

# DRAFT TECHNICAL HANDLING TYPE B747 AIRCRAFT AT THE AIRPORT KOŠICE

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This work focuses on the design and specification of equipment for ground handling of aircraft in general, but especially aircraft of type Boeing 747 at the airport of Košice. The work is subdivided into six chapters. The first part is devoted to the technical handling, in general, that is, tasks and place. The second chapter glutton safety ground clearance of aircraft engaged in the design, support systems and ground handling equipment. The third chapter deals mainly with means for ground handling of aircraft, or towing, redistribution and explaining their use, by means of electric power aircraft, routes pick up passengers, and other matters related to ground handling of aircraft mentioned in sub-third chapter. Next, the fourth section focuses on the history, production and introduction of Boeing 747 Generally refers to the testing, development and fleet, and last but not least is mentioned accident this huge aircraft. The fifth and sixth chapter focuses on the Košice airport, the specification and design of equipment for ground handling of aircraft, the Boeing 747 for the reception at the airport. The task of the whole work is to devise means for ground handling of aircraft of type Boeing 747 at the airport Košice.

Keywords: Handling, airport, airplane, Boeing, anti-icing,passangers, fuel, specification

## 1 INTRODUCTION

This is our new age, when man met with his technical development and fulfilled an age-old desire, flying. In 1903, the Wright brothers made the first flight on an aircraft heavier than air. These beginnings flight lasted several tens to a hundred meters. As in other directions and techniques in aviation has been great progress. Since the first flight of the Wright Brothers through, a small biplane, passed nearly three-quarters of a century, progress has caused it today supersonic airliners cruise the atmosphere.

At the beginning of the twenties and thirties started becoming more modern aircraft due to technical progress. Perfecting the engines, design and install special equipment. The aircraft is considered immediately for the greatest achievement of the century. Thanks aircraft, the world seems quite close and negotiable. Boeing 747 became the new Air Force to its robustness and modernity. For the enormous size of the cabin was named Jumbo-Jet. As it is, the type of aircraft for the new airport Kosice, leave to discourage ignorance and are well prepared for such significant progress. Technical handling is one of the most significant element in respect of aviation. Its importance and robustness reflects on the safety of passengers on board the aircraft.

## 2 TECHNICAL HANDLING, ITS PLACE AND ROLE

Basically handling technical name is used for ground handling of aircraft. The full meaning of the English word handling is translated into the Slovak language handling, operation, handling. This concept as well as many others in the case of aviation does not translate literally. Remains of the name handling - the

provision of services for remuneration. The technical handling services to the aircraft equipment.

Operation of aircraft has always guided the aircraft begins to stand by. As aircraft scrolled to stand by its own power engines, used tractor. Introducing the aircraft to stand by me accountable trained staff. Training is based on the required guidance of characters contained in the Aircraft Marshalling Signals (AMS), which are regulation Annex 2 (L2). Is it possible to guide the aircraft to stand by a vehicle intended for guiding aircraft on stand by (follow me). Designated and trained personnel must stand by to check before getting on it parked aircraft. Stalls shall be clean, shall not be located on your desktop or in its vicinity no adverse subjects. When the aircraft is on the stands, access to the aircraft crew, but after turning off the beacon aircraft engines catch up and chocked. Around the aircraft must be placed warning cones in wingtips, input and output of the engine and propeller. The general rule says a safety margin to avoid conflict. It is a space designed octagon, each side of which is five meters away from the front of the tail of the fuselage and the wings. If the entrance to this area, it must be to exercise care to avoid damage to the aircraft or the environment. Travel speed with means in the zone must not exceed walking speed.

After stopping the aircraft, brake wedges and a warning cone are deployed. At that point the arrival time is declared. These brake wedges are designed to provide aircraft to aircraft movement. Head of handling accesses visual inspection of the aircraft. After a successful tour, especially the doors, load compartment and engine compartment door, it is possible to supply air bridges or stairs to the aircraft door. Head of handling is present at the opening of the doors, but they are open until after the agreed signal. At that point, the head of the cabin receives instruction to open the door of the aircraft. After opening transposes the necessary documents as the finish documentation and information about special assistance for passengers. Only after completing the necessary

maneuvers gives a signal to alight. After the speeches passengers to access other aircraft ground services.

For the area of aircraft ground handling manual handling agent used airport (airport handling manual). Is globally valid and basic document, which consolidates regulations for the area ground handling of aircraft serving for air carriers. To write their own manuals about the ground handling of aircraft used or the manual is intended primarily for airports. This manual is adjusted each year according to the latest news from the world of aviation. Renewal and updating of the manual deals with the Commission of airport services. IATA manual recommends that air carriers and airports to follow economic efficiency and usability standards. Of course, IATA membership to include any business that makes regular international air freight, mail and passengers' heads.

The air technology alone manufacturer supplies the technical documentation of an aircraft, which is very necessary for personnel performing ground handling of aircraft. Such documents can also be obtained from the website of the company that produces a certain type of aircraft.

Documents given to means of groundhandling services are essential for POL. It is used for proper use of funds for ground handling of aircraft maintenance in this documentation is an essential component. This information, documents are supplied by manufacturers funds for ground handling of aircraft.

### **3 EQUIPMENT FOR GROUND HANDLING OF AIRCRAFT**

If you want to perform ground handling of aircraft, it is not possible without the device having the specific properties. Because of the type of work these devices are referred to as agents for ground handling of aircraft. For technical power handling at airports is very necessary and almost essential to use the right tools. The market can postriehnut' incredible number of manufacturers of these funds for POL. Choice of the most appropriate means of influencing the quality, brand and especially the price.

#### **3.1 Towing and pushing**

Pulling or pushing is used to move aircraft such as for repair, maintenance, from / to the hangars and others. When pulling or pushing the aircraft in a narrow space staff catered for help when moving because of wings or tail. There is a rule, the heavier the aircraft, so it must be heavier tractor - it depends mainly on the design of the tractor.

#### **3.2 Equipment for external electricity supply**

One of the most important sources of electricity, the primary source of the aircraft is dynamo. Dynamo is a direct current generator, which is very important because

it brings into action after starting the engine. When using direct current, so relates to the need of energy source, or, if necessary, aircraft engine or dynamo. Onboard battery must in an emergency permit and start your own engine.

#### **3.3 Aircraft fuel**

An air fuel understand two types, which are used depending on the engine. We distinguish between jet fuel and kerosene.

#### **3.4 Means to occur and output loading and unloading food, baggage and goods**

Basis is the transfer of passengers to / from the plane to / from the terminal.

When loading and unloading food to the standardized boxes that are attached to the vehicle, which has its own power with the retractable platform. On the scissor system is built modified loading space, which may have equipment such as. coolers. Massive feet on the chassis provide stability properties when loading the plane. Are of course the loading and unloading of food and dishes and also for loading and unloading of disabled passengers. The deck is illuminated by a slip of course.

To be transported baggage, mail or goods need to be loaded onto an aircraft. To serve luggage carts and tractors and belt loaders.

Goods that are transported by air, shall be deposited in a certain way. The air used pallets or containers (universal loading unit).

#### **3.5 Implementation of aircraft nitrogen and oxygen, cabin heaters and air conditioners**

Use in the aircraft fluids are oxygen and nitrogen. Oxygen is needed for passengers and even globally because of living beings on board an aircraft, whether for humans or animals. Is necessary because at high altitudes, it can not be used from outside. Oxygen and nitrogen are supplied to the aircraft in cylinders that are differently labeled, transported young pulling carts or for a greater amount greater traction function. They may be removable or fixed type. The means by which an aircraft filled with drinking water may be constructed as an extension to the vehicle or as a means of pull with or without lifting platforms. Tanks, which are carried in drinking water must be of stainless steel.

To protect against freezing editor of aircraft systems, long-term or short-term heating of cabins and accessories used hot air unit - ground heater. When the heater is in operation, it is necessary to have oversight over it. Most of these are driven by means of heat. Unit can not be used for other than the heating plane.

### 3.6 Implementation of the aircraft drinking water and using toilet systems

The means by which an aircraft filled with drinking water may be constructed as an extension to the vehicle or as a means of pull with or without lifting platforms. Tanks, which are carried in drinking water must be of stainless steel.

Operating system uses the toilet means for discharging toilet systems. These resources may be different. Some options need to pull or there are self-propelled vehicles, which of course do not need a tow. Each of these resources includes equipment such as hose with universal connectors or the meters of waste water. Must be marked "Toilet Service" at least 75 mm in capitals.

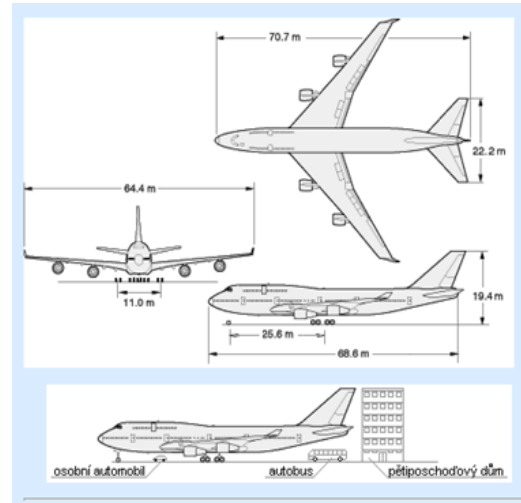
### 3.7 Defrosting of aircraft

De-icing of aircraft is most needed to carry out in winter. It's almost inevitable. Aircraft may contain literally tons of layers of snow, but just a thin layer of frost on the surface of the aircraft. For disposal of such phenomena on the surface of aircraft de-icing agents are used. Tanks which carry stocks de-icing fluid, located on the chassis mobile object, the car. Thawing mixture is sprayed directly into the aircraft through nozzles, which are located on the movable arm. These arms are so nadstaviteľné to reach the highest points in the plane, in the uppermost seats on the aircraft. If it is a large-capacity aircraft, it is possible to use multiple de-icing equipment

## 4 HISTORY, PRODUCTION AND DEPLOYMENT OF B747 IN SERVICE

When the U.S. Air Force announced a tender for a new high-capacity load an airplane, Boeing has proposed a brand new, huge aircraft type and assign a number 747. Tak As in the past, and this time hoping to military investment will help reduce the cost of later development of a commercial version. The competition, however, prevailed with his Lockheed C-5 Galaxy. Despite the enormous costs that have reached \$ 16 million, Boeing changed the design and continued development of the civilian version, because of the large airlines have expressed interest in such a large aircraft. It was even necessary to build a completely new factory, because the aircraft was in the old factory buildings far could not enter. His torso with ten seats in each row also has a second deck in front. To the heavy machine can use a given runway, his weight had to be divided among the five 18-wheel landing gear legs. The aircraft was designed to be as much resembled its smaller predecessor 707 and 727 and thus facilitate the work of the crew and airport staff. 747 using intuitive controls and advanced navigation system, so they can comfortably manage three people. Frequently carrying 300-500 passengers, which

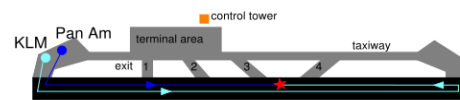
represents only a fraction of their transmission capabilities. Large-scale version, which normally flies in East Asia, naboard can provide round-up 800 passengers and one Israeli-ice 747 in 1991 even transported 1,087 refugees from Ethiopia. Until now, in Everett-produced with more than 1250 pieces of 747 and versions are in development 747-400ER "Extended Range" and 747-400X "Quiet Longer Range".



### 4.1 The most famous accident B747

Aircraft incidents happen very rarely, but occasionally there is any. Accidents and accident, of course, also seen in Boeing-747 They will be the only one, but it most tragic accident, associated with the second Boeing 747.

Aviation accident occurred on the island of Tenerife 27.3. 1977 evening landing in the middle of a runway at the former military airport of Los Rodeos. There was a collision of two Boeing s, 747-121 and 747-206B. Due to a host of unfortunate coincidences, irresponsibility or misunderstandings pilots killed 583 people. It was the largest air disaster in history suffered on Earth Najznámejšia letecká nehoda B747.



**Cause:** KLM Boeing booted without authorization to start, or think that it is what caused the misunderstanding between him and the tower.

## 5 KOŠICE AIRPORT, OPTIMIZATION AND MOTION FOR POL B747

Košice Airport is an international airport and the second largest airport in Slovakia, of course, by the number of regular routes and passengers. Located in the

city of Kosice called Barca, about 6 km from Kosice's center at an altitude of 230 m n. m. The total area is 3.5 square kilometers airport and terminal area 4456 m<sup>2</sup>. Around 3500 m<sup>2</sup> of terminal area is reserved for passengers. As for the momentary aircraft fleet capable of landing at the airport are Boeing 767 and Airbus A300. The future development envisages the adoption of Boeing 747. The capacity of the airport to the number of passengers is 700 000 people.

The company is a private joint stock company (as) under the Commercial Code, the specificities and differences in the meaning of the airport companies. Founded indefinitely.

Since this aircraft is among the wide body aircraft mass, Kosice airport, which is outside the ladder largest airports, may have appreciable problems with its size and robustness. Of course, not only about the size of problems arise, but also with its technical handling. Of course it is not all kinds of problems, but mainly the inconvenience arising from the size and capacity of the aircraft. Regarding the problems of ground handling, Entailment is based on the very dimensions and especially about icing, pulling or pushing, boarding, disembarking passengers, loading and unloading luggage, security, catering, containers and container lifters. However, problems may arise and connecting ground source and air starter GPU ASU.

Given the need to propose a solution for the reception B747 aircraft, to point out the means for ground handling and airport capacity areas on Košice. Kosice Airport owns all of the assets for ground handling of aircraft except Boeing 747. According to their size does not need a lot of extra equipment other than those already owned.

#### 4 CONCLUSION

The development of technology has brought us no small surprise. People are moving from a position up and down. One day in Europe, next turn on the east coast of America. Once upon a time varied only the seas and oceans, but now? Is there a problem to get? No, because our lives significantly to accommodate aircraft.

As the world began to develop airports, as was the case at the airport Košice. They become more advanced and prepared for further progress in the field of air traffic. On košický market is fed enormously large aircraft of type Boeing 747. This aircraft zahviezdilo the sky not only to improve the technical side, but also benefit the larger number of passengers. Airport Kosice, however severe the head of it does. They are ready for everything. Culminate in the preparation and waiting for Jumbo-Jet.

The aim of this thesis is to explain the current state of the Košice airport, due to the adoption of B747 aircraft. I analyzed the technical handling needed for B747,

ground handling of aircraft in general, and certainly not least Kosice Airport.

This work becomes a cross-sectional characteristics, to which shall be added the necessary information about the ability of Košice Airport for ground handling of aircraft of type B747 and resources that need to provide a vision for the future adoption of this type of aircraft.

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