

## INTRODUCTION

Greetings All,

Well here we are in the last month of the year, and the year has just flown by with NEXUS Flight Operations Services continuing to grow and expand its business not just within the Kingdom of Saudi Arabia, but on a far more global scale.

This year has been one of continuing to implement the strategic plan of the company in areas seen as crucial to our future success.

Besides our bases in Rwanda, USA and India, we have recently added a significant operational base in the Philippines and very soon, in a matter of just weeks, we hope to be opening our newest operational base in China. Other plans continue for the company's global expansion and 2017 will no doubt, be another year of growth and achievement.

The MEBA show in Dubai earlier this month was well received by our current Customers and Services Providers and will also have generated many potential new Customers that see NEXUS as a uniquely successful company that the regional industry continues to talk about.



Our senior management have been working extremely hard to develop the business in accordance with the vision and leadership of our Founder & Chairman, Mr. Abdullah M. Al-Sayed, with Safety and Security as one of the cornerstones of that vision, supported by an excellent team of experienced, effective, well trained and highly motivated staff.

## BAD HABITS THAT DIRECTLY AFFECT SAFETY

A study shows that nearly one-fifth of business aviation pilots habitually neglected pre-takeoff control checks.

About 18 percent of flight crews on business aviation flights from 2013 through 2015 failed to conduct a complete pre-takeoff check of flight controls, in a safety recommendation prompted by the NBAA in its investigation of the fatal May 31, 2014, crash of a Gulfstream G-IV in Bedford, Massachusetts, U.S., which followed the pilots' failure to remove the airplane's gust lock before takeoff.

Results of the NBAA study showed that about 15 percent of those flights "began with a partial flight control check, and 2 percent began without a full, valid check," the NBAA said. The organization defined a "full, valid" check as "the stop-to-stop deflection of all flight controls specified by a manufacturer's aircraft flight manual." A month-by-month breakdown is shown in Figure 1.

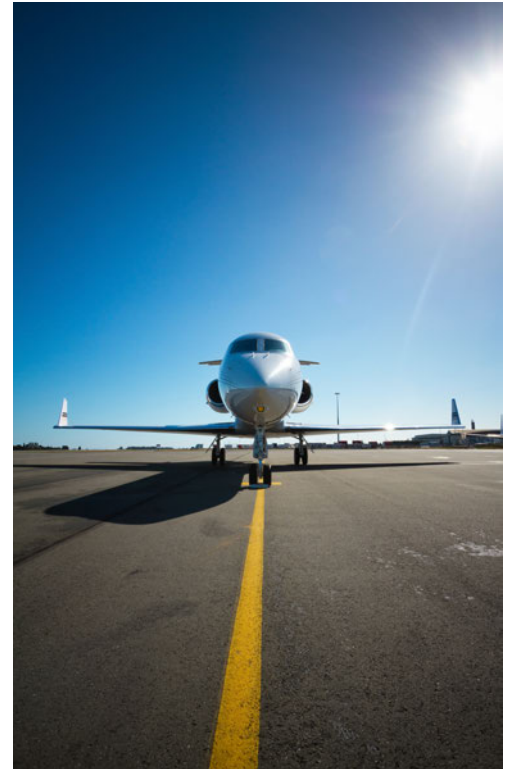
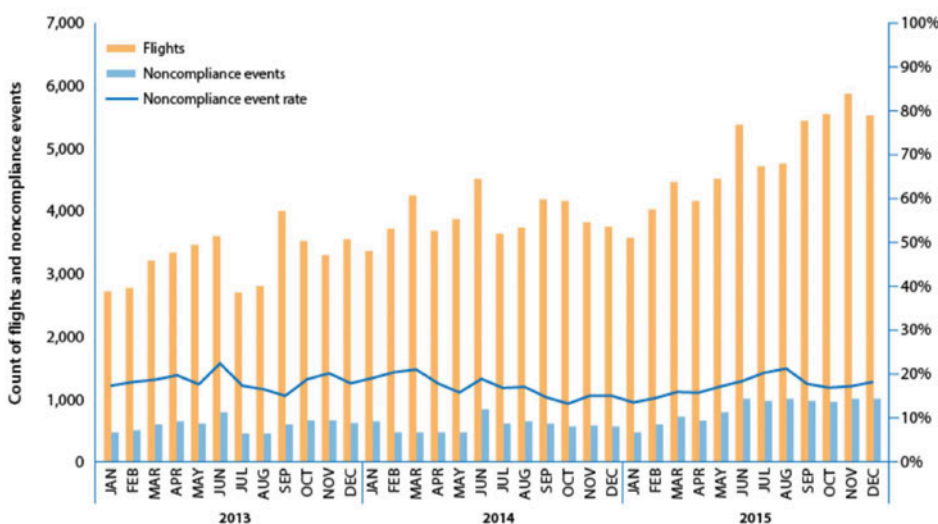


Figure 1 – Flight Control Checks Before Takeoff, 2013-2015



Source: National Business Aviation Association

The NBAA's report on the study, released in late September, described the overall noncompliance rate of 17.66 percent as "very disturbing" and said that, "despite the post-accident reduction in the rate of warning events, there is still a significant challenge concerning noncompliance with manufacturer-required routine flight control checks before takeoff."

"It is troubling to find that nearly 18 percent of every 100 business aircraft flights included in the data were not in compliance with manufacturer-required routine flight control checks before takeoff and that two of those 100 flights conducted no flight control check before takeoff at all."

## 'Habitual Noncompliance'

In the G-IV accident that prompted the NTSB recommendations, four passengers, two pilots and a flight attendant were killed during a rejected takeoff in night visual meteorological conditions from Bedford's Hanscom Field for a flight to Atlantic City, New Jersey; the airplane was destroyed after rolling through the overrun area and across grass, and then colliding with approach lights, a localizer antenna and perimeter fencing.

The NTSB cited as the probable cause "the flight crewmembers' failure to perform the flight control check before takeoff, their attempt to take off with the gust lock system engaged and their delayed execution of a rejected takeoff after they became aware that the controls were locked."

Contributing factors were the flight crew's "habitual noncompliance with checklists, Gulfstream Aerospace Corporation's failure to ensure that the G-IV gust lock/throttle lever interlock system would prevent an attempted takeoff with the gust lock engaged and the Federal Aviation Administration's failure to detect this inadequacy during the G-IV's certification."

The NTSB's post-accident review of data from the airplane's quick access recorder (QAR) showed that the pilots had not conducted complete flight control checks before 98 percent of their previous 175 takeoffs, "indicating that this oversight was habitual and not an anomaly," the NTSB report said. "The flight crewmembers' total lack of discussion of checklists during the accident flight and the routine omission of complete flight control checks before 98 percent of their last 175 flights indicate that the flight crew did not routinely use the normal checklists or the optimal challenge-verification-response format [in conducting their checklists]," the report said. "This lack of adherence to industry best practices involving the execution of normal checklists and other deficiencies in crew resource management eliminated the opportunity for the flight crewmembers to recognize that the gust lock handle was in the 'ON' position and delayed their detection of this error."

The report said the crew's "pattern of noncompliance" with the flight control check was "troubling" and apparently intentional. Because they generally flew together and had not recently flown with other pilots, accident investigators could not talk with colleagues who could discuss their reasons for noncompliance. There was, therefore, little evidence on which to analyze their actions.

The NTSB report cited previous research that showed that pilots' disregard of checklists was not uncommon, including a 1990 study by the U.S. National Aeronautics and Space Administration in which two of six airline crews being observed by researchers "neglected to perform all flight phase checklists during a flight."

A number of theories have been suggested to explain why pilots might disregard required procedures, the NTSB report said, citing "personality characteristics, culture (professional, company and crew), goal conflicts and resource constraints."

The report added that the "remarkable consistency of this flight crew's omission of such checks (as indicated by QAR data) suggests shared crew attitudes about the necessity of the flight control check. Although it is unknown whether the crewmembers consciously omitted the performance of a flight control check during the accident flight, it is likely that they decided to skip the check at some point in the past and that doing so had become accepted practice."

Earlier research found that, when flight crews routinely perform a particular check without noticing any indication that it enhances safety, they may believe that the check is not important and consequently may stop performing the check and [redirect] their efforts toward other actions that they consider more important, the report said. "Such changes can lead to the development of new group norms about what is expected and an increasing mismatch between written guidance and actual operating practice," the report added. "This increasing mismatch has been described as 'procedural drift.'"

Procedural drift probably affected the crew of the accident airplane and their noncompliance with the control check, the report said. Extract from the Flight Safety Foundation November 27th 2016.

[An important message](#) to all flight crew from the NEXUS Safety Department:

- Pilots are expected to follow their checklists and if disturbed for any reason during that process (ATC call/Cabin crew interruption...) that you go back to the checklist 2 items before where you left off and re-start from there.
- Also note that in this accident event, the lesson to take away is that control surface checks must be undertaken with a 'full and free' call i.e. complete rotation of the ailerons, elevators and rudder to their stops during your taxi-out checks.



## IT'S WINTER OPERATIONS AGAIN

It is sometimes easy to forget about the finer details of winter operations, particularly as we don't have winter weather conditions within the Kingdom which are experienced in Europe, Russia and other much colder parts of the world during this time of the year in the northern hemisphere:

- WINTER take-off accidents usually involve a failure to deice or anti-ice the aircraft properly.
- You also need to remind yourself before take-off, not to induce excessive rates of rotation, for example with pitch rates greater than 6 degrees per second.
- In almost every winter accident, the wing anti-icing system was found not to have been selected.
- Statistics shows that no winter operations accident has ever occurred where the wing anti-ice system was selected 'ON'. It is quite frightening that pilots can actually take-off under winter conditions without selecting their wing anti-ice to 'ON'. You may find this as surprising as I did, but a review some years ago of various operators' documentation, found that several operators' cockpit checklists lacked a pre-takeoff check for wing anti-ice selection.

Airplane flight manuals usually call for an inspection of the wing leading edge and upper surface when the outside air temperature is lower than 5 degrees C (41 degrees F), or the wing fuel temperature is 0 degrees C (32 degrees F), or the atmospheric conditions have been conducive to frost formation. In these instances, and even after de-icing has taken place you must ensure that wing and nacelle anti-icing is switched 'on' for take-off. Remember too that with aircraft anti-icing systems selected 'on' you should anticipate some deterioration in aircraft performance.

High-altitude ice crystals have also recently been connected to engine power loss and aircraft damage. More than 100 such events have occurred since the 1990s - an incident in which high-altitude ice crystals resulted in multiple engine flameouts in a 747 on descent into Manila, Philippines.

- It is therefore strongly recommend to all our pilots to research the formation and occurrences of ice crystals which can occur at levels as low as 22,000 feet.



## REMINDER - ADVICE & ACTIVE LISTENING TIPS FOR PILOTS

- No matter what is happening on the aircraft your first and basic task is to fly it.
- When you listen - then LISTEN. Do not accept interruptions in the middle of a task
- Do not accept phone calls in the middle of a task that you cannot interrupt.
- Always use standard phraseology when passing a clearance. In this way, you reduce the chance of a clearance being misunderstood particularly in a busy terminal environment.
- If in doubt, there is no doubt - CHECK OR, If assuming - Don't Assume. Assuming something means you don't really know!
- Although a routine activity, this activity should not be shared with other tasks, particularly interruptions such as other R/T or cabin crew inquiries
  - Do not accept an incomplete read-back. Always query unclear or incomplete transmissions, especially if you suspect they may have been blocked by another transmission.
  - Write Down/Record the clearance given.



- Use headsets and definitely below 10,000 feet or anytime below the Transition Altitude (whichever is higher). This is in accordance with our Operations Manual OM-A
- Use intercom/telephone for coordination.
- Listen before you speak
- Pause before transmission.
- Know your expectations - try to tell yourself, when you communicate, what you expect. This will both increase your performance and reduce the chance of expectation bias i.e. 'hearing what you think should happen'.

## Human Resource Issue

*Let's look at an HR issue that can affect all of us at some stage in our lives:*

### Lack of Assertiveness

Being both unable to express our concerns and not allowing others to express their concerns creates ineffective communications and damages teamwork. Unassertive team members can be forced to go with a majority decision, even when they believe it is wrong and dangerous to do so.

Assertiveness is a communication and behavioural style that allows us to express feelings, opinions, concerns, beliefs and needs in a positive and productive manner. When we are assertive we also invite and allow others to assert themselves without feeling threatened or undermined. Speaking one's mind assertively is not to be confused with aggression. It is about communicating directly, but honestly and appropriately; giving respect to the opinions and needs of others, but not compromising our own standards.

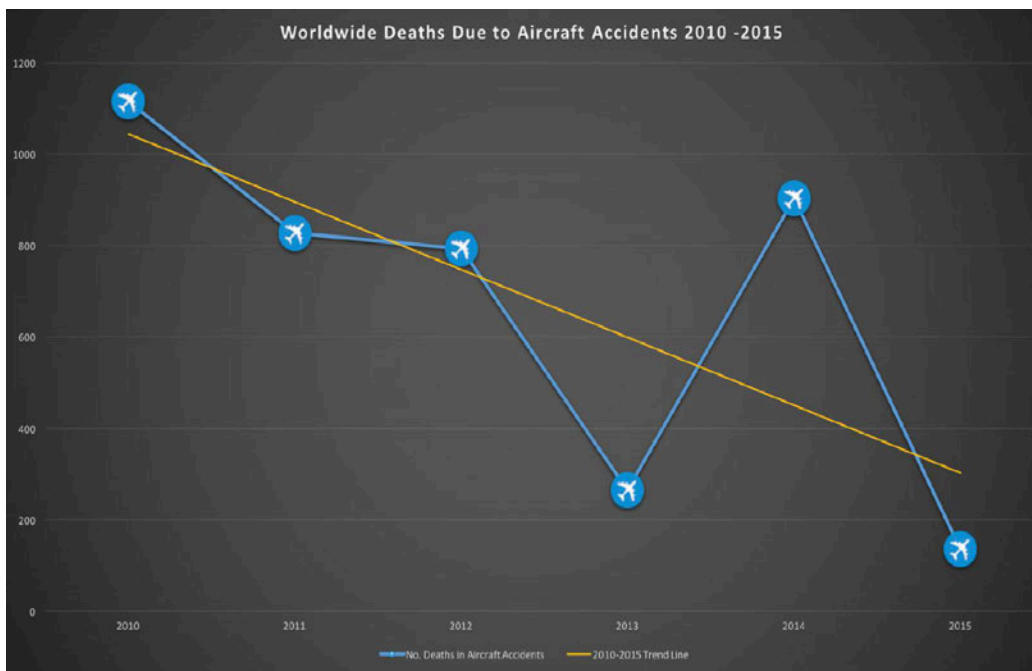
Assertiveness techniques focus on keeping calm, being rational, using specific examples rather than generalisations, and inviting feedback. Most importantly, any criticisms should be directed at actions and their consequences rather than people and their personalities; this allows others to maintain their dignity, and a productive conclusion to be reached. And always remember that you are as good as, anyone in the room and you have a contribution to make.





## HOW SAFE IS AVIATION?

You may have heard the legend of the pilot who bid his passengers farewell after every landing with these words: "Thank you for flying with us. The safest part of your trip is now over." Is that REALLY true? Is Aviation Safe? Let the facts speak for themselves:



- In 2010 there were 1,115 deaths due to aircraft accidents worldwide
- In 2011 there were 828 deaths due to aircraft accidents worldwide
- In 2012 there were 794 deaths due to aircraft accidents worldwide
- In 2013 there were 265 deaths due to aircraft accidents worldwide
- In 2014 there were 903 deaths due to aircraft accidents worldwide
- In 2015 there were 136 deaths due to aircraft accidents worldwide

These statistics are based on per million departures, which for 2015 means there were 0.23 deaths per 1 million departures. Put another way, you can expect one death due to an aircraft accident in every 77 million aircraft departures!!

[Note: The year 2014 statistic was caused almost entirely by deliberate and unlawful acts in the air - 903 deaths e.g. GermanWings, which has distorted the improving safety trend over the 5 year period].

Compare this to the combined car, pedestrian, motorcycle and cycle accidents on the roads in Europe (EU) from the WHO Report 2015.

The EU has the lowest road deaths in the world per 1,000,000 of population which is 51 deaths per million population

In 2010 there were 31,500 deaths on the roads in the EU

In 2011 there were 30,700 deaths

In 2012 there were 28,100 deaths

In 2013 there were 26,000 deaths

In 2014 there were 25,700 deaths

In 2015 there were 26,300 deaths

Note: Of these figures 40% were road deaths caused to pedestrians, motor-cyclists and cyclists.

And if you want to include train accident figures with fatalities within the EU - in 2010 it was 1,270 deaths, in 2011 it was 1,206 deaths, in 2012 it was 1,135 deaths, in 2013 it was 1,129 deaths and in 2014 it was 1,054 deaths. Comparing these three transport modes for fatal accidents, the numbers are:

Aviation Accident Deaths worldwide - 136 in 2015, Train accident deaths only within the EU in 2014 (the latest figures available) were 1,054 deaths and road accident deaths within the EU were 26,300 deaths in 2015.

The above would appear to demonstrate that aviation is a far safer mode of travel than any other type of transport system whether it be by road or rail.

So that pilot was absolutely right!

So in fact, the most dangerous part of your aircraft journey is the drive to and from your local airport!

Experts attribute the continuously improving aviation safety record to improved and more reliable technology, better communication, smarter pro-active procedures and established safety management systems.

Thank you all for your continuing contributions to Safety!

Until next time - Fly Safe!

Carl Flynn  
VP Safety & Security

