once again, a fail-safe mechanism is built into the system.

However, this doesn't mean that the pilots are sitting there doing nothing. Quite the opposite in fact! They are very closely monitoring the aircraft and by removing the need to actually physically fly the aircraft, they have more mental capacity to be monitoring all the systems and the airspace around them.

Autopilot will be typically engaged after take-off at about a height of 1000 ft and will be disengaged about 1000 ft before landing.



15 I'M WORRIED ABOUT FLYING LONG DISTANCES, ESPECIALLY OVER WATER!

I understand why you may find this disconcerting so let's discuss ETOPS (as we call it for short) or to give it its original full name, Extended Twin-engine Operational Performance Standards. It previously governed the criteria for twin engine aircraft flying long distances, including over water. However, more recently it now more generally stands for Extended Operations as even 3 and 4 engine aircraft can now have ETOPS ratings.

So what is ETOPS? Well principally it's a rating given to a commercial aircraft to permit it to fly certain extended distances subject to stringent technical and operational qualifications. What that means in simple terms is that if you are on a long

haul commercial flight, rest assured that the aircraft will be ETOPS rated and therefore more than capable of flying you safely to your destination on the basis that it has proven to be extremely reliable and capable of continuing its journey to an airport in the most unlikely event that an engine failed.

In terms of other issues while flying long distance, you'll be surprised just how many airports there are along your route that the pilots could divert to if the need ever arose (say for a medical emergency). So even if you're on a 12 hour flight from say Los Angeles to London, there will be plenty of diversion airports available along the way.



16 WHAT HAPPENS IF THE AIR IN THE AIRCRAFT RUNS OUT?

Great question....but even if you hadn't thought about that until just now, DON'T WORRY! Like all things in aviation, this has been thought about and systems are in place to deal with this highly unlikely situation. Firstly, there is fresh air distributed through the aircraft and the cabin is pressurized to about 7,000 feet. But as you know, we can fly at altitudes of over 30,000 feet. At that height, there is insufficient air to breathe (if you happen to be outside at that height – and the only possibility for you to do that on land would be on Mount Everest!).

But the point is, at over 30,000 feet you will still be breathing fresh air in the aircraft as it systems enable this to happen. But should the system supplying that air fail, the first thing that would happen is oxygen masks would drop down from above you and

the flight crew (i.e. the pilots) would have their own oxygen masks too. This would immediately give you oxygen to breathe as these masks are linked to a different air supply.

Then, the flight crew would descend the aircraft to below 10,000 feet because at that level, you would be able to breathe without the need of the mask or the oxygen being supplied through it. That procedure would only take a matter of minutes and the masks would have more than enough air to supply you oxygen during that time.

So whilst this all sounds a bit dramatic and ominous, the point is it is an EXTREMELY rare occurrence but if it were to happen, there is a system and procedure in place to continue to supply air until such time as it wasn't needed.



17 CAN TIRES EXPLODE ON LANDING?

Considering how impactful a landing is on the tires of an aircraft, it's a fact that a tire blowout is extremely rare.

The reason for this is that aircraft tires are incredibly strong. In fact they can land on the same tire up to about 500 times before they need a re-tread and the tire itself can be re-treaded up to 7 times in its lifespan.

What gives the tire the strength to support the weight of the aircraft is actually the pressurized air. Aircraft tires (depending on the aircraft type) can be inflated to about 200 psi (pounds per square inch) which is about 6 times greater than the pressure in an automobile tire. Added to that it's the nylon or aramid cord embedded below the tread that actually makes the tire so strong.

But don't be surprised if you're aircraft spotting and see a puff of smoke as the aircraft tires initial come into contact with the runway. This is perfectly normal. It's simply caused by the fact that the wheels are effectively stationary at the point of touchdown whereas the aircraft is travelling at around 170 miles per hour. So for the first few seconds the tires are what is best described as skidding until they start to turn and then match the speed of the aircraft. Hence the initial puff of smoke.

But aircraft tire blowouts are incredibly rare and as you've probably seen, they do have a substantial amount of them they can rely on!



Continued...



18 WHAT IS WIND SHEAR?

Wind shear is defined as a sudden change of wind velocity and/or direction. Fundamentally wind shear is not an issue to an aircraft at high altitude nor is it an issue if the wind shear is slow. But it can be a factor in aviation safety if the wind shear is fast moving at low altitudes whilst an aircraft is either taking off or landing.

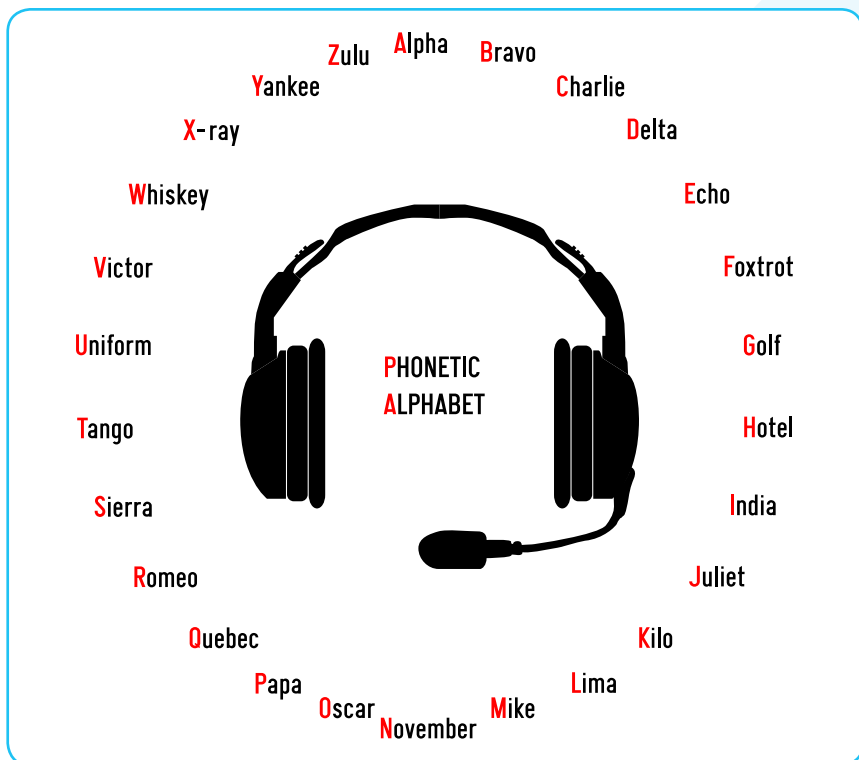
This was a particular issue for pilots up until the mid 1990s because until that time they had no means of assessing wind shear other than from reports from other aircraft on their route who had experienced it. However, after that time all commercial jet engine aircraft had wind shear detection equipment installed as did many airports as well. So wind shear is now a widely known, predictable and reported weather condition and so can be avoided thus removing any threat to the aircraft.



19 DO YOU HAVE TO LEARN THE LANGUAGE OF EVERY COUNTRY YOU FLY TO?

Fortunately not! The good news for those of us working in aviation and born in English speaking countries is that aviation has in the past few decades adopted English as its global language. This follows historic incidents where confusion of language was deemed to be a factor. So these days, ALL pilots and air traffic controllers must have a basic understanding of English including the International Phonetic Alphabet and some 300 or so words that are key words for the industry.

Words like “Wilco” which means “message received and I will comply”, is invariably used in response to an instruction being given. Other examples are “Roger” which you’ve probably heard of before meaning that a message has been received and “Approach” meaning “coming in to land”. I could go on but you get the picture and this one language global approach is just another demonstration of how the industry has become so safe and an example of how it has ironed out what would otherwise be obvious flaws in the system.



20 CAN THE PLANE FALL BACKWARDS DURING TAKE OFF?

Absolutely not! I've been asked this a number of times during my career but the simple answer is it's not possible! This is just a perception. It's a bit like asking if a ball that has just been thrown can suddenly start going backwards. No! Of course not and hopefully that analogy helps you accept the science of this point.

Like the ball, the aircraft has forward movement or forward propulsion and even if an engine failed, the aircraft is perfectly capable of continuing its take off on its remaining working engine. Look at

the Hudson River incident I mentioned earlier. That aircraft lost the power of both engines but it didn't fall backwards, Captain Sullenberger simply glided the aircraft to his chosen landing strip, which in this instance happened to be the Hudson River. But the point is the aircraft didn't fall backwards. It's really a point of science so please don't let that be a concern because it's just not possible.



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21 WHAT MEDICAL EQUIPMENT DO YOU HAVE ONBOARD AND ARE THE CREW TRAINED?

Generally airlines do give their cabin crew medical emergency and first aid training and they will normally be tested annually on this during their recurrent training. In fact some airlines are now even training their crew to deliver babies!

In terms of medical equipment, this will vary carrier to carrier with long haul aircraft likely to carry more equipment than those on shorter routes.

Airlines will also have a procedure and protocol in place to deal with medical issues whilst in flight. But obviously the

crew are not doctors. However, following an initial appraisal of the situation the crew would more than likely seek the assistance of a medically trained passenger if it was deemed necessary and if there was one on board. More often than not, there is either a doctor, a nurse, a paramedic or some other emergency or health industry personnel who can often assist to deal with the initial problem.



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During a medical emergency, the crew will naturally try and stabilize the passenger to the best of their ability but ultimately, the passenger may require assistance beyond the capability of those on board or beyond the facilities available. Either way, the captain, in consultation with the cabin crew will decide what the best course of action may be and this could involve diverting to the nearest airport if that was the appropriate thing to do.



22 I WORRY ABOUT PILOT FATIGUE AND TIREDNESS, ESPECIALLY ON LONG HAUL FLIGHTS?

It's a fair point but it is one that has been looked at closely by the airline industry including the regulators, the airlines and the unions.

As a result there are stringent policies in place to ensure that risk of pilot fatigue is highly managed. This includes regularity of hours, the ability for a pilot to declare fatigue without the risk of jeopardizing his or her career and other processes to help mitigate fatigue in the first place.

Most airlines have a 'controlled rest' policy so that a crew member can have some

time 'off-duty' and they can have a short sleep. This is approved by the captain and coordinated with the cabin crew so they make their appropriate timely checks on the pilots.



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In addition, for those of you going on long haul journeys and worrying about tiredness, please relax in the knowledge that there are extra crew on board to enable pilots to take structured rests during the journey. Invariably, the pilots taking off will be the pilots landing, but during the flight they will be relieved of their duty so they can leave the flight deck to enable them to rest/sleep during the flight in either a dedicated crew bunk or even a privately screened crew reserved seat in the business class section. This policy ensures that the flight deck crew are getting sufficient and well-structured rest to enable them to perform their duties accordingly.

Finally, for those of you still with concerns, in the worst-case scenario, Air Traffic Control can trigger an audio alert in the cockpit – but to my knowledge this has never been used to wake up a pilot!



23 HOW DO YOU KNOW HOW HEAVY THE PLANE IS AS YOU DON'T WEIGH THE PASSENGERS!?

That is correct, we don't actually weigh the passengers, but before we talk about that, let's first look at the whole issue of weight.

Because the fact is that with the exception of hand luggage and passenger weight, all other weights in relation to the aircraft load are known. That includes the aircraft itself including all of its fixtures and fittings, the fuel (once the fuel load has been determined) and the cargo (including passenger luggage as this is all weighed).

So the only weight that is then missing is the passenger load, and that includes the crew. So how do we calculate this. The quickest and easiest way is through averages.

Each male, female and child under a certain age are given an average weight as is their hand luggage. But before you start worrying that this system is unreliable as we're all different shapes and sizes, the values given to each category are very generous and will in reality over compensate for the actual load on board. Over time, these averages have been increased to factor in changes in life styles over the years.

So once everyone is on board, the final passenger load is given to the pilots, including the breakdown of males, females and children and these figures are entered into the computer so that the final total weight can be calculated and this in turn gives the pilots all the information they require to calculate fuel requirements and other key information in relation to the flight.

So in summary, before we set off for any flight, we know, with a fairly good degree of accuracy and most certainly good enough to ensure total safety, the total weight of our aircraft.



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24 IS IT POSSIBLE FOR THE AIRCRAFT DOOR TO OPEN INFLIGHT?

In a word, NO!

First of all, the door has a very clever locking mechanism. But also, it actually comes back into the aircraft and then secures against a number of lugs around the frame.

Because the door closes from the inside, it effectively becomes a plug and then you have the pressurization inside the aircraft pushing it into the frame. So, even if you're in the air and a number of people tried to open it, the force of the pressure pushing the door against the frame of the aircraft would make it impossible to be opened!

Of course, once we land, the pressure on both sides of the door is equal and then it can be opened with total ease. But rest assured, despite what you may have seen in the movies, it's impossible to open the aircraft door in flight due to its design and the pressurization difference inside and outside the aircraft.



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25 WHAT RISKS DO DRONES POSE TO AIRCRAFT?

This is an interesting and topical question and certainly a new consideration for aviation.

The first thing to consider is that most recreational drones are, by definition, extremely lightweight which they need to be to enable them to fly. They are also quite flimsy in design. So if one of these were to hit an aircraft, whilst there would doubtless be some superficial damage, it is likely to be no more than that of a bird strike.

To put things in context, there are billions of birds around the planet and yet, as we looked at earlier, major incidents are extremely rare and by example, the incident

of the non-fatal landing on the Hudson River was caused by a flock of birds, not just one bird.

So when we think about drones, we should think about them in singular terms. Having said that, no airline or pilot wants their aircraft to encounter a drone because they naturally want to mitigate the risk of any damage, not necessarily because that damage would cause a crash, but simply because any damage to an aircraft would take it out of service whilst that damage was repaired.



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That said, there are obviously larger drones and of course, the bigger the mass, the more damage it could cause.

However, aviation authorities have become very aware of drones and accordingly are now imposing a number of measures to ensure they don't pose a risk to aircraft. These include no fly zones in and around airports, licensing and civil and criminal penalties and charges if these policies are breached.

So in summary, whilst drones do pose a potential risk to aircraft, in general they are highly unlikely to be substantial and they are now being regulated to ensure that commercial aviation airspace is clear of all drone activity.



Well, that brings an end to the Ask The Pilot – Advance Coaching Program which I hope you found reassuring.

As you can see from all of the systems that are in place, those responsible for aviation safety continue to work hard behind the scenes to ensure that flying remains the safest form of transport.

So please sit back, relax and enjoy your future flights in the knowledge that there is an entire industry full of highly qualified professionals who are working together to ensure your aviation experience is as safe as it could possibly be at all times.

ANXIETY CURE

However, if after all of this, you still find yourself catastrophizing when you think about flying then you would almost certainly benefit from our incredible online Anxiety Cure program which has been put together by Lawrence Leyton, arguably the world's leading expert on the fear of flying. The program will teach you how to turn your anxious thoughts into positive ones so you can be totally calm and relaxed whenever you fly!

You'll learn to; stop catastrophizing, eliminate negative thoughts, change your mindset, create new positive patterns, remove toxic self-talk and how to permanently remove fear!

Click on the link below to benefit from this great program!

[BUY ANXIETY CURE PROGRAM](#)