

Introduction

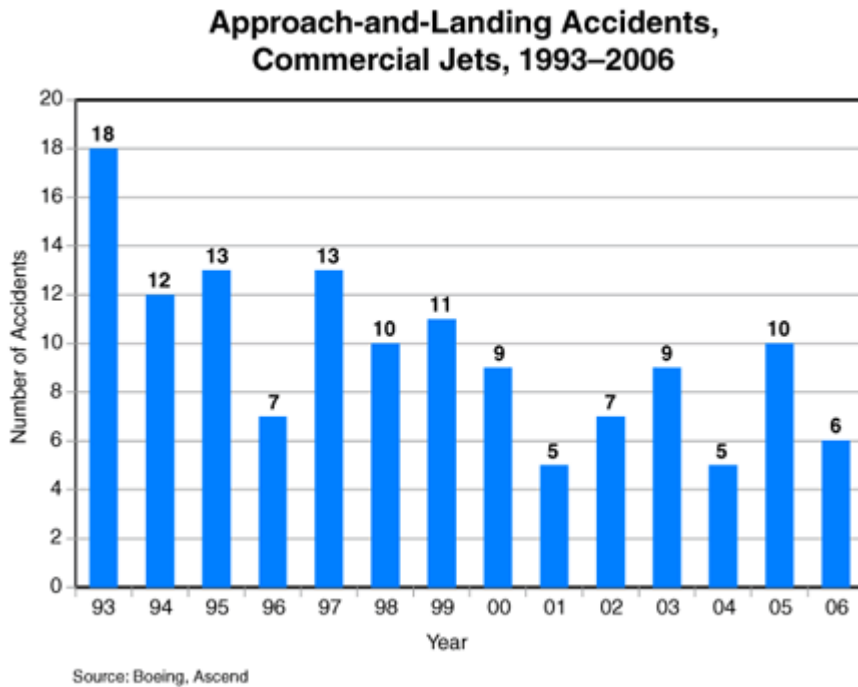
Hardly many inventions can manage to change the way people live and also how they experience the world like the way inventing airplane has done. The airline industry offer air transport for passengers. The growth of this industry has been phenomenal, and the number of airlines and aircrafts has been growing fast. However, data from the industry indicate that on the negative side the number of accidents also have been significant with a high number of accidents reported to occur during the approach and landing phase. Interestingly, this phase comprises of less than 20% of the total time an aircraft is in the air. This issue has thus continued to raise concerns from the various stakeholders in the industry.

To address this subject, of approach and landing safety, the study paper will carry on, along the following field: approach and landing accidents will have to be defined for reasons of theoretical clarity; causes of these accidents will be underscored; and the various approach to prevent these accidents, will be discussed at length; and lastly “a way forward” in terms of a conclusion will be provided.

Approach and landing accidents

The phrase approach and landing accidents is used to apply to accidents which occurs during visual approach, or in the course of instrument approach following the intermediate approach fix (IAF). Or in the course of landing move, this phrase also does apply to those accidents which occur when the aircrafts are circling in the air or when starting a missed approach process. According to Statistics carried out by Netherlands Civil Aviation Authority illustrate that, global, an approximately 17 fatal accidents of Approach and Landing happened every year between 1980 and 1998 in airline passenger

businesses as well as cargo businesses conducted via aircrafts. (Flight Safety Digest, 1999)



Causes of approach and landing accidents

Non-precision approach

In a study carried out by safe flying Aviation which evaluated 132 accidents which happened in the course of landing approach in big airports across the world between 1984 and 1993, it was found out that, there was a substantial variation in accident hazard for airplanes which fly non-precision approaches against those flying precision approach. The study revealed that commercial aircrafts flying non-precision approaches were five times likely to cause an accident when landing than those flying precision approaches. (Flight Safety Digest, 1999)

The non-precision approach do not offer the vertical guidance which end at the runway as the precision approach does. As such, flight crew has to more actively manoeuvre the airplane vertically in the course of the approach. The probability of the

crew making an error is thus high in a non-precision approach when compared to the precision approach. (Flight Safety Digest, 1999)

Environmental factors

It is worth noting that majority of approach and landing accidents which have occurred over the years did happen at night or during twilight hours. In a previous study, done by safe flying Aviation it was found out that, 55 accidents out of 84 accidents occurred during those periods (night and twilight hours). However, the whether conditions seem not be a factor in causing accidents because even in severe whether for example, thunderstorms, ice or wind did not appear as aspects in many of the accidents which occurred. These finding should not be surprising because many accidents occurring in the course of landing even during darkness (night) seem to entail precision or non-precision approaches. (Flight Safety Digest, 1999)

Terminal approach radar

Terminal approach radar is important in guiding the aircrafts when they are landing or taking of. When evaluation was done to determine the role of terminal approach radar, it was revealed that the absence of terminal approach radar amplified the risk of an accident occurring during the approach and landing phase. The risk was amplified to three times compared to when terminal approach radar was in use.

The clear protecting effect of terminal approach radar might be because of the actuality that, the controllers might give a warning to the flight crew supposing they stray off or get too low of the approach path. This also may be correlated to bigger levels of airport services since small airports or those with minimum movements may not be in a position to install these radars. (Johnson, 1998)

Ways of controlling approach and landing accidents

Different approaches have been suggested in order to reduce the number of approach and landing accidents, we shall examine those which are considered to be the most effective and successful ways.

Efficient error management

The use of efficient error management standards is solution to reduce hazard and prevent approach and landing accidents which have continued to occur over the years. In the approach and landing fatal accidents mentioned previous, there happened because of some contributory factors (incidents involved in the accident chain of events which resulted in the accident) which possibly might have been avoided if the error management practices were correctly executed. Human being errors are usually related with mishap contributory factors. Whereas it would be best to stipulate error-free airline working performance, this is not practical; in any case, “to make a mistake is human” naturally, where individuals and technology strongly interface, mistakes are an ordinary by-product.

Being able to Understand and accept that mistakes will happen, is crucial for aviation team concerned with safety to successfully deal with these mistakes in order to surmount the Approach and Landing accidents menace. This can be done through technology improvement, formulating appropriate training courses, and carrying out missions by use of relevant and clear Standard Operating Procedures (SOP). Such focused method is classically directed towards making improvement in the performance activities of the forefront personnel-pilots, ramp crews maintenance technicians, and air

traffic controllers. “Error management strategies increase system tolerance to errors and help make errors evident before they cause damage” (Flight Safety Digest, 1999).

Error management need to be pictured as a multifaceted protective barricade system whereby every level is intended to assist entrap errors and prevent damaging error end results. More protective levels constructed into a particular process, will mean the more probable that process will operate safely even after errors are brought in. Possible limitations at hand at any particular moment during a manoeuvre, included in the approach and landing stage, should be listed over each one of the barricade. Of course, it may not be possible to list all limitations since they will change in relation to the task being performed at a particular time. (Flight Safety Digest, 1999)

The extent of a hole in the barricade will represent the collective outcome of the limitations which are listed over the barricade. A barricade with many limitations will have a bigger hole, thus, making it extra prone an error slipping through the barricade.

The moment errors happen; an effectual multifaceted system will eventually deflect or trap the error. Errors might go through one or two levels; however a good protecting system will ultimately entrap the error prior to it breaking through the whole system. (Altman and Johnson, 1996)

Experienced crewmembers as well as efficient crews don't strive to stay away from making errors at all, except they do try to monitor and manage the significant errors in precedence order. Such crews are experienced at distinguishing among consequential errors as well as benign errors, balancing alertness and attention, workload and watchfulness, computerization and hands-on adeptness.

A close analysis of the individual level barricade proposed, indicates that adding a supplementary level for example in personal readiness barricade will improve safety. In this particular case the extra barricade means adding a extra crewmember. An important aspect to remember regarding human being error is that the moment an individual makes an error, it becomes highly unlikely that the same person will seize (entrap) his error; other person (crewmembers) are the one most likely to seize the error. Thus, adding an extra pilot to a crew of two pilots improves blocking errors that might occur in the flight deck. (Flight Safety Digest, 1999)

Use of precision approaches

Though approach and landing accidents are caused by many factors, precision approaches offer an additional percentage of safety. Thus, it is paramount that appropriate guidance equipments should be provided to achieve precision approaches. Providing these equipments will ensure that that the planes lands more acutely and safely. However, the most excellent precision equipment would not accomplish its complete value, unless those operating them are well and fully trained and also are disciplined in the installation and proper usage of the equipment. (Flight international, 2000)

New technologies to provide approach and landing aircraft guidance

Technology present the best way of reducing and control the number of accidents being witnessed in the aviation. Through technology we can give accurate and precise information about issues which may hinder accurate information that may resulting in causing an accident. With new technology being innovated every day the aviation industry needs to be on the forefront of technology advancement and implementation in helping with the approach and landing process.

The use of high technology such as the GPS ought to be reviewed regularly by the authorities as well as the air carriers in order to equip the airfields with equipments for precision guidance capacity where current ground-based equipments are too expensive or ineffective as result of terrain and/or sitting problems. Both near future and far-future technologies for instance GPS promise to be solutions for the costs and terrain problems which are correlated with existing ground-based equipments, particularly in world regions where terrain and economics have aggravated procurement and suitable positioning of the equipments.(Johnson, 1998)

Encouragement of CFIT avoidance

Airlines and authorities concerned must state a tough encouragement of Controlled flight into terrain CFIT prevention, in relation to the high percentage of approach and landing accidents which involves CFIT. The present programs which address the CFIT risks ought to be strongly given support. The relevant authorities must take into account the recommendations which are suggested by bodies such as CFIT Task Force in minimizing risks and give encouragements to every operator flying in the airspace to be familiar with the recommendations suggested.

Reduction of approach and landing risks differences among ICAO region.

In order to reduce the number of approach landing accidents, efforts need to be made to reduce the risk difference of approach landing amongst the international Civil Aviation Organization ICAO regions. The international committee should provide this support. Private and government managements ought to be made conscious of the danger factors and must be encouraged to tackle these dangers in their own aspects of accountability. (AW&ST, 2000)

Sharing of information

One way of preventing or controlling the number of accidents occurring during approach and landing phase is through sharing of information. Encouragement should put on international sharing of incident and accident data in order to facilitate and address safety issues swiftly and more so effectively. Missing records or data outcomes from various factors which, include, state not complying with the ICAO accident information-sharing prerequisites. Missing records or data frustrates a lot of efforts put all over the world in attempting to identify the root causes of these accidents. Thus, it is important for the governments around the world to share data they have no matter how confidential it is with other concerned bodies in order to reduce the number of accidents which are occurring due to approach and landing. (AW&ST, 2000)

Using more professional pilots

The expert flight crews normally will have a number of advantages in this phase of approach and landing. An autopilot airplane having two crewmembers that are professional can be able to safely as well as effectively control the airplane during this crucial phase of approach and landing. Because one pilot can monitor the flight effectively while the other pilot perform the brief, but in case the other pilot is not proficiency enough in any of the give task. Then they may have trouble when landing. Some critical items which are covered on the arrival briefing include:

1. The airport quarter and obstacles
2. During instrument approach, every one of details of the approach
3. Special instructions or notes for the landing field
4. Runway being used

5. Expected taxi course
6. Numbers for arrivals

When the pilots adhere to this, studies conducted earlier indicate that the probability of approach and landing accidents to occur will be highly reduced. However, if the pilots miss undertaking these critical steps then the worse can happen. Therefore professional pilots are important aspect in reducing the number of approach and landing accidents in the airports. (AW&ST, 2000)

Conclusion

Approach and landing accidents is used to apply to accidents which occur during visual approach, or in the course of instrument approach following the intermediate approach fix (IAF). Or in the course of landing move, this phrase also does apply to those accidents which occur when the aircrafts are circling in the air or when starting a missed approach process. Over the past the most of the accidents that have been happening in the aviation industry have been mostly occurring this phase of approach and landing, however, it is the shortest moment in the course of the entire flight. Among the reasons why these accidents occur is because of Non-precision approach and terminal approach radar, the environmental factors have been known not to contribute a lot. In order to address and control this issue, it is important to take several steps. Among them is efficient error management, use of precision approach and also using professional pilots who have a lot of experience, this will go along way in reducing the rates of these accidents. However we these measures are not taken up we shall continue to witness this accidents in the industry.

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