

REVIEWING THE OPERATION OF AIRCRAFT TYPE B 747 AT THE SELECTED AIRPORT

Judita Tillová – Ján Ferenc

My thesis presents the possibility of aircraft Boeing 747 operation on Airport Košice in the future. I present the ways and necessary enlargements of aprons due to this type of aircraft, because Boeing 747 is the aircraft with the greatest parameters. It is demanding to keep the regulations and standards like L 14 and ICAO from the point of increased investment costs, which have to be spent on to secure the safe air traffic on Airport Košice.

K e y w o r d s: operation of aircraft, operation of airports, operation of Boeing B 747 , modification of physical surfaces.

1 INTRODUCTION

Airport transport process is challenging for staff and their qualifications, and must be understood as the sum of closed activities that are dedicated to airport staff. The airport process begins with the arrival of passengers at the airport, boarding the passengers waiting before departure, boarding, in-flight services, private air transport, exit the terminal and departure from the airport. But on the other side of the airport, in the process of further activities, requires high standards, who is often invisible to passengers. And it is the staff who provide air traffic control services in accordance with the terms of the Convention on International Aviation.

The structure of the airport may be simple, but not easy. It depends on what the airport or aerodrome company is involved. Airport of your organizational structure created to reflect the environment in which the airport is situated, and to enable them to adapt to constantly changing conditions aviation.

Inherent responsibilities associated with the operation of the airport, is to create a vision for the future development. Planning airport operation, we can define as the creation of an organizational strategy to operational activities, parameters airport, its layout and organizational structure as well as the financial budget. They may be different plans at operations personnel, as well as plans for the reconstruction of the airport.

Operation 747 will be at the airport in the future particularly interesting when charter flights in summer mode airport. It would also be interesting to launch this type of cargo aircraft. The airport is very well located between the Tyrrhenian Eastern Europe - Ukraine, Hungary and Poland. The airport is located near the industrial park, which gradually fills logistic companies, which may also bring about the development of air cargo transport.

When deciding on the development of Kosice airport is to maintain a good position in the market for air transport, which will focus on meeting the needs of airport customers and it is to the future, but we must begin by considering the economic reality of the current development of European air transport. It is essential that we respect the reality that the Kosice airport is a regional airport and therefore, if the airport has really developed, all airport operators, which may affect the development lines, to begin work. The basic condition for the future

success of the airport's cooperation regardless of whether the owner of the state, or private business. As well as creating attractive opportunities.

2 THE STATUS AND IMPORTANCE OF AIRPORT IN AVIATION

In the air transport system fulfills the role of the airport start and end point of the transport process, allowing air carriers to ensure the arrival and departure of passengers from the aircraft, loading and unloading baggage, cargo or mail. At the same time, however, the point of transfer between land and air transport. Another function is to allow an airport stopover routes (transit) and the transfer of passengers or cargo translation between airlines.

These tasks are equipped airport operational areas, which are made of runways (runways), taxiways (taxiways), aprons for aircraft (apron, ramp), buildings for check-in of passengers and cargo (passenger, cargo terminal), office buildings, equipment maintenance and repair of aircraft ground handling facilities , firefighters and emergency services (firefighting and rescue services). The airport has a more complex in its diverse commercial zone. Special airport layout and significantly affects the ratio of the above functions.

3 CHOOSIN A MODEL AIRPORT

Regional Airport Kosice is the second largest airport in Slovakia. His current position is on the opposite side of Slovakia as Bratislava, so it has a strategic position. Kosice Airport is located south of downtown Kosice 6 km in the city of Kosice - Barca with a maximum capacity of 700 thousand passengers a year. Built airport is closely linked with the region within Europe and the runway 3,100 meters long.

According to the Commercial Code is Košice airport private joint stock company with the specifications and differences in the meaning of the airport companies. Founded in cash, the property was the subject of the Slovak Republic in the report of the organizational unit Košice airport governmental organization, Slovak Airport Administration that provides aviation services to its customers, this company has been established for an indefinite period. In order to increase profits and revenues was based subsidiary Kosice Car Parking Ltd. in 2008. Its

principal business activity is the provision of rent-bys, ie operation of parking at the airport Košice.

Kosice Airport is a public civil airport for domestic and international air traffic, which ensures regular and irregular air transport. Passport and customs control is available 24 hours. The operation is carried out according to the rules and instrument flight rules Visual flight rules (IFR / VFR).

Kosice Airport has two actuating surfaces. Apron No.1 (APN1) is designed to equip regular or charter lines and surface No.2 (APN2) is intended primarily for general aviation. For aircraft equipment is APN1 is available 10 stands. If the operation of the airport expanded, so the airport will consider the establishment of a greater number of aircraft stands and apron extension with the possibility of building further non-binding arrival and departure APN 1 Now the Košice airport has built only one taxiway (TWY A), which is possible entrance and departure of aircraft apron. The building next to the entrance of such APN 1 would speed up traffic at the airport in Košice.

3 PARAMETERS BOEING B 747

Aircraft have a wingspan of 64.92 meters (model B 747-400), respectively. 59.64 m (models) B 747 - 100/200/300/SP), track width 11.00 m main chassis. The aircraft has thus codename 4E (dimensions of each model are listed in Annex 1a, 1b and 1c). For these types of aircraft are prescribed following parameters aerodrome movement areas:

- min. runway width 45 m,
- total min. width including side strips 60 m,
- min. taxiway width of 23 m,
- width including side bands: 44 m.

Utmost point distance moving aircraft from obstacles:

- the travel distance: 15 meters
- the travel lane (ramp): 10 m,
- ramp stands 7,5 m,
- the minimum distance between the outer main wheel and the edge of the taxiway (at the position of the flight deck of the axis designation): 4,5 m.

Capacity of the Boeing 747 is in the range from 380 to the maximum. 660 passengers. Such capacity is difficult for passengers tripping process in itself terminals. Passenger Terminal in Kosice is designed for about 1,000 passengers in peak hour together for arrival and departure of passengers. It is equipped with 1 Boeing landing at about 500 passengers on arrival and about 500 passengers awaiting departure, the present-terminal capacity is reached.

The airport operator should ensure that at the time of landing an aircraft of this type were in this time period received other aircraft or regular lines, which would complicate the process of tripping at the airport, which would be slowed down time of equipment other aircraft. Košice airport operator should establish a timetable for the most advantageous Košice airport for landing this type of aircraft. If during the processing of

the Boeing 747 was the handling of different type of aircraft it is difficult even to public areas in terminals to its existing area would be filled. At the same time when arriving there would have confined to the ratio of the arrival hall as Košice airport has only 1 carousel the arrival - the conveyor belt.

A better solution would be providing Boing 747 on arrival and subsequently to admit passengers in the arrivals hall of another type of aircraft, which so far had to wait the plane.

5 ASSESMENT OF SPATIAL PARAMETERS AERODROME MOVEMENT AREAS FOR THE OPERATION OF BOEING 747

5.1 RWY 01/19

Conforms track width than the base width and overall width.

The length of runway for takeoff. For take-off MTOM does not on all models B 747.

The length of runway for landing is acceptable for all models with the maximum landing weight at a wet runway.

The situation can be addressed operational measures - take-off with less weight. Take-off weight limitation for individual models or construction works - an extension of the runway.

5.2 Turnabout point

At the end of the runway for the code letters D, E, F and G must be given turnabout point aircraft to rotate about 180 It can be stated that even when using a feeder road TWY E is for aircraft of type B at 747 obratisko enough space.

This problem can be solved only by extending the road so that there is considerable scope for obratisko. The drawing of the indicated range extension needed.

5.3 Taxiways

Most of the rails and has a width less than the necessary 23 mA (with the exception of TWY) without lateral belt (side bands are necessary because, in order to prevent the aspirated material from the surface underslung engines are under the wings of aircraft).

The required width is only TWY A and TWY J. Total premiums paved width (ie incl. Lateral bands) 22 m on each side of the axis of the track does not have any travel distance. TWY J has no side bands ever, when a TWY edge strip at a distance of about 19-20 meters. Outboard engines, aircraft B 747 so get over unpaved grassy area.

Proposal for a possible solution:

1. aircraft cleared the runway only.
2. construction works: TWY A belt extension to the required width of 22 m from the axis of the taxiway,

3. construction works: the extension of taxiway strips Z. Displacement of the rolling line of the taxiway 11.5 m. Extension of the side strips TWY Z by 22 m, the width of the taxiway reach of the prescribed 23 m distance required the taxiing of aircraft type E. No stalls. 5 will be used as interim stalls
4. building modifications without operational restrictions: vehicle aircraft with the engine switched off outside,
5. without building modifications operationally: stretching the aircraft from take-off a runway to the apron tractor,
- 6 Elsewhere in the airport than 1 APN: only construction work of reconstruction and extension of an existing taxiway (or new construction) linking RWY 01/19 check-in area.

5.4 Extending the arc

The curves taxiways road must be extended to the movement of the flight deck of the axial distance between the marking or outer wheel main landing gear and the edge of the track is less than the prescribed (4.5 m). According to L14.

In view of the above, was assessed only vehicle aircraft between RWY 01/19 and TWY A: When running gear in the direction of the taxiway and the wheel at the end of the exit gets the long section about 36 m closer to the edge than the prescribed 4.5 m. Maximum deflection at the wheel at a distance of about 3.3 m from the edge of the taxiway pavement.

For model 747 SP but meets the road, as well as for all vehicle models in the opposite direction (from TWY A to RWY 01/19).

Proposal for a possible solution:

- construction works: TWY A road extension and lateral belt to the extent necessary (Annex), including relocation side signals,
- without structural modifications: designating a special designation only for axial movement of aircraft type B 747 (Annex 3) so that the prescribed distance from the outer edge of the wheel chassis ground has been observed,
- operationally: drag aircraft from runway the ramp tractor.

5.4 Apron

Space available for ramp - APN 1 are due to the fact that is proposed only for aircraft type KPD limited (in particular distance lighting towers and surrounding buildings). For aircraft with dimensions of 747 B in the case of the raid on its own power can be used only stands 4 and 5 Only at these stalls can be maintained the necessary distance from the edge of the aircraft barriers (7.5 m).

6 CONCLUSION

Operation of aircraft of type Boeing B 747 at the airport Košice is possible, but with certain limitations. As

described in previous chapters, limitations arise from the following facts:

- 1 lower carrying capacity of roads (against MTOW)
- 2 nominal length of the shorter path (to MTOW)
- 3 little room for obratisko at both ends runway
- 4 narrower taxiways and runway strip,
- 5 main apron only for aircraft k.p. D.

These restrictions are as described in the previous chapters can be addressed as follows either construction or operational adjustments.

Problem with lower strength pavement RWY 01/19 and taxiways:

- The process by reducing aircraft take-off weight. Reducing weight will solve the problem of the short nominal path length,
- construction work - reconstruction of roads (or your extension path), the cost of this solution would be high and inherently inadequate income.

Turnabout point on both ends of the runway:

- applicable only to special treatment - Addition area for the establishment turnabout point. Narrower taxiways (or Lateral strips):
- operational - running aircraft between RWY 01/19 and outdoor stalls with disabled engines, tractor or stretching, adjusting the axial signs,
- construction work - extending side strips to the required width and extension of the runway pavement in power curves.

Apron only for aircraft k.p.D:

- operational - stretching aircraft tractor - assisted vehicle, vehicle aircraft under its own power accompanied controlling the distance wings obstacle (only B 747-400)
- operational constraints on ramp
- building - construction (reconstruction) including special driveway apron taxiway in another part of the airport.

The evaluation of the above limitations, it follows that the critical aircraft (which can be cleared at the airport without restrictions) are Boeing B 767-300, B 747SP and Airbus A300 B2.

Operation Boeing 747 will be difficult to Košice airport, especially in terms of operating equipment of the aircraft in the shortest possible time. Number of employees at the business section of the aircraft at the time of equipment will have to be reinforced double the number of workers because of passenger satisfaction to avoid to longer waiting periods before passport control, luggage and waiting for the time to be cleaned up before boarding an aircraft other passengers in the aircraft and terminal space. Technical Department will also have to contribute most to the satisfaction of the type of aircraft equipment, especially limited gates, enough restaurants. Investment costs associated with the operation of the type of aircraft are considerable, so that the said extension taxiways as and modify the technological equipment. If

there would be a greater movement of these types of aircraft, it would be certainly beneficial for the airport in the future. Logistics companies are not yet ready to fill such a large plane, but while watching the player can assume the development of air cargo.

When planning capital construction at the airport can also be considered for extension of APRON aircraft of type Boeing B 747 away from the terminal, which will protect the terminal against noise and emissions.

Kosice Airport is a regional airport, so it is necessary to respect this reality, if the Kosice airport actually develop, operators must all start together and thereby affect development. The basic condition for the future success of the airport's cooperation.

In addition to commercial entities plays an irreplaceable role whose task is to support and promote the country and the eastern city of Kosice region. It is important to begin the necessary cooperation to the future development of the airport, which would have made the Kosice airport attractive destination for airlines. In order to cooperate and activity operators attract new routes to the airport Košice is an important step to development of air links can influence and support. In general, the development of each airport, long and difficult process, which is capital intensive and requires a long-term concept.

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AUTHOR(S)' ADDRESS(ES)

Ing. Judita Tillová., Katedra manažmentu leteckej prevádzky,
Letecká fakulta, Technická univerzita Košice, Rampová 7, 041
21 Košice,
E-mail: Tilljudy@gmail.com

Ján Ferenc, Ing, PhD.
Katedra leteckého inžinierstva, Letecká fakulta, Technická
univerzita Košice, Rampová 7, 041 21 Košice,
E-mail: jan.ferenc@tuke.sk