

Integrated Pilot Training Setup (IPTS)

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Abstract

In the modern world, civil aviation is the most widely used transportation method by millions of people each year all around the globe. Since the beginnings of the 20th century, civil aviation has undergrown in a vast process of evolution to deliver efficient, effective, and safer transportation mean to humans. But the important fact is that even though aviation became the safest transportation method, the accidents and crashes related to it is fatal and more disastrous than any other transportation mean.

Considering the air crashes it reveals that the pilot error is playing a significant role in the major disasters that can lose hundreds of human lives and property. There in this research, the focus was given especially to the training of pilots to a specific aircraft and how to make them confident and skillful while operating it.

Therefore this paper is written as a way to present the procedure of IPTS since it possesses the characteristics of training pilots effectively and efficiently.

And finally, the general method of IPTS was presented with details of each stage.

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;Civil Aviation ;Safety ; Commercial Pilot Training

1.1. Since the beginning of the 20th century, mankind started to explore the skies with the use of aircraft. And with the vast advancing technology more sophisticated aircraft were created that can carry huge payloads. And with that, civil aviation was born and today millions of people travel with commercial aviation. As aviation technology evolved throughout the near-century, the technology, complexity of the commercial airliners became more and more advanced creating safer and comfortable aircraft. And most importantly at the beginning of civil aviation, the diversity of the aircraft was less and they all had nearly common technologies. But today things have changed. There are huge differences between commercial aircraft and their technologies. Due to this reason, the pilots must have the correct and the required skills to operate and fly the modern aircraft with counteracting to the emergencies successfully. To be able to act more effectively

within emergencies, the pilots operating that particular aircraft type must be having the right skills need to fly the aircraft, skills of operating the onboard systems, and the general and sometimes detailed education and knowledge about the functionality of that aircraft. And because the pilots don't master those skills up to the required levels pilot errors are leading to major aviation disaster that can lose hundreds of lives and property. So it is important to find methods and introduce effective training methods to pilots to make correct and wise decisions intense situations that are effective and to give them a full understanding of the aircraft that they are flying to reduce the pilot error and to increase the safety in commercial aviation.

Nomenclature
Simulations - The virtual tests and training sessions conducted on specially designed environments and cockpits. IPTS - Integrated Pilot Training Setup

1.2. IPTS for Boeing 737 MAX 8

In this section, the IPTS is applied on Boeing 737 AX 8 pilots training since that aircraft variant faced two dangerous crashes Lion Air JT610 and Ethiopian Airlines ET302. And the reports reveal that the pilots' responses and lack of knowledge with skills played a major role in the disaster.

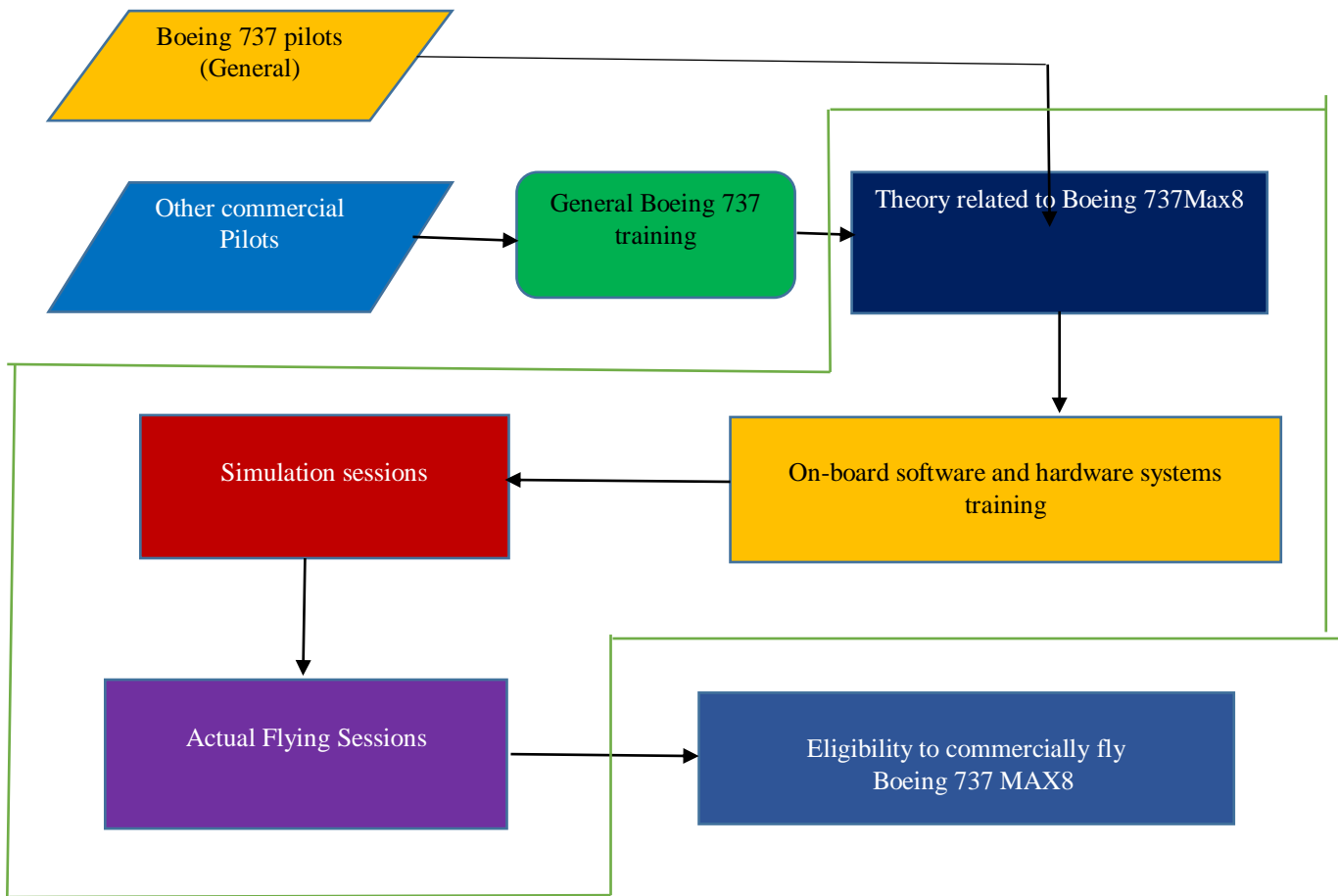
For every new system or a capital good, proper training and instructions should be given to the corresponding personals who are operating and dealing with it. One major mistake that the Boeing had done is they did not even inform the existence of the MCAS to pilots, engineers, or technicians. They had mentioned it only in a single page of the general instructions manual of the Boeing 737 Max8 and it is a very short and a brief one. Under the above situation, the pilots tend to think Max8 is very much similar to the 737-800 and they are unable to be informed about the new hardware and software advancements that have implemented in Max8. Therefore an effective and well-organized method for training pilots to fly Max 8 must be introduced. In this section, a suitable way to train the pilots to Max 8 is been introduced. And it called Boeing 737 MAX8 Integrated Pilot Training Setup. (IPSP).

1.2.1.. Boeing 737 MAX8 Integrated Pilot Training Setup Procedure (IPTS)

The IPTS procedure of training pilots is not only applicable to the MAX 8 but it can generally be implemented on training pilots for any type of commercial aircraft. And it is an integrated technique that considers every possible aspect of the training of a commercial pilot.

The below diagram shows the step by step procedure of the IPTS for Boeing 737 MAX 8.

Figure.1 - IPTS for Boeing 737 MAX 8



According to the above diagram, it may seem like the traditional or the normal way of training commercial pilots. But it is important to know that this method is specially designed and proposed to train pilots' within the model of aircraft and between the variants of it. So by implementing this method each pilot gets a wide knowledge in both theoretical and practical aspects of the aircraft in which he or she is going to fly.

Below the steps of the IPTS are described in detail.

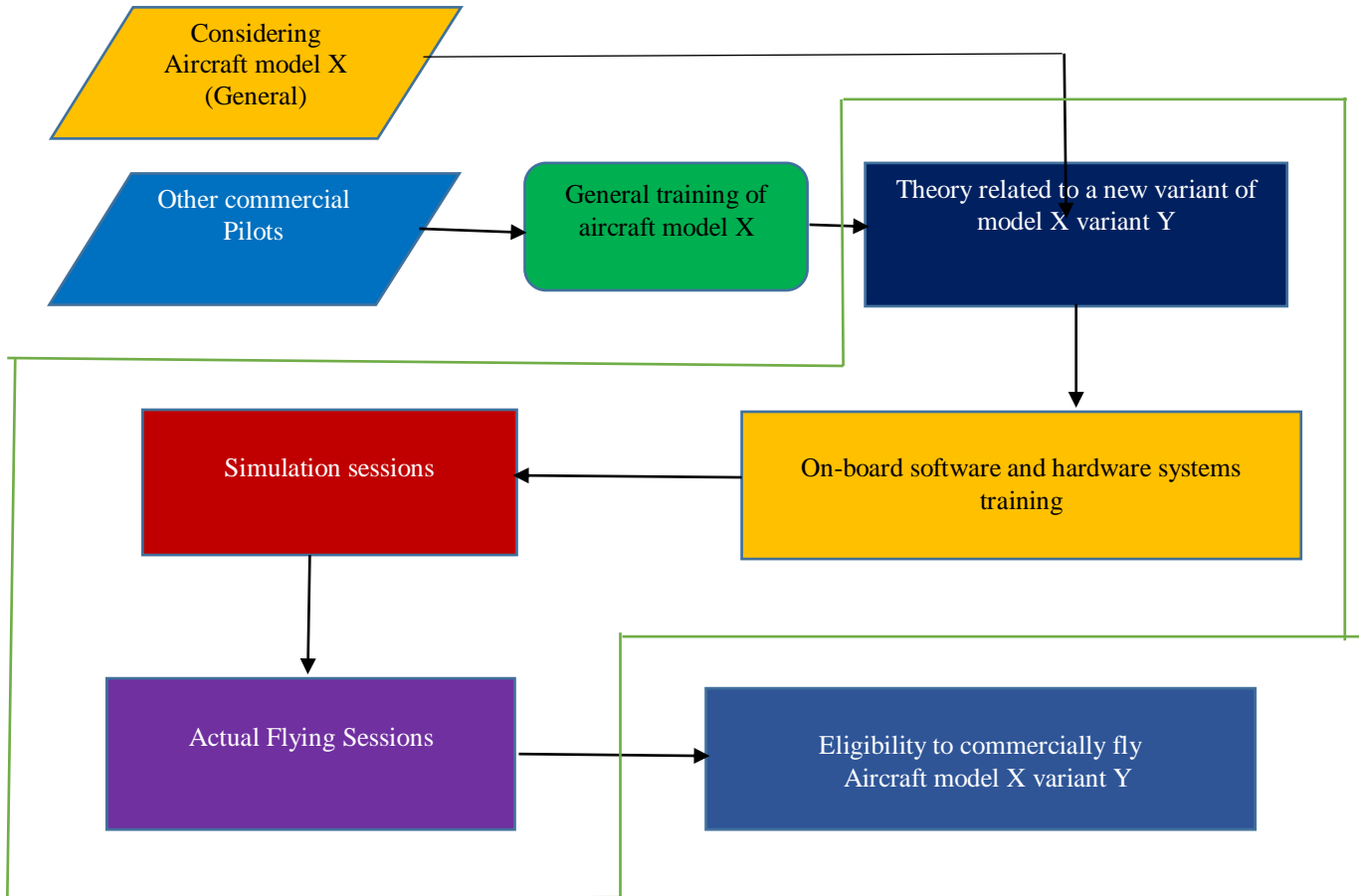
- For Boeing 737 MAX 8 the first step is to deliver the basic and general theory of the Boeing 737 aircraft type to make sure that each candidate is having enough skill to perform better in MAX 8.
- Therefore the pilots who are currently flying other variants of the Boeing 737 can directly begin their further training into MAX 8.

- The pilots from other commercial aircraft must have the basic and general knowledge in the Boeing 737 to have to best performance in the MAX 8, so therefore they are required to undergo some sessions that will give the required amount of knowledge about the Boeing 737 aircraft model.
- All the candidates who are completed having the basic knowledge in the Boeing 737 aircraft can now begin the training in the Boeing 737 MAX 8.
- First, the candidates undergo a series of theoretical sessions and lectures related to the Boeing 737 MAX 8. There they earn the new advancements of the aircraft, efficiency, all the other technical stuff, and the history of the variant.
- Then they begin their study on the onboard systems of the aircraft including both software and hardware systems, avionics and they learn what type of new electrical and electronic advancements and software advancements that the Boeing 737 MAX 8 have including a detailed study about the MCAS. Also, they learn to operate those new systems.
- In the simulators sessions, the candidates are practicing and testing all that they have to learn, and there they will be learning how to act in an emergency on board the MAX8, how to deal with the MCAS, and how to act effectively in system failure situations. And also the instructors or the monitoring officers are beginning to have the idea of how much those pilots will act successfully onboard the Boeing 737 MAX 8.
- Actual flying sessions are very much important, and after having good training with the simulators, those sessions can be done more easily and the pilots will become more familiar with the Boeing 737 MAX 8.
- After the actual flying sessions, each pilot will be evaluated by a board or a committee of professionals in aviation and flying. There they will decide to promote each suitable candidate to fly Boeing 737 Max 8. After the evaluation of the pilot, he or she can start the new career as a Boeing 737 MAX 8 pilots.

1.2.2. Standard IPTS Procedure

The below diagram shows the General and standard procedure of the IPTS that can be applied to the training of any aircraft type.

Figure.2 - Standard procedure of IPTS



In the above diagram, it is important to consider that the training is done to train pilots for the **Aircraft model X** which is a general form of aircraft type or an aircraft family and **Y** is the variant in which the training is implemented specifically.

1.3. Conclusions

Considering the procedure of the IPTS it reveals that it is theoretically an effective way of delivering the maximum skills and knowledge on how to fly and operate a commercial airliner more effectively and efficiently with fewer errors and failures that can be happened with the act of the pilots.

However, since this is a theoretical procedure, it is recommended to test this procedure using actual pilot students or simulations to verify and quantify the actual effectiveness of this method.

1.4. Acknowledgements

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