CZECH TECHNICAL UNIVERSITY IN PRAGUE

FACULTY OF TRANSPORTATIONS SCIENCES

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THE EFFECT OF MASS ON FLIGHT PLANNING IN CONTEXT OF CURRENT LEGISLATION

Master's Thesis

2018

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- Operace v rámci současné legislativy
- Výzkum hmotnosti cestujících
- Aplikace výsledků do provozu
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Seznam odborné literatury: Commission Regulation (EU) No 965/2012
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V Praze dne ..... 4. prosince 2017

Poděkování

Tímto bych rád vyjádřil poděkování všem, kteří mi pro zpracování diplomové práce poskytli odborné konzultace, především pak odborníkům z Českého vysokého učení technického v Praze a z Národní školy civilního letectví (ENAC) v Toulouse. Zvláštní poděkování patří společnostem Travel Service a Luxair Luxembourg Airlines za odbornou podporu. V neposlední řadě bych rád poděkoval všem účastníkům výzkumu, bez jejichž dat by tuto práci nebylo možné napsat.

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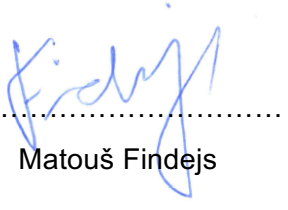

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Matouš Findejs

ČESKÉ VYSOKÉ UČENÍ TECHNICKÉ V PRAZE

FAKULTA DOPRAVNÍ

VLIV HMOTNOSTI NA PLÁNOVÁNÍ LETU V KONTEXTU SOUČASNÉ LEGISLATIVY

Bc. Matouš Findejs

Diplomová práce

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Abstrakt

Hmotnost cestujících ovlivňuje zásadním způsobem množství paliva na palubě. Současná legislativa stanovuje standardní hmotnosti cestujících s jejich zavazadly, které pomáhají nastínit, jakou celkovou hmotnost platícího zatížení lze očekávat. Trendy v letecké dopravě však nahrávají nízkonákladovým dopravcům, u kterých nejsou například odbavená zavazadla v ceně letenky. To má za následek vyšší hmotnost příručních zavazadel. Za další výrazný faktor lze považovat zvyšující se průměrnou hmotnost populace jako takovou. To by do budoucna mohlo vést k tomu, že legislativou stanovené hmotnosti již nebudou dostačující, což by mohlo mít dopad na bezpečnost v letecké dopravě.

Klíčová slova

Plánování letu, hmotnost cestujících, hmotnost zavazadel, legislativa, spotřeba paliva, platící zatížení, efektivita

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Abstract

Mass of passengers has a significant influence on amount of fuel on board. Current legislation determines standard masses of passengers and their luggage, which gives an idea about the expected total mass of payload on board. Increasing number of passengers transported by low-cost carriers is one of the main trends in air transport. However, checked baggage may not be included in a price of the low-cost carrier ticket. As a consequence, weight of hand luggage is increasing. Generally increasing weight of population can be also considered as an important factor. It may lead to the fact that current standard masses will be no longer sufficient. It would have an impact on safety in air transport.

Keywords

Flight planning, weight of passengers, weight of luggage, legislation, fuel consumption, payload, efficiency

Table of contents

List of abbreviations

A320	Airbus A320
B737	Boeing 737
BURN	Fuel Burn
CAA	Civil Aviation Authority
CEO	Conventional Engine Option
DIST	Distance
DOM	Dry Operating Mass
DTGO	Distance to Go
EASA	European Aviation Safety Agency
ECAC	European Civil Aviation Conference
EU	European Union
FL	Flight Level
FOB	Fuel on Board
GS	Ground Speed
IATA	International Air Transport Association
ICAN	International Commission for Air Navigation
ICAO	International Civil Aviation Organization
ISA	International Standard Atmosphere
JAA	Joint Aviation Authorities
JAR	Joint Aviation Requirement
kg	kilogram(s)
km	kilometre(s)
LAW	Landing Weight
lbs	pounds
LCC	Low-Cost Carrier
MSLM	Maximum Structural Landing Mass
MSTOM	Maximum Structural Take-off Mass
MTOW	Maximum Take-off Weight
MZFM	Maximum Zero Fuel Mass
NEO	New Engine Option
OFP	Operational Flight Plan
OPS	Operations

pap	passenger
pax	passengers
SARPs	Standards and Recommended Practices
TAS	True Air Speed
TF	Trip Fuel
TL	Traffic Load
TOW	Take-off Weight
TTGO	Time to Go (remaining time)
WWII	Second World War
ZFW	Zero Fuel Weight

Introduction

Weight distribution on board the aircraft strongly influences its flight characteristics. It defines the position of the centre of gravity, which effects the manoeuvrability of the aircraft as well as the efficiency of the flight.

However, the estimates of mass on board during the flight planning process are very inaccurate. The airlines are constantly trying to reduce their costs, but the current legislation does not see any difference between the flights of low-cost and major carriers, even if the business models and the products offered to customers are very different. Moreover, the more efficient the operations are, the more environmentally friendly aviation can be.

During the last decade, a huge growth in field of low-cost air transport can be observed. The low-cost airlines are optimizing their profits by reducing operational costs which keeps the fares low. It attracts many potential passengers to purchase tickets. To compete with the low-cost airlines, the major carriers are forced to keep the fares low and offer various products for different groups of passengers.

As aviation is becoming more accessible to the majority of people, the increase in efficiency will play a more significant role in its future sustainable development. Therefore, a new approach to flight planning processes should be developed. It should be focused on trends in air transport and lead to new legislation.

The expectation is that the physical weight of passengers has increased since the last amendment to European legislation. On the other hand, the number of passengers traveling only with hand luggage is growing thanks to the low-cost model, especially on intercontinental flights. The weight of hand luggage is mostly restricted by the carrier due to safety reasons.

For this reason, a new reference weight of an average passenger should be determined. As a result, the number of passengers might be modified and the efficiency of operations changed, but the payload-range diagram of aircraft remains the same. The changes would affect most of the flights within Europe for example in fuel management, pricing or products offered by airlines.

It must be remembered that this issue requires a large amount of data from different European countries as well as data from non-European countries, since anyone can purchase the tickets

and use airplanes as a means of transport within Europe. Aviation is a global field and the issues cannot be defined for each country or region separately. Each passenger has slightly different physical features and there is nobody who fits into an image of an average passenger.

1. Analysis of current legislation

Since the issues in aviation have been always international, it is not possible to apply different rules in each country. Therefore, there have been many attempts to unify the regulations on a regional or global basis.

1.1 ICAO

In December 1944 during the Chicago Conference, 52 states decided to sign The Convention on International Civil Aviation which led to emergence of ICAO in 1947 after the ratification in participating countries. [1] ICAO, as an intergovernmental organization, has been publishing Standards and Recommended Practices (SARPs), which are implemented by the member states. [2]

However, each region has its specific features and it is nearly impossible to implement every single solution globally due to various reasons. On the other hand, there are many regions, such as Europe, which consist of many countries with similar backgrounds where the unification of legislation simplifies the operations and improves safety. For this reason, European countries have been trying to cooperate within the rulemaking process since the second half of the 20th century.

1.2 JAA

The organization called Joint Aviation Authorities was established in 1970 by the European Civil Aviation Conference (ECAC). The main purpose of the JAA was to initiate the cooperation of local CAAs, mainly in the field of aircraft certification. The organization published documents called JARs which contained the rules and regulations which were subject to ratification in participating states.

After 1987, the scope of the JAA grew and among other areas, it also covered in commercial air transport operations. The requirements published by the JAA became the baseline for future European legislation.

The JAA also laid the foundations for EASA, which was the next level of European cooperation in the field of civil aviation. [3] [4]

1.3 EASA

The European Aviation Safety Agency was established in 2002. The headquarters is based in Cologne, Germany. There is also an office located in Brussels, Belgium. The agency associates 28 EU member states (Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom) and Switzerland, Norway, Iceland and Liechtenstein. The budget is partly covered by the EU. However, majority of the sources of income come from the industry.

Figure 1: EASA member states [5]

The scope of the agency is very wide. It includes the technical standards and requirements for the manufacturers as well as operational standards and requirements for the carriers. The outcomes of EASA can be divided into two areas. Firstly, EASA certifies every aircraft which is designed and manufactured in Europe. Secondly, EASA also produces regulations which cover many fields (for example initial and continuing airworthiness, aircrew, air operations or air traffic controllers). EASA is a Regulatory Authority, which is the main difference between it and the JAA. However, the national CAAs still play a significant role.

For instance, in the field of certification, the manufacturers producing large aeroplanes, such as Airbus, are subject to CS-25 and its amendments during the design and manufacturing

process. These documents include number of criteria, which products must meet to be certified by authorities. [6] [7]

1.4 Development of the legislation

One of the first documents dealing with the air transport operations was ICAN Annex E – Operating crew, which was issued by the International Commission for Air Navigation. It was a predecessor of ICAO, active between 1922 and 1946 (excluding the WWII period).

This document was revised during the Chicago Convention and implemented in Annex E – Standards Governing the Licensing of Operating and Mechanical Personnel. In 1953, the ICAO Annex 6 – Operation of Aircraft – Scheduled International Air Services was issued and it replaced Annex E. This document is now known only as ICAO Annex 6 – Operation of Aircraft. The main purpose of this document is the standardization of operations, with the objective of improving the safety and efficiency in civil aviation. Annex 6 is applied to the national standards of member states and the carriers are supervised by the national authorities. The standards in different countries may vary, since national standards may be more limiting than ICAO standards. [8]

To reduce the disparities between the European states, the national civil aviation authorities cooperated within the JAA. The first document issued by the JAA dealing with the issue of mass and balance is JAR-OPS 1, which was later transferred into European Commission law as EU-OPS 1. The EU-OPS, after implementation in 2008, was the first document unifying aircraft operations in all EASA member countries.

In 2012, the EU-OPS, also known as (EC) No 859/2008, was replaced by the Commission Regulation (EU) No 965/2012, which is the most recent document governing aircraft operations in Europe. However, the definitions and standard masses are still related to Commission Regulation (EC) 859/2009, subpart J. [9],[10],[11]

1.5 Commission Regulation (EC) 859/2008

The document consists of 19 subparts (A - S) and covers many different areas such as operator certification and supervision, operational procedures, performance, as well as flight crew, cabin crew and mass and balance.

The applicability of the regulation is following: *OPS Part 1 prescribes requirements applicable to the operation of any civil aeroplane for the purpose of commercial air transportation by any operator whose principal place of business and, if any, registered office is in a Member State, hereafter called operator.* [10]

The national bodies (military, customs, and police services) are excluded as well as aerial work, parachuting or fire-fighting. [10]

1.6 Subpart J - terminology

The main purpose of this thesis is to analyse the data in Subpart J of the Commission Regulation (EU) 965/2012, which deals with mass and balance. First of all, the document explains the important terminology.

DOM – Dry Operating Mass is defined as: *The total mass of the airplane ready for a specific type of operation excluding all usable fuel and traffic load. This mass includes items such as: (1) crew and crew baggage; (2) catering and removable passenger service equipment; and (3) portable water and lavatory chemicals.* [10]

MZFM – Maximum Zero Fuel Mass is defined as: *The maximum permissible mass of an airplane with no usable fuel. The mass of the fuel contained in particular tanks must be included in zero fuel mass when it is explicitly mentioned in the aeroplane flight manual limitations.* [10]

MSLM – Maximum Structural Landing Mass is defined as: *The maximum permissible total aeroplane mass upon landing under normal circumstances.* [10]

MSTOM – Maximum Structural Take-off Mass is defined as: *The maximum permissible total aeroplane mass at the start of the take-off run.* [10]

TL – traffic load is defined as: *The total mass of passengers, baggage and cargo, including any non-revenue load* [10]

The following images explain the definitions in a clearer way:

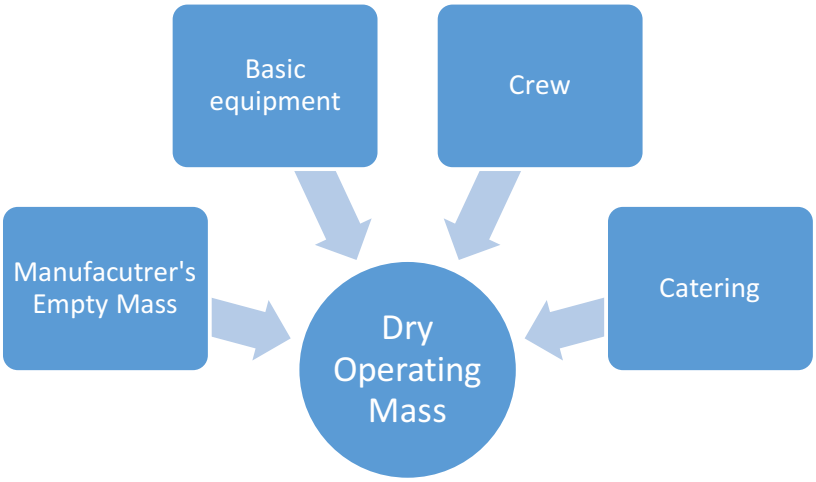


Figure 2: Dry operating mass [10]

Image 2 shows the components included in the Dry Operating Mass. The Manufacturer's Empty Mass is defined by the manufacturer and includes the engines, on-board systems and the physical structure of the aeroplane. By adding the basic equipment, the Basic Empty Mass is reached. The basic equipment includes oil, hydraulic fluids, commercial equipment (seats, fixed cargo loading aids, etc.) and emergency equipment (oxygen masks, life jackets, etc.). Finally, the Dry Operating Mass is reached by adding the mass of the crew and catering. [12]

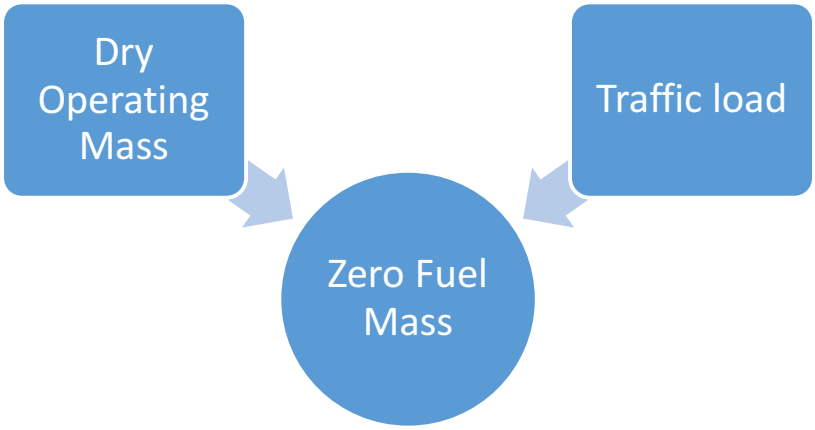


Figure 3: Zero Fuel Mass [10]

The Zero Fuel Mass is reached by adding the traffic load to the Dry Operating Mass, as displayed in figure 3. The mass of the traffic load will be further analysed within this Thesis. [12]

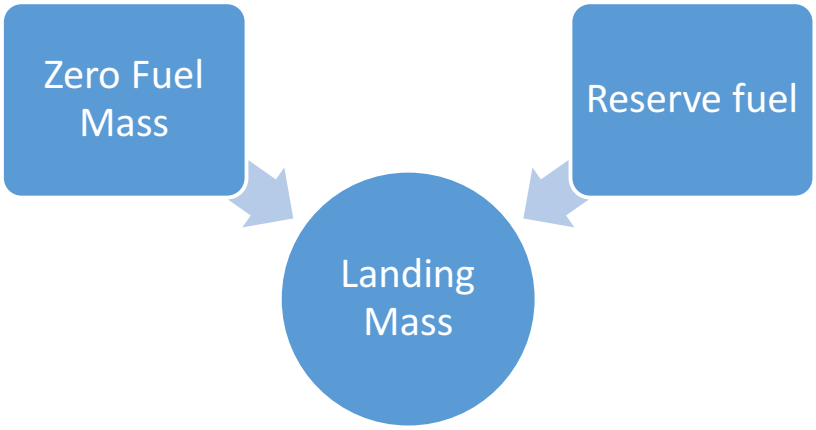


Figure 4: Landing Mass [10]

The Landing Mass is reached by adding the Reserve fuel to the Zero Fuel Mass. The Maximum Structural Landing Mass is the highest mass that can be carried during landing. The limiting condition is the load capacity of the landing gear. The MSLM is always defined by the manufacturer for each aircraft. [12]

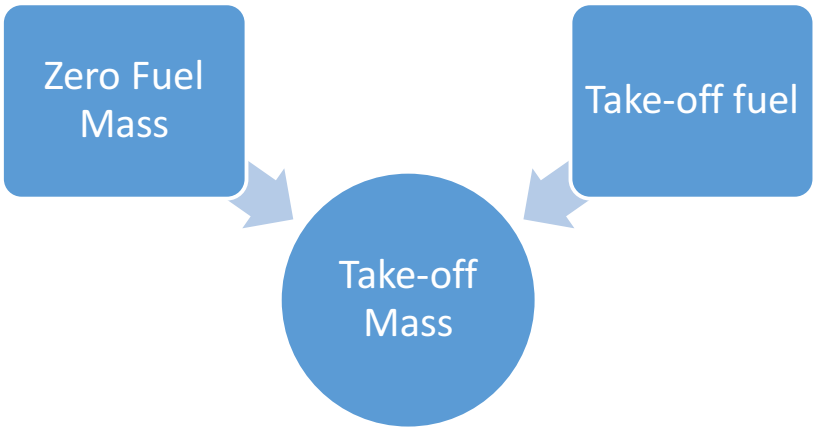


Figure 5: Take-off Mass [10]

The Take-off Mass is a sum of the Landing Mass and the Take-off fuel. The Maximum Structural Take-off Mass is always defined by the manufacturer. The Take-off fuel is the sum of the trip fuel, the contingency fuel, the alternate fuel, final reserve fuel, the additional fuel and extra fuel. [12]

In addition, subpart J also classifies passengers. Any passenger of an age 12 years or more is defined as an adult. Adult passengers can be further divided into men and women (depending on their gender). Any passenger under the age of 12 years is classified as a child (with no difference between genders). A special category of children are passengers under the age of 2 years, who are classified as infants. [10]

1.7 Subpart J – mass values for crew

The Subpart J also defines the mass values for crew. These values need to be determined to reach the Dry Operating Mass. The masses of the crew members can be reached by three different approaches. Firstly, the actual mass of the crew and its baggage can be used. Second, the mass can be computed by using standard masses, which are following:

Table 1: Crew standard masses [10]

	Standard mass
Flight crew member	85 kg
Cabin crew member	75 kg

In the third case, the operator is allowed to use any standard masses which are acceptable by the Authority. [10]

1.8 Subpart J – mass values for passengers and baggage

The next part of the Subpart J is focused on the mass of passengers and their baggage. It defines the conditions of using standard masses as well as different procedures of determining actual masses.

For the purposes of this thesis, the data relating to the category of 20 and more passengers will be examined.

Table 2: Passenger standard masses, 20 and more passengers [10]

	Male	**Female**
All flights except holiday charters	88 kg	70 kg
Holiday charters	83 kg	69 kg
Children	35 kg	35 kg

The approach of the legislation is described in Table 2. The passenger mass can be determined depending on their gender and the purpose of the flight. The current legislation expects that the passengers traveling by holiday charters are generally lighter than passengers traveling on all the other flights.

On a holiday charter flight, an average man is expected to have 83 kg including hand luggage, the mass of an average woman with hand luggage is set to 69 kg. For all other flights, the mass of an average man with hand luggage is 88 kg, the mass of an average woman with hand luggage is 70 kg. In all cases, the mass of children aged 11 and under is set to 35 kg.

If the airplane is able to carry more than 30 passengers, the air operator is allowed by legislation to use standard masses, which are the same for men and women.

Table 3: Passenger standard masses, 30 and more passengers [10]

	All adult
All flights except holiday charters	84 kg
Holiday charters	76 kg
Children	35 kg

The masses given in Table 3 are following the same logic as the data in Table 2. Passengers traveling on holiday charters have in average 76 kg, including hand luggage. Passengers traveling an all other flights have in average 86 kg, including hand luggage. Children have in all cases 35 kg.

However, the masses in Tables 2 and 3 have not been updated for many years. In following chapters, these values will be evaluated and compared to the results of a research. In addition, new approach to the issue of mass and balance will be introduced.

Table 4: Baggage standard masses [10]

Type of flight	**Baggage standard mass**
Domestic	11 kg
Within the European region	13 kg
Intercontinental	15 kg
All other	13 kg

Table 4 deals with the mass of baggage. The baggage mass can be determined depending on the flight origin and destination. The mass expected on board is increasing with the flown distance. The value given by the legislation for domestic flight is 11 kg, for European flight 13 kg and for intercontinental flight 15 kg. All other flights are unified to 13 kg. [10]

2. Operations subject to current legislation

Considering definitions and legal requirements mentioned in chapter 1, operational flight plans for four different scenarios will be created. One will be calculated for a scheduled flight operated by Boeing 737, one will be calculated for a holiday charter operated by Boeing 737, and following two scenarios will be for the same kinds of flight operated by Airbus A320.

These two types of aircraft are very common on European routes. They are used by major carriers, as well as by low-cost carriers. Therefore, they are an ideal example for purposes of this thesis.

2.1 Boeing 737

Boeing 737 family consist of short/medium-range narrow-body aircraft. Its members are one of the most used airplanes worldwide. Currently, new generation of Boeing 737 is being delivered to the market. Boeing 737 MAX 7, 8, 9 and 10 will shape the future of the family.

Figure 6: Boeing 737 [13]

However, most flown types of Boeing 737 nowadays are Boeing 737-700, 737-800 and 737-900. For the calculations within this work, Boeing 737-800 was chosen. This aircraft can transport up to 162 passengers in 2 travel classes. If only economy class is installed, up to 189 passengers can travel on board.

The length of Boeing 737-800 is 39.5 meters, the wingspan is 38.5 meters. The height is 12.5 meters. Aircraft is designed for maximal flight range 5436 km with 162 passengers on board.

The range decreases with number of passengers on board. This relationship will be further explained in following chapters. [13]

As a reference, Boeing 737-800 with registration OK-TVS was used for calculations in following chapters.

2.2 Airbus A320

Members of Airbus A320 family are also short/medium range narrow-body aircraft. The new generation of Airbus A320 family is offering to potential customers an option of new engine, which reduces fuel consumption and extends the maximum range. The members of updated family are Airbus A319neo, A320neo and A321neo. Especially Airbus A321neo can be interesting option for airlines due to its range (7400 km) and capacity (up to 244 passengers).

Figure 7: Airbus A320 [14]

However, for the purposes of thesis, the conventional engine will be used (A320 ceo option). Airlines can operate up to from 4 aircraft types from one family: Airbus A318, A319, A320 and A321 (ceo). For calculations within this thesis, Airbus A320 was selected.

This aircraft can fly up to 6100 km. It can transport up to 180 passengers on board. The length of aircraft is 37.57 meters and wingspan is 35.8 meters. [14] [15]

As a reference, Airbus A320 with registration OK-HCA was used for calculations in following chapters.

2.3 Payload-range diagram

The payload-range diagram shows the relationship between the mass of payload and the maximum range which can be flown in such conditions. As shown on the graph below, the vertical axes display the mass of payload, the horizontal axes display the range. For instance, this graph gives a simple idea about a number of passengers which can be on board in order to reach given destination.

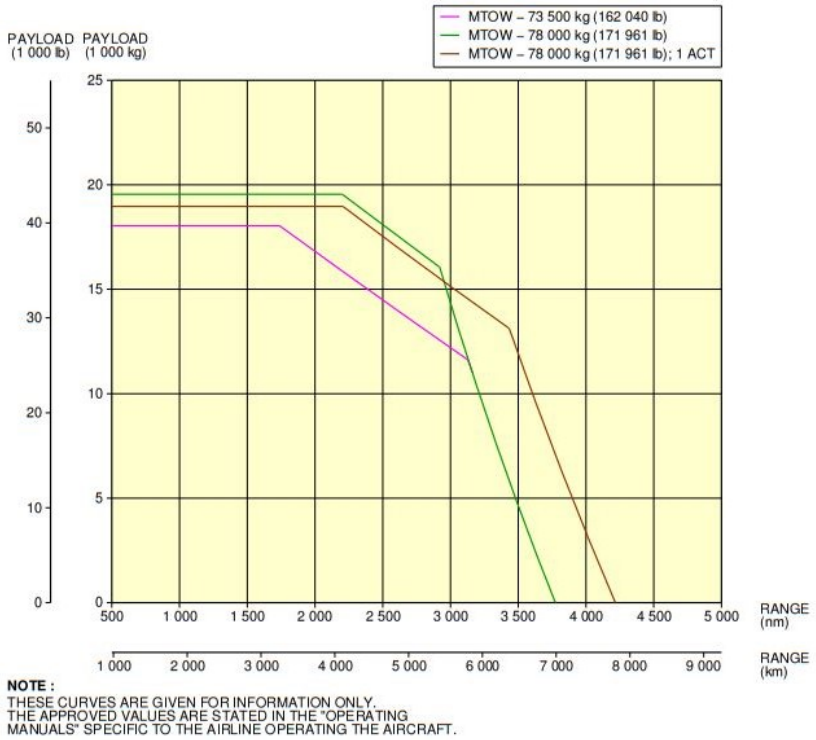


Figure 8: Payload-range diagram A320-200 (Sharklet) [15]

The relationship between payload and range is described by a simple curve. Its horizontal part is basically a limitation given by MSTOM (in the picture displayed as MTOW). Following steeper part of the curve is the most flexible part, which represents the area, where the number of passengers influences the range the most. The last and the steepest part of the curve is describing the limitation given by size of tanks and efficiency of engines.

As a very good example of development of technologies used by aircraft manufacturers, payload-range diagram of Airbus A320-200 and Airbus A320neo can be compared. By using aircraft with very similar geometry with different engines, the maximum range can be extended by approximately 500 nauticle miles.

For Airbus A320neo, the limitation of tanks size and engine efficiency is significantly reduced. This gives more flexibility to the aircraft operator to optimize the seat configuration (or the number of sold tickets). As a result on long flights, stopovers can be avoided and cost of operations reduced. On short flights, profits can be increased by selling higher number of tickets.

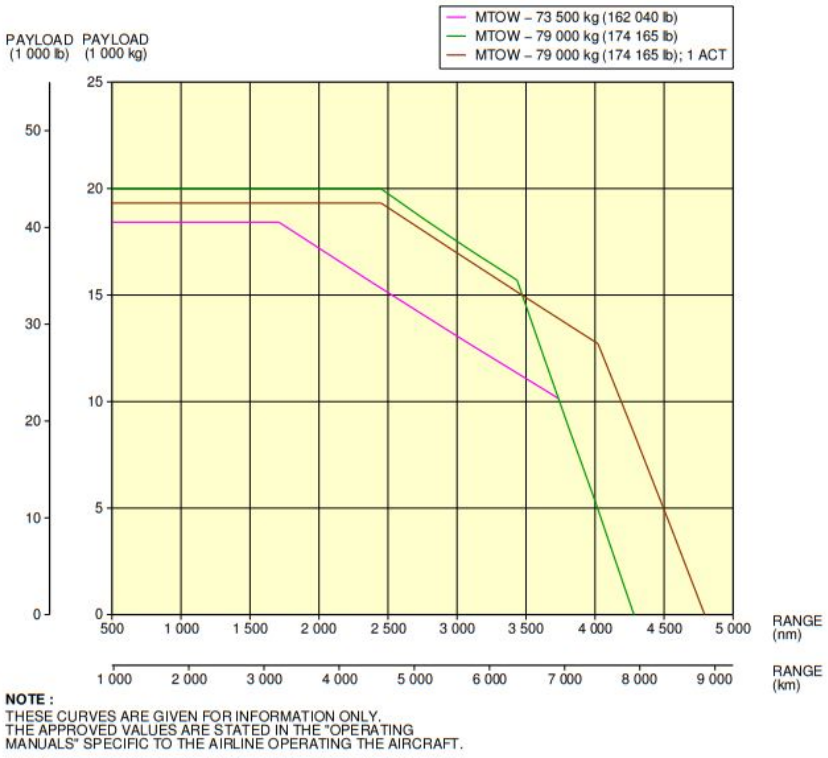


Figure 9: Payload-range diagram A320neo [15]

Finally, payload on a flight can be calculated as a sum of mass of passengers and mass of their baggage. Therefore, mass of passengers can have significant influence on flight planning process. [15]

2.4 Operational flight plan

Operational flight plan is defined as: The operator's plan for the safe conduct of the flight based on considerations of aeroplane performance, other operating limitations and relevant expected conditions on the route to be followed and at the aerodromes concerned. [16]

Since the masses are calculated according to standards given by current legislation, the main output of the operational flight plan will be for purposes of this thesis the data regarding fuel.

Information about fuel on board (FOB) is provided for every point mentioned in flight plan. Fuel burn is influenced by the flight altitude and speed, which are also mentioned. This information is displayed together with remaining time and distance to the final destination.

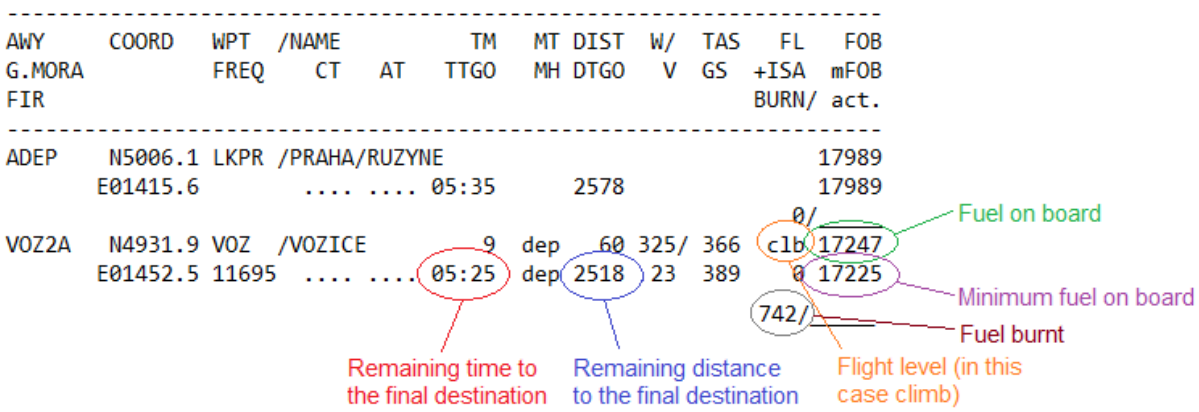


Figure 10: OFP example [Annex 9]

In the figure 10, the main parameters are explained. For each point, following information are given: geographic coordinates, waypoint, its name and frequency. Regarding time, parameter TM gives the time between two waypoints and TTGO gives the remaining time to the final destination. Other important parameters indicate distance. The number above (DIST) displays the distance flown between two way points, the number below (DTGO) displays distance to the final destination. True air speed (TAS) as well as ground speed (GS) are also indicated for each waypoint. The OFP gives information about the flight level (FL), atmospheric conditions (+ISA) and about fuel burn (BURN). Last information indicates the expected fuel on board and minimum fuel on board.

Calculations for Boeing 737-800 and Airbus A320 are performed in two different programs, which could result in minor differences in results. However, parameters in both programs are similar and comparable values will be provided in all scenarios.

2.5 Route description

The influence of weight on fuel burn will be demonstrated on a flight from Prague to Dubai. All flight plans within the research will include following waypoints: LKPR, VOZ, LIKSA, IVOLI, PEPIK, BERVA, ERGOM, TEGRI, GESBA, NEKUL, UBOGU, RONBU, ARTAT, ERMUP, ROKVA, UNVUS, ASMOB, RELTU, APTOX, TEPKI, PIPUR, ORMAN, UMH, ERGUN,

TUBAR, ROVON, PAREX, KEBEP, NOTSA, RADID, IMGOD, DASDO, LAGSA, LAM, LVA, DATUT, ELIRA, ORSAR, DESDI, OMDB.

For selected waypoints, four factors will be analysed: Altitude, true air speed, fuel burn and flight time. This data should be sufficient to have an idea about influence of estimated weight on board together with type of aircraft. The alternate airport for this route is Oman (IATA code AAL).

Figure 11: Waypoints map [17]

For comparison, following waypoints were selected: LKPR, VOZ, LIKSA, IVOLI, PEPIK, BERVA, RONBU, ERGUN, TUBAR, RADID, LVA, DATUT, ELIRA, ORSAR, DESDI, OMDB.

2.6 Flight conditions

Flight and consumption are influenced by many factors. One of them is definitely weather. Influence of wind can have significant impact on the flight time as well as on consumption. Efficiency of a flight with tailwind will be better than efficiency of a flight with tailwind. Generally, tailwind increases ground speed and reduces consumption.

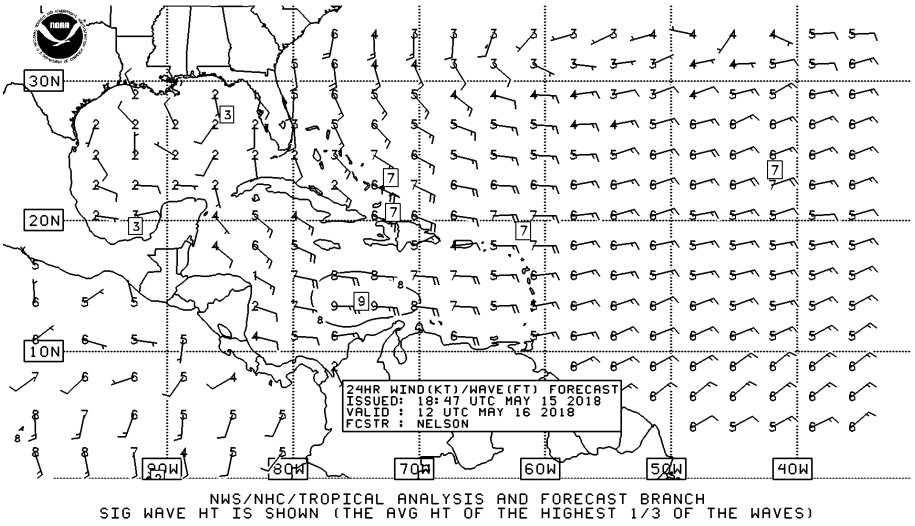


Figure 12: Wind chart example [18]

Therefore, wind is considered during the flight planning process. Since wind changes daily, as well as seasonally, the yearly average values of effect of wind were taken into account for flight plans calculated within this thesis.

Occasionally, meteorological events such as thunderstorms within the route have to be avoided, which can increase the flight duration and total fuel burn. For such cases, contingency fuel is carried on board, which provides sufficient safety margins.

2.7 Holiday charter operated by Airbus A320

To be able to calculate a flight plan, weight of payload must be determined. For a flight to Dubai, we can assume 180 passengers on board. Price of the ticket includes checked luggage. Since flight to Dubai is considered as intercontinental flight, weight of luggage used for calculation is according to regulation 15 kg. There is no gender specification and calculation will be done with masses for all adult passengers.

Payload is calculated as number of passengers multiplied by sum of weight of passenger and their luggage. In this case the calculation is following:

$$180 \cdot (76 + 15) = 16380 \text{ kg}$$

```
VERT.PROF: FL330 ERGUN/FL350 LAM/FL370

         TIME    FUEL DIST WCOMP  WDIR    ISA DEV      PLN     ACT
TRIP     05:35/ 15050 2578   23 308/ 22.1   0.0
ALTN1    00:28/  1281  140    0 360/  0.0   0.0
FIN.RES. 00:30/  1090  FMS RES  2371
CONT. 3% 00:10/   452                            ZFW  59184 ........
ADD.FUEL 00:00/     0  C30 CRUISE
TAXI    (00:10)   200                            FOB  17873 ........
MIN.FUEL 06:43/ 18073
COMP EXT 00:00/     0                            TOW  77057 ........
---------------------
FUEL SUM 06:43/ 18073                            TF   15050 ........
CAPT EXT       ......
TOT.FUEL       ......  DOW: ........ DOI: .....  LAW  62006 ........
```

Figure 13: Flight plan A320 charter overview – current legislation [Annex 1]

According to the flight plan, the estimated flight time is 5 hours and 35 minutes, which requires 15050 kg of fuel. However, after adding alternate fuel, final reserve, 3% contingency fuel and taxi fuel, 18073 kg of fuel will be carried.

Zero fuel weight is in this case 59184 kg and fuel on board is 17873 kg, since 200 kg are burnt by taxiing. Final take-off weight is then 77057 kg. After burning 15050 kg of trip fuel, landing weight will be 62006 kg.

The airplane will maintain after the climb in flight level 330, the level will change above the waypoint ERGUN to 350 and above the waypoint LAM to 370.

The table 5 describes 4 parameters at different waypoints. For each point, the flight level, true air speed, remaining fuel and remaining time to the final destination are indicated.

Table 5: Waypoints A320 holiday charter – legislation [Annex 1]

Waypoint	FL	TAS [kn]	Fuel burn [kg]	Remaining time
LKPR	climb	-	17873	5:35
VOZ	climb	367	17129	5:25
LIKSA	climb	367	16514	5:18
IVOLI	climb	367	16267	5:15
PEPIK	climb	367	15925	5:11
BERVA	330	460	15761	5:10
RONBU	330	460	12999	4:10
ERGUN	330	460	10571	3:17
TUBAR	350	456	7578	2:10
RADID	350	456	4792	1:05
LVA	370	454	3535	0:35
DATUT	370	454	3435	0:32
ELIRA	370	454	3359	0:30
ORSAR	370	454	3256	0:28
DESDI	descent	298	3058	0:21
OMDB	descent	298	2822	0:00

2.8 Holiday charter operated by Boeing 737-800

The same flight operated by Boeing 737-800 will use the same parameters for a calculation of payload. 180 passengers with an average weight of 76 kg and 180 pieces of checked luggage with an average weight of 15 kg have 16380 kg in total.

```
VERT.PROP: LKPR/FL350/GESBA/FL370/

           TIME    FUEL  GND DIST     AIR DIST    WCOMP     WDIR     ISA DEV   DOW/DOI
TRIP       5:34 / 14197      2514         2392      +23     264/036     -1     *PT-DOW
ALTN OMAL  0:27 /  1220      122                                              *PT-DOI
FIN.RES.   0:30 /  1102  FMS RES  2322
CONT.3%    0:10 /   426                              WEIGHTS PLN/ACT ZFW  58566 .......
ADD.FUEL   0:00 /     0  CRUISE  30
TAXI           /   200                                          FOB  16945 .......
MIN.FUEL   6:41 / 17145
COMP EXT   0:00 /     0 <<<<                                     TOW  75510 .......
--------------------
FUEL SUM   6:41 / 17145                                         TF   14197 .......
CAPT EXT         ......
TOT.FUEL         ......                                         LAW  61313 .......
```

Figure 14: Flight plan B737 charter overview – current legislation [Annex 2]

The estimated flight time is 5 hours and 34 minutes. It requires 14197 kg of trip fuel. The total fuel on board will be 17145 kg. After burning 200 kg of taxi fuel, aircraft will take-off with 16945 kg of fuel. The zero fuel weight is 58566 kg, so the take-off weight will be 75510 kg. Landing weight after burning the trip fuel will be 61313 kg.

After take-off, the flight will remain in flight level 350. Above the waypoint GESBA, aircraft will start climb to flight level 370.

Table 6: Waypoints B737 holiday charter – legislation [Annex 2]

Waypoint	FL	TAS [kn]	Fuel burn [kg]	Remaining time
LKPR	climb	-	16945	5:34
VOZ	climb	361	16010	5:23
LIKSA	climb	361	15322	5:15
IVOLI	climb	361	15061	5:12
PEPIK	350	451	14854	5:08
BERVA	350	451	14736	5:05
RONBU	370	449	12046	4:06
ERGUN	370	450	9788	3:11
TUBAR	370	450	7043	2:04
RADID	370	450	4361	0:58
LVA	370	449	3139	0:27
DATUT	descent	202	3067	0:24
ELIRA	descent	202	3028	0:21
ORSAR	descent	202	2980	0:17
DESDI	descent	202	2852	0:08
OMDB	descent	202	2748	0:00

The table 6 describes again 4 parameters at different waypoints. Therefore, the flight level, true air speed, remaining fuel and remaining time to the final destination are indicated for each waypoint.

2.9 Scheduled flight operated by Airbus A320

The second case defined by current legislation is any flight except holiday charter operated with more than 30 passengers on board. According to the standard masses defined in chapter 1.8, weight of an adult passenger will be considered 84 kg. Weight of the luggage for intercontinental flight remains 15 kg. Considering 180 passengers on board, the calculation of payload is following:

$$180 \cdot (84 + 15) = 17820 \text{ kg}$$

```
VERT.PROF: FL330 KONUK/FL350

          TIME    FUEL DIST WCOMP  WDIR    ISA DEV      PLN     ACT
TRIP     05:34/ 15365 2578   23 308/ 22.1   0.0
ALTN1    00:28/  1281  140    0 360/  0.0   0.0
FIN.RES. 00:30/  1118  FMS RES  2399
CONT. 3% 00:10/   461                              ZFW  60624 ........
ADD.FUEL 00:00/     0  C30 CRUISE
TAXI    (00:10)   200                              FOB  18225 ........
MIN.FUEL 06:43/ 18425
COMP EXT 00:00/     0                              TOW  78849 ........
---------------------
FUEL SUM 06:43/ 18425                              TF   15365 ........
CAPT EXT       ......
TOT.FUEL       ......  DOW: ........ DOI: .....  LAW  63484 ........
```

Figure 15: Flight plan A320 scheduled overview – current legislation [Annex 3]

The trip fuel calculated for this flight is 15365 kg, additional 1281 kg will be taken in order to reach the alternate airport, and the final reserve is 1118 kg. Fuel contingency of 3% equals to 461 kg. With extra 200 kg of fuel for taxiing, the sum is 18425 kg. The take-off weight is then 78849 kg. After burning the trip fuel, landing weight will be 63484 kg.

After take-off and climb, flight will be operated in the flight level 330. The level will change above the waypoint KONUK to the flight level 350.

To make a comparison with calculations based on values of standard masses for a charter flight, same 4 factors will be analysed – flight level, true airspeed, remaining fuel and remaining time to the final destination.

Table 7: Waypoints A320 scheduled – legislation [Annex 3]

Waypoint	FL	TAS [kn]	Fuel burn [kg]	Remaining time
LKPR	climb	-	18225	5:34
VOZ	climb	364	17491	5:25
LIKSA	climb	364	16884	5:17
IVOLI	climb	364	16641	5:14
PEPIK	climb	364	16303	5:10
BERVA	330	460	16075	5:07
RONBU	330	460	13260	4:09
ERGUN	330	460	10792	3:17
TUBAR	350	456	7715	2:10
RADID	350	456	4881	1:04
LVA	350	456	3605	0:34
DATUT	350	456	3502	0:32
ELIRA	350	456	3423	0:30
ORSAR	350	456	3318	0:27
DESDI	descent	300	3100	0:20
OMDB	descent	300	2860	0:00

2.10 Scheduled flight operated by Boeing 737-800

The same methodology used for calculation of payload on board of Airbus A320 will be also used on flight operated by Boeing 737-800. The weight of an average passenger is, therefore, considered 84 kg, checked bag is 15 kg. Number of passengers on board is again 180, which results in final value of 17820 kg of payload.

```
VERT.PROF: LKPR/FL350/ARTAT/FL370/

           TIME    FUEL  GND DIST     AIR DIST    WCOMP     WDIR     ISA DEV   DOW/DOI
TRIP       5:32 / 14455      2514         2392      +22     264/036     -1     *PT-DOW
ALTN OMAL  0:27 /  1238      122                                              *PT-DOI
FIN.RES.   0:30 /  1120  FMS RES  2358
CONT.3%    0:10 /   434                              WEIGHTS PLN/ACT ZFW  60006 .......
ADD.FUEL   0:00 /     0  CRUISE  30
TAXI           /   200                                          FOB  17251 .......
MIN.FUEL   6:39 / 17447
COMP EXT   0:00 /     4 <<<<                                    TOW  77257 .......
--------------------
FUEL SUM   6:39 / 17451                                        TF   14455 .......
CAPT EXT         ......
TOT.FUEL         ......                                        LAW  62802 .......
```

Figure 16: Flight plan B737 scheduled overview – current legislation [Annex 4]

Trip fuel for this trip is set to 14455 kg, to reach the alternate airport, additional 1238 kg of alternate fuel is required. Final reserve is set to 1120 kg and the mass of 3% of contingency fuel is 434 kg. Since 200 kg of fuel is added for taxiing, total weight of fuel on board is then 17451 kg. Take-off weight is in this case 77257 kg and landing weight 62802 kg.

The flight will be operated in flight level 350 and above the waypoint ARTAT, climb to flight level 370 will commence.

Table 8: Waypoints B737 scheduled – legislation [Annex 4]

Waypoint	FL	TAS [kn]	Fuel burn [kg]	Remaining time
LKPR	climb	-	17251	5:32
VOZ	climb	365	16324	5:22
LIKSA	climb	365	15642	5:14
IVOLI	climb	365	15383	5:11
PEPIK	350	451	15128	5:07
BERVA	350	451	15007	5:04
RONBU	350	451	12359	4:06
ERGUN	370	449	9965	3:11
TUBAR	370	450	7162	2:04
RADID	370	450	4429	0:58
LVA	370	450	3188	0:27
DATUT	descent	202	3115	0:24
ELIRA	descent	202	3077	0:21
ORSAR	descent	202	3028	0:17
DESDI	descent	202	2901	0:08
OMDB	descent	202	2796	0:00

As in previous cases, for 16 selected waypoints the flight level, true air speed, and remaining fuel and remaining time to final destination are compared based on the values from operational flight plan.

2.11 Summary

To evaluate the results in chapter 2, fuel burn for different scenarios will be compared. The table 9 presents the difference in fuel burn between different types of aircraft as well as between different types of flight.

Fuel burn is one of the most important factors for a carrier, since it directly influences its cost. Good analysis of network and assignment of appropriate type of aircraft can increase efficiency of the business.

In the table, remaining fuel to the final destination can be observed for different waypoints. Difference between fuel in LKPR (airport in Prague) and OMDB (airport in Dubai) is a trip fuel. Remaining fuel in OMDB is then sum of alternate fuel, final reserve and 3% contingency fuel.

Table 9: Fuel burn based on current legislation [Annexes 1-4]

Waypoint	Fuel burn [kg]			
	Charter flight		Scheduled flight	
	A320	737-800	A320	737-800
LKPR	17873	16945	18225	17251
VOZ	17129	16010	17491	16324
LIKSA	16514	15322	16884	15642
IVOLI	16267	15061	16641	15383
PEPIK	15925	14854	16303	15128
BERVA	15761	14736	16075	15007
RONBU	12999	12046	13260	12359
ERGUN	10571	9788	10792	9965
TUBAR	7578	7043	7715	7162
RADID	4792	4361	4881	4429
LVA	3535	3139	3605	3188
DATUT	3435	3067	3502	3115
ELIRA	3359	3028	3423	3077
ORSAR	3256	2980	3318	3028
DESDI	3058	2852	3100	2901
OMDB	2822	2748	2860	2796

Trip fuel	15050	14197	15365	14455

On this route in conditions described in chapter 2.6, values of Boeing 737-800 in terms of fuel consumption are lower. In case of Airbus, the expected fuel burn is 315 kg lower in case of holiday charter than in case of regular flight. For Boeing, this difference is 258 kg.

As it is displayed within separate analysis for each scenario within chapter 2, the difference in flight time is in considered scenarios less than 5 minutes, which is not a significant value. The total time can be influenced by ATC during the flight, which will have impact on final trip fuel. Therefore, flight times will not be compared. Flight level can play an important role in case of fuel burn optimization, but comparing such values would not provide relevant information, since every aircraft may differ depending on type of engine or age.

3. Passenger weight research

3.1 General information

The research about passenger weight values took place between September 2016 and April 2017. Participants were addressed personally, on social networks as well as by e-mail. They were asked to fill out a simple questionnaire created on a Google Forms platform. The questionnaire consisted of 7 easy questions and was available in Czech and in English.

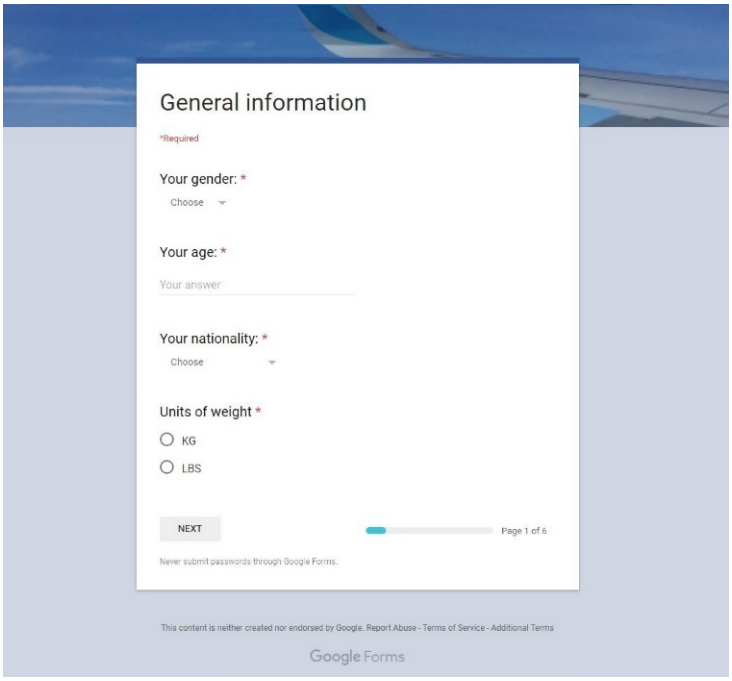


Figure 17: Web form screenshot

The first question asked about the gender of participant. There were three answers available – man, woman, different. The second question was an open question asking for the age of participants with a restriction for maximal accepted input of 2 digits. The third question required a choice from the list of 175 nationalities. Question number four gave an option of choice of unit preference – kilograms (kg) or pounds (lbs).

In the next part, participants were asked about their weight, where the choice in range between 1 and 200 kg (2.2 and 440.9 lbs) was available. Then, two scenarios were considered. Since the official weight of passenger in current legislation includes the weight of hand luggage, participants were asked about their expected weight of hand luggage in case of a flight with a low-cost carrier, where checked luggage is not included in the price of the ticket, as well as about their expected weight of hand luggage in case of a flight with a major carrier, where at least 15 kg of checked luggage should be included.

A sample of nearly 600 participants filled the questionnaire, which is a sufficient number in order to calculate an average weight within chosen population.

3.2 Gender of participants

The participants of the research were allowed to choose from three genders. 335 participants were identified as “man”, 233 participants were identified as “woman”, and none of the participants was identified as “other”.

These numbers can be also represented as a willingness to share information regarding the weight. This shows that questions about weight are a sensitive topic for women. However, some men wished to add further explanation, where they claimed to be “heavy”, “muscular” or “very tall”. Women preferred not to leave any comments regarding the given value of weight.

In this case, higher number of men participants is considered as an advantage, since their average weight is expected to be higher. This will provide some safety margins, because it is nearly impossible to predict the average gender ratio on board.

3.3 Age of participants

All the participants were aged between 15 and 54 years. The research did not focus on weight of children, since the value in current legislation is considered as satisfactory. There were 30 participants between the age of 15 and 19 years, 374 participants between the age of 20 and 24 years, 109 participants between the age of 25 and 29 years, 29 participants between the age of 30 and 34, 13 participants between the age of 35 and 39, only 6 participants between the age of 40 and 44, 4 participants between the age of 45 and 49 and 4 participants between the age of 50 and 54.

This fact shows that the age distribution is the weakest part of the research. The low number of participants aged 35 years and above will not provide good accuracy of results, especially if the results are evaluated for each age group.

3.4 Nationality of participants

Participants were nationals of 36 countries located on 5 continents. The list of the countries is mentioned in the table 10. Due to the high number of answers, the evaluation will also focus deeper on participants from the Czech Republic and Slovakia.

Table 10: List of countries

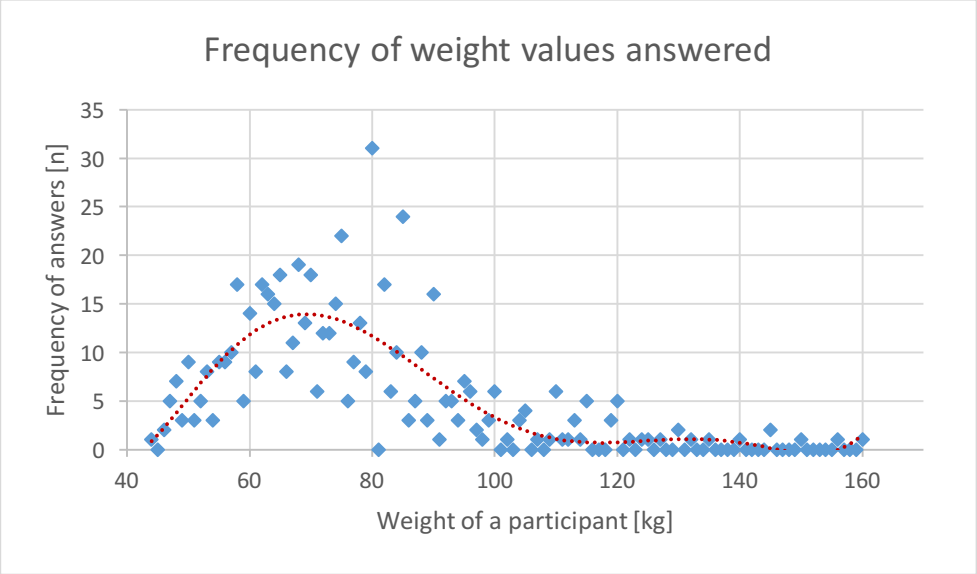
Countries of European participants	**Countries of Non-European participants**
Belgium	Azerbaijan
Bulgaria	Argentina
Czech Republic	Brazil
Denmark	Canada
Estonia	Honduras
Finland	India
France	Iran
Germany	Kazakhstan
Hungary	Mexico
Iceland	Morocco
Italy	Pakistan
Netherlands	Taiwan
Poland	Turkey
Romania	USA
Russia	
Slovakia	
Slovenia	
Spain	
Sweden	
Ukraine	
United Kingdom	

3.5 General results

The part describing general results will focus on the data of all participants regarding their weight and their expected weight of hand luggage without any further classification.

3.5.1 Weight of passengers

Three values of weight were calculated from the data provided by all participants. The average weight is in this case 76 kilograms. The value of mode is 80 kilograms, which means that this is the most common value of weight for all genders, nationalities and age groups together. The value of median is 74 kilograms, which shows that the majority of results was below the average value of weight. This also shows the fact, that a high number of participants with weight below average was compensated by higher weight values of lower number of participants.



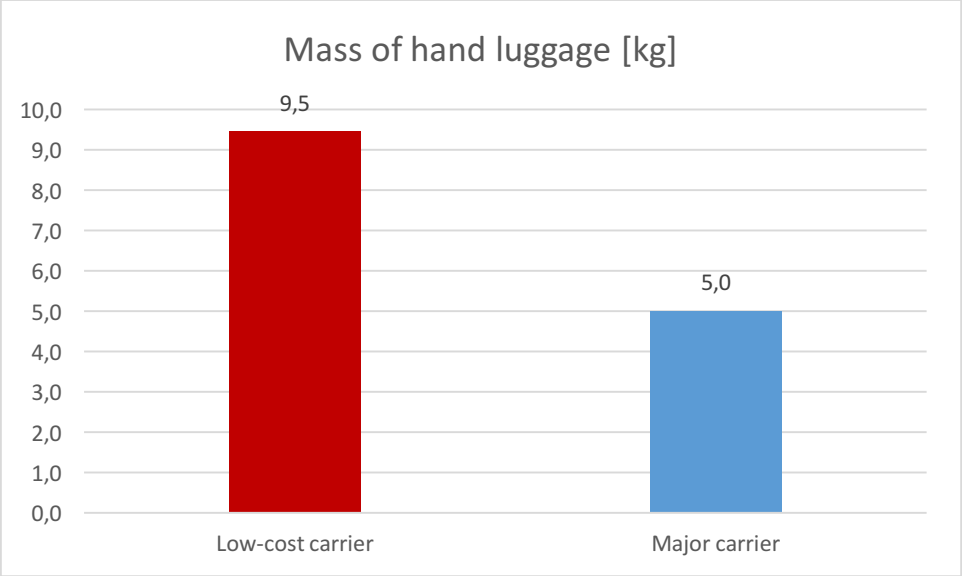
Graph 1: Frequency of masses

3.5.2 Weight of hand luggage - low-cost carrier

The weight of the passenger is not the only component included in standard masses. Therefore, hand luggage of a passenger has to be included. The expectation was that a passenger traveling without checked luggage takes more belongings on board. The average mass of hand luggage per one passenger is according to the research 9.5 kg. The final weight is then set to 85.5 kg for a low-cost flight, which is 1.5 kg more than the current legislation expects on every flight except holiday charters. Compared to a holiday charter flight, the increase is 9.5 kg. According to the research, 0.2% of respondents claim that they would not purchase such ticket.

3.5.3 Weight of hand luggage - major carrier

Considering the case of a flight with a major carrier, passengers are expected to carry on board less items, since they can use baggage allowance of 15 kilograms (average value sufficient for transcontinental flight according to current legislation). The average weight of hand luggage is in this case 5 kg. The total weight of an average passenger with hand luggage is then 81 kg, which is a decrease of 3 kg compared to all flights except holiday charters. Compared to a holiday charter flight, the average mass increased by 5 kg. 0.1% of respondents would not purchase such ticket.



Graph 2: Weight of hand luggage

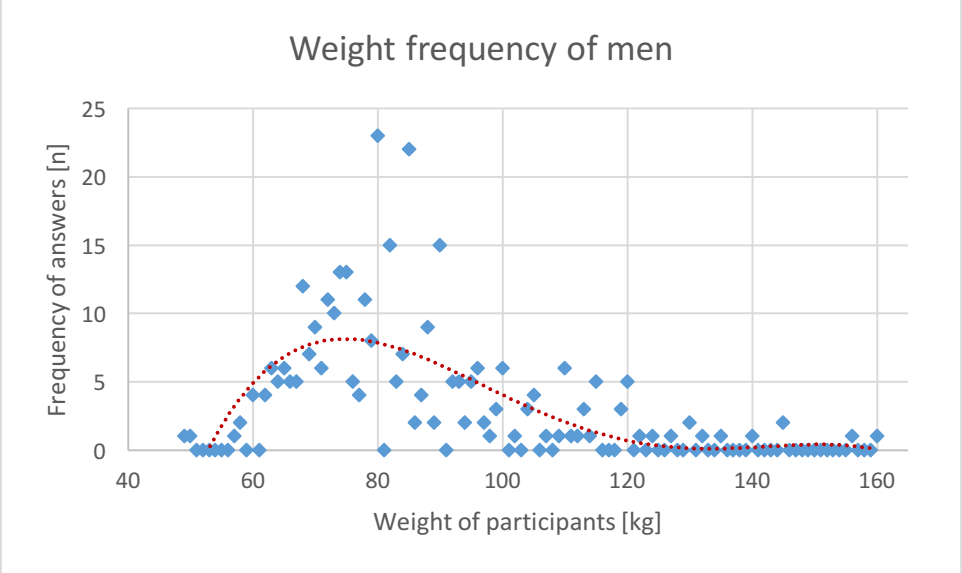
3.6 Results based on gender

In the following part, masses of men and women will be analysed. All data are based on the answers within research mentioned above.

3.6.1 Weight of men

Within the research, 335 men answered questions regarding their weight. The youngest man participant was 18 years old, the oldest one was 55 years old. The lightest participant was from Kazakhstan and had 49 kg, the heaviest one had 160 kg. The value of mode and median is in this case 80 kg. The average weight within the sample was 84 kg. This says that the high number of lighter participants was compensated by few attendants with very high weight.

The frequency of given values is displayed in Graph 3. The shape of the trend line shows a high number of participants with lower weight (steeper growth) as well as higher diversity of answers above the average value (slower decrease).



Graph 3: Frequency of masses - men

3.6.2 Weight hand luggage of men passengers

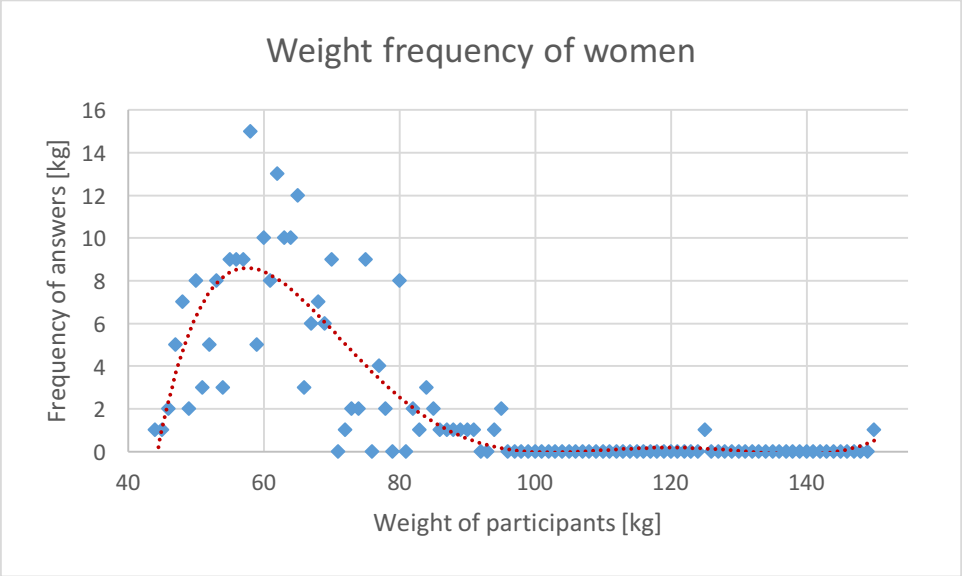
All men participants were asked to estimate the average weight of their hand luggage in case of flight operated by a low-cost carrier and a major carrier. The major-carrier ticket includes 15 kg of checked luggage for purposes of the research. Therefore, the weight of hand luggage is expected to be lower.

In the research, men passengers expect to carry on board in average 9.2 kg of hand luggage for flight operated by a low-cost carrier and 5.1 kg of hand luggage for flight operated by a major carrier. An interesting fact is that in case of low-cost flight, the average weight of hand luggage of a man is higher than the average weight of hand luggage of men and women together. The weight of hand luggage of a men passenger on a major carrier is equal to the average value for both genders together.

3.6.3 Weight of women

Within the research, 233 women answered questions regarding their weight. The youngest woman participant was 16 years old, the oldest one was 54. The lightest participant is Czech and has only 44 kg. On the other side of the scale is also a Czech woman with 150 kg. The

value of mode is 58 kg, the value of median is set to 62 kg. An average weight within the sample is 64 kg, which describes similar weight distribution as for men.



Graph 4: Frequency of masses - women

3.6.4 Weight hand luggage of women passengers

All women participants were asked to estimate the average weight of their hand luggage in case of flight operated by a low-cost carrier and a major carrier. The major-carrier ticket includes 15 kg of checked luggage for purposes of the research. Therefore, the weight of hand luggage is expected to be lower.

Expected average weight of hand luggage for woman passenger on a low-cost flight is 8.7 kg, which is 0.3 kg below the average for both genders. On a flight operated by a legacy carrier, the expectation is only 5 kg, which is slightly below the average for both genders. This could be considered as a surprising fact, since an average woman takes on board on a low-cost flight 0.5 kg less than an average man.

3.7 Results based on age

Air transport can be used by passengers of any age. Therefore, the development of age and average weight should be analysed. As human body changes with the age, participants were divided into three categories – teenagers (aged 15-19), students (aged 20-25) and working populations (aged 26 and more). Participants in these categories are expected to have different lifestyles as well as different metabolisms. For each category, an average weight is

calculated. Group of retired people can also be defined, but the age of retirement differs a lot with countries, gender and health conditions of different participants. In addition, identification of this group of people not possible in anonymous research. Due to these facts, retired people are included in the working population. It is important to mention, that the difference between genders is not taken into account in this part of research.

3.7.1 Weight of teenagers

For purposes of the research, teenagers are defined as a group of people aged between 15 and 19 years. This limit was selected due to the fact that there were no respondents between 12 and 15 years. Passengers up to 12 years are considered as children. According to the research, the average weight in this age group is 68 kg. The value of mode is 64 kg and the value of median is 69.5 kg.

An average teenager expects to travel with 8.6 kilograms of hand luggage on a low-cost flight. On a flight operated by a major carrier, the expected weight is only 4.7 kg.

The results calculated from answers of this group of potential passengers show the lowest values from all three groups. Teenagers are the lightest group in terms of body weight. In addition, they need to take on board the lightest luggage in case of the low-cost carrier flight as well as major carrier flight.

3.7.2 Weight of students

Participants aged between 20 and 25 years are considered as students for purposes of the research. In this age group, people are often doing their university studies, or they start their working career. An average weight of such participants is within the research 73 kg. The mode is 80 kg and median is 71 kg.

According to the answers received within this age group, the average weight of hand luggage for a low-cost flight is 9.1 kg. On a flight operated by a major carrier, students need to take on board 5.1 kg.

The research shows that students need in general the heaviest hand luggage of all three groups. This applies to low-cost as well as major operated flights.

3.7.3 Weight of working population

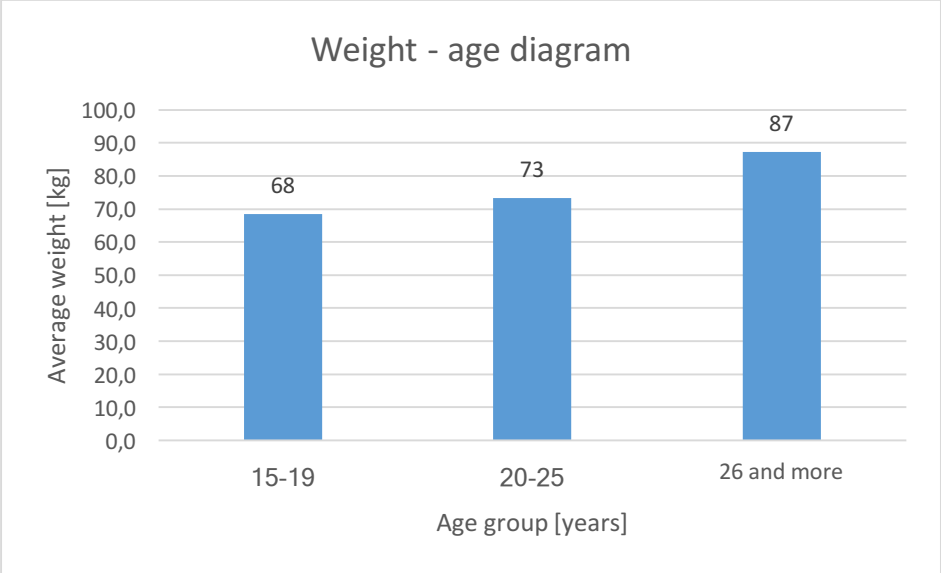
A member of working population is within this research everyone aged 26 and more. People in this age are expected to be done with their studies and to be working full time. This also brings a change of lifestyle. In average, passengers in this age group weight 87 kilograms. The value of mode is 90 kg and the value of median is 84 kg.

Regarding hand luggage, members of working population take on board in average 8.9 kg in case of low-cost flight. For flights operated by majors, the weight of hand luggage is 5 kg.

The group of working population is according to the results the heaviest group of all in terms of body weight. However, weight of hand luggage is lower than for group of students, which can be surprising.

3.7.4 Summary

To summarize the results of the research, the development of weight with age is displayed in the graph number 5.



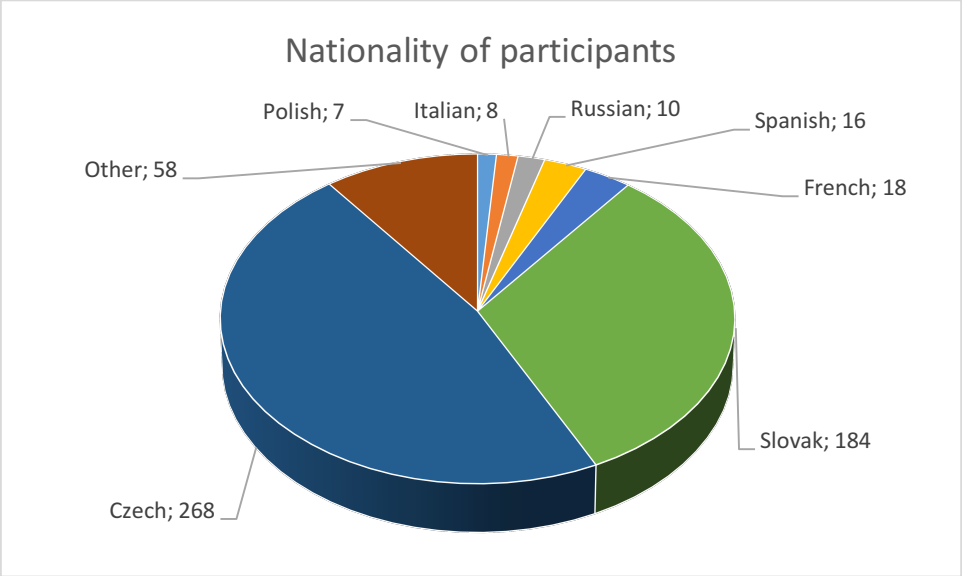
Graph 5: Weight - age diagram

The trend shows that the weight increases with age. This can be caused by many factors. For the group of teenagers, it is very likely that the participants will grow, since they are still very young. The probability of change of height is lower in case of students. However, the change of life style with reaching independence can be connected with a change of weight.

3.8 Results based on origin

Since anyone can purchase a ticket for a flight operated by European airline, it is important to take such passengers into account within the research, eventually to identify some differences as well as hidden risks.

As mentioned in chapter 3.5, the results were collected from citizens of European countries as well as from citizens of non-European countries. The participants considered as European country citizens come from following countries: Belgium, Bulgaria, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Iceland, Italy, the Netherlands, Poland, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Ukraine and the United Kingdom. Some countries, such as Norway, are not listed, since no participants filled the questionnaire.



Graph 6: Nationality of participants

For purposes of comparison, three basic results will be taken into account. An average weight of the sample shows if chosen group is above or below the average of all participants. The values of mode and median provide more information about the structure of the group.

3.8.1 Average weight of European participants

An average weight of citizens of European countries is in the research calculated to 75 kilograms (no difference in age or gender taken into account). This value is 1 kg lower than

the average of all participants. The mode of the group is 80 kg, which is the same value as in the research for all participants together. The value of median is again 1 kg lower than the average of all participants and it is 73 kg.

An average weight of hand luggage is for the case of low-cost carrier equal to 9 kg, which is the same value as for all participants together. Weight of hand luggage in case of major carrier is slightly below the average of all participants and is equal to 4.9 kg.

3.8.2 Average weight of non-European participants

As non-European country citizens are considered participants from Argentina, Azerbaijan, Brazil, Canada, Honduras, India, Iran, Kazakhstan, Mexico, Morocco, Pakistan, Taiwan, Turkey and the USA. It is important to mention that the number of non-European participants is lower and the deviation from the average values is higher. Deeper research should be made on certain areas (such as United States or China) to have more detailed overview about the weight of locals. However, such research is not a purpose of this thesis. Data collected from non-European citizens are a very good tool in order to realize the physical differences between inhabitants of different regions.

The average weight of non-Europeans was 82 kilograms, which is 6 kg higher than the average of all participants. This deviation is caused by the fact that the majority of respondents in this category were men. However, this fact is not very important, since the aim of this chapter is to show the diversity of potential passengers.

The average weight is also influenced by the number of participants from different regions of the world. Majority of responses was received from the North America (USA and Canada) and from Brazil, where the weight of passengers was much higher than in responses from Asia.

The big influence of higher number of heavier passengers is also showed in comparison with mode, which is in this case 72 kilograms (6 kg below the mode of all participants). However, the value of median was in this case 78 kg (4 kg above the median of all participants)

This clearly shows that in order to be safe and efficient, different standards should be applied in different regions of the world, since in some regions, passengers can be generally heavier, which can influence the consumption and reduce the maximum range of the aircraft. On the other hand, using lower standard masses in some regions would lead to reduction of the waste of fuel.

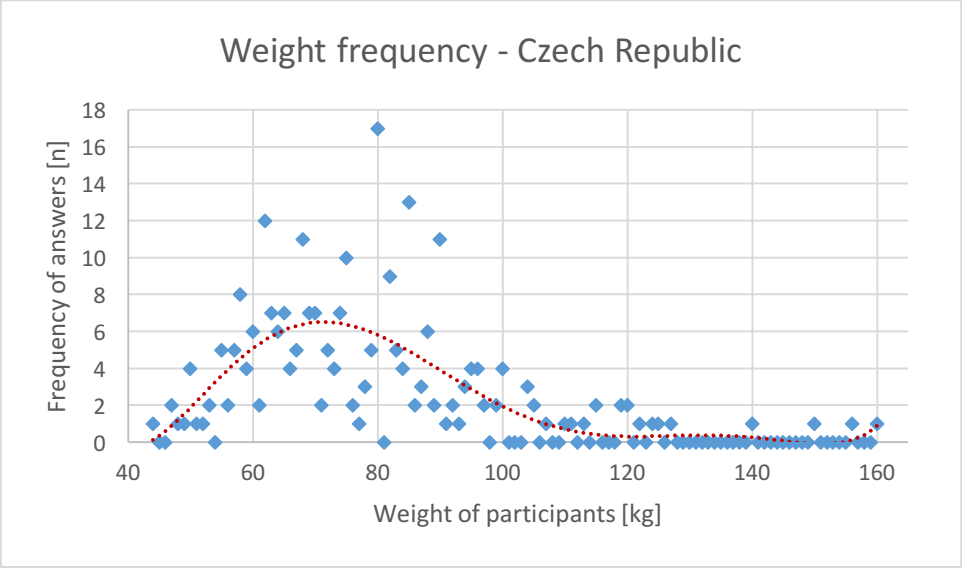
According to the research, non-European passengers prefer to take on board more things. For a low-cost flight, the average weight of hand luggage is 9.4 kg. For a flight operated by a major carrier, participants expect to take on board 8.4 kg, which is 0.4 kg more for low cost flight and 3.4 kg more on a flight operated by Major.

3.9 Results within the Czech Republic

Since this thesis is written at the Czech Technical University, deeper analysis of answers of Czech participants should be performed. In total, 268 participants selected nationality Czech. Out of this number, 101 participants were women and 167 participants were men.

3.9.1 Weight of passengers

The average weight of participants identified as Czech nationals was 78 kg. This value is 2 kg above the average weight value within whole research. This difference is influenced by higher number of answers from Czech men than from Czech women. The mode of the sample is 80 kg, which is equal to the mode of whole research. Median is set to 75 kg, which is one kilogram more than the value within whole research.



Graph 7: Frequency of masses – the Czech Republic

3.9.2 Weight of hand luggage

The results show that Czech passengers are traveling in average with lighter luggage than all participants within the research. The average weight of hand luggage for a flight operated by

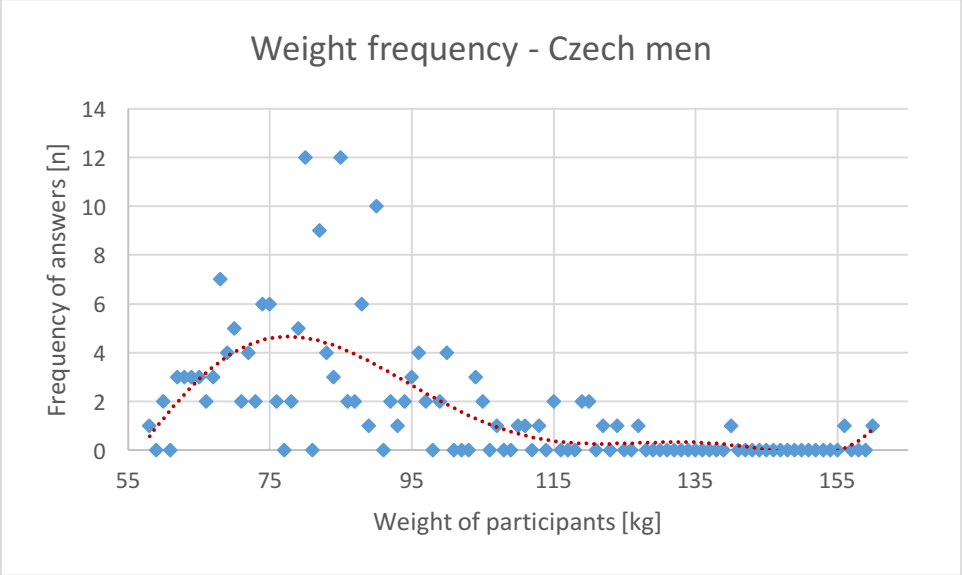
a major carrier is 3.9 kg, which is more than one kilogram lower than the value calculated between all participants. This fact is surprising, since according to the chapter 3.6 – Results based on gender, an average man passenger takes on board heavier luggage than an average woman passenger and majority of answers for Czech nationals was from men.

In case of flight operated by a low-cost carrier, the average weight is 9.1 kg, which is only 0.4 kg below the global average.

3.9.3 Weight of Czech men

An average Czech man weights according to the research 85 kilograms. This value is only 1 kg above the global average weight of men within the research. The value of mode is again 80 kilograms, the value of median is 82 kilograms.

Czech men travel on low-cost flights with hand luggage with average weight of 9.6 kilograms. On flights operated by major carriers with only 4 kilograms. In case of a low-cost flight, the weight is 0.6 kg higher than within the whole research. In case of a flight with major carrier, the weight is 1.1 kg lower than within the whole research.

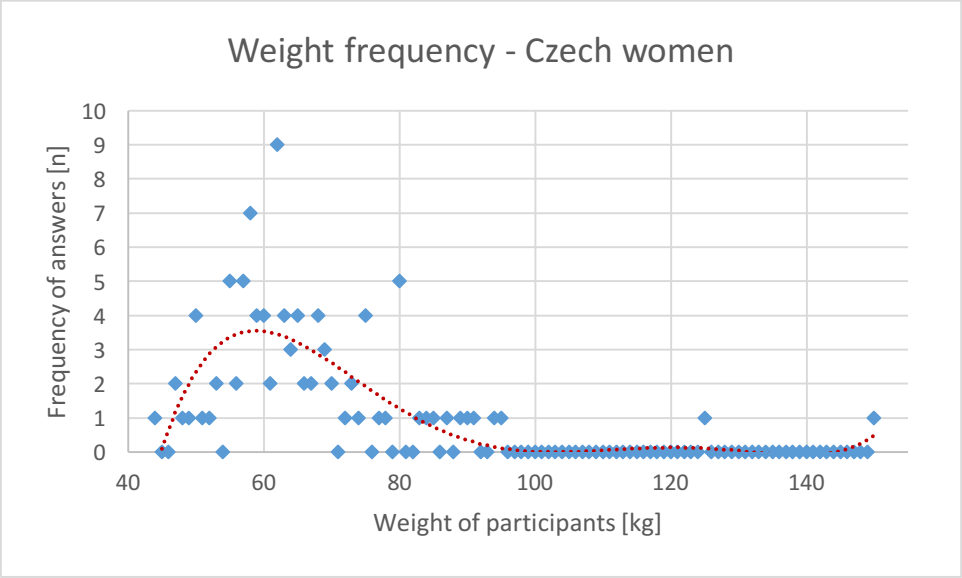


Graph 8: Frequency of masses – Czech men

3.9.4 Weight of Czech women

Based on the sample of 101 women, an average weight of a Czech woman is 66 kg. In comparison with the results of whole research, this value is 2 kg higher than the global average. The value of mode and median is in both cases 62 kg.

Regarding the weight of hand luggage, an average Czech woman takes on board of a low-cost carrier only 8.2 kilograms. This value is lower than the global value for all participants, as well as all women. In case of flight with a legacy carrier, Czech women expect to take on board only 3.7 kg of hand luggage. This value is again lower than the global minimum for all participants as well as all women.



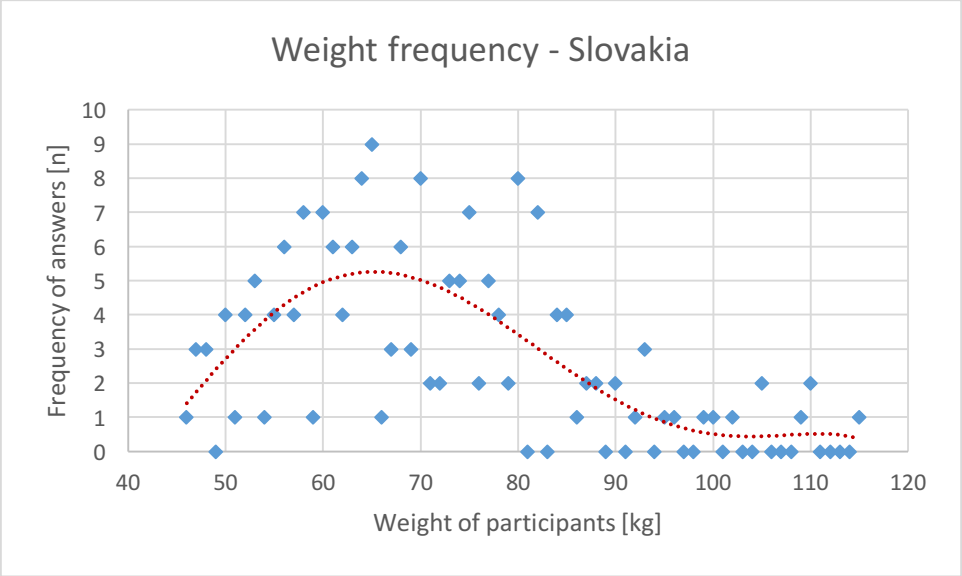
Graph 9: Frequency of masses – Czech women

3.10 Results within Slovakia

The second highest number of answers is from Slovak citizens. In total, 185 participants were identified as nationals of Slovakia. Out of this, 81 participants were men, 104 participants were women. In comparison with the Czech Republic, the percentage of women within the sample for whole country is much higher. This will for sure influence the average weight for whole country, so a comparison of the Czech Republic and Slovakia without the gender diversification is not describing the real state of both populations.

3.10.1 Weight of passengers

The average weight of a passenger from Slovakia is 70 kg. This number is 8 kg lower in comparison with Czech citizens. In comparison to a global average of all participants, the value is 6 kg lower. The value of mode is 65 kg, the value of median is 68 kg. These values clearly show that the composition of the sample of participants is different from the global values, as well as for values from the Czech citizens.



Graph 10: Frequency of masses – Slovakia

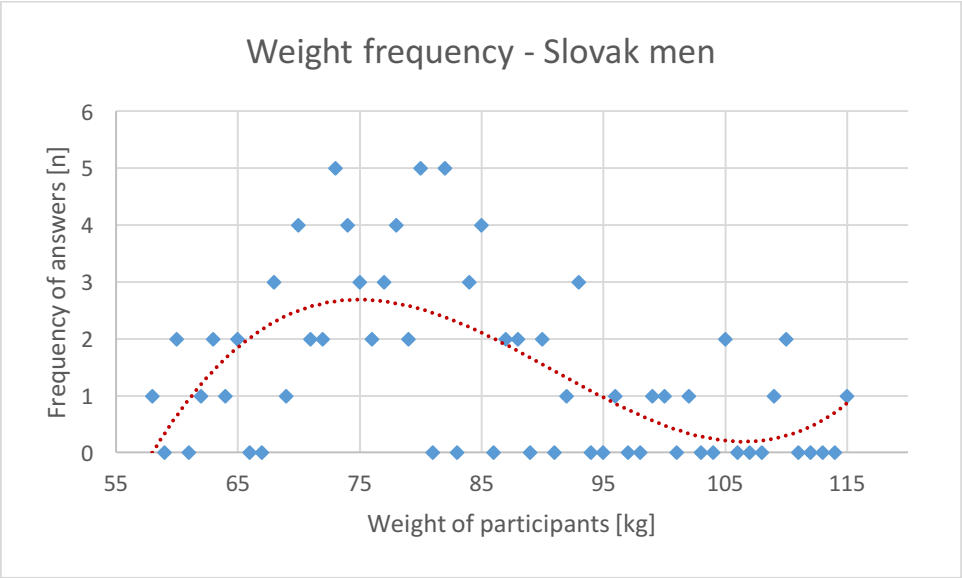
3.10.2 Weight of hand luggage

On the other hand, weight of hand luggage can be compared to other nations, since the difference was not very significant in previous cases. An average passenger from Slovakia takes on board of a low-cost flight 8.5 kg. This value is 0.6 kg lower than the weight, which would be taken by a Czech passenger. In comparison with global results, this value is 0.5 kg lower.

Considering a flight operated by a major carrier, an average Slovak passenger takes on board 5.6 kg. In this case, hand luggage is in average 1.7 kg heavier in comparison to an average Czech passenger. In global, Slovaks take on board 0.6 kg more than other passengers.

3.10.3 Weight of Slovak men

The average weight of Slovak men is within the research 80 kg. This would mean that Slovak men are in average nearly 5 kg lighter than men from the Czech Republic and approximately 4 kg lighter than all men within the research. The value of mode was 73 kg, the value of median was 78 kg.

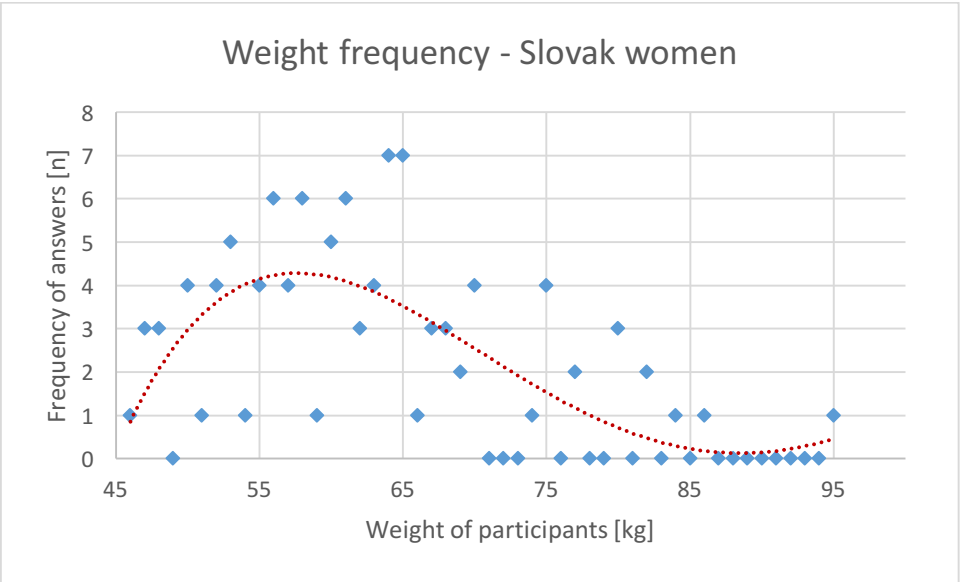


Graph 11: Frequency of masses – Slovak men

For hand luggage, the average weight for a flight operated by a low-cost carrier is 7.8 kg, which is 1.2 kg below the global average. However, for the case of a flight operated by a major carrier, the average weight is 5.3 kg, which is 300 grams above the global average.

3.10.4 Weight of Slovak women

Slovak women within the research had an average weight only 62 kg. This value is 2 kilograms below the global average weight of women. In comparison to Czech women, the average weight of Slovak women is more than 4 kg lower. This can be explained by lower number of participants from Slovakia, as well as by different lifestyle and eating habits.



Graph 12: Frequency of masses – Slovak women

Regarding the weight of hand luggage, Slovak women need to travel in average with 9.1 kg on a flight operated by a low-cost carrier. It is only 0.1 kg above the global average value. If the flight is operated by a major carrier, an average Slovak woman takes on board 5.8 kg of hand luggage, which is 0.8 kg more than the global average value.

3.10.5 Weight research summary

To summarize the results of the research, all values mentioned in chapter 3 are placed to the table 11. This allows easy comparison of different groups within the research.

Table 11: Research results overview

Participant category		Body weight [kg]	Hand luggage weight [kg]	
			LCC	Major
All participants		76	9.0	5.0
Gender				
Men		84	9.2	5.1
Women		64	8.7	5.0
Age				
15-19		68	8.6	4.7
20-25		73	9.1	5.1
26 and more		87	8.9	5.0
Origin				
European	**All participants**	75	9.0	4.9
Non-European	**All participants**	82	9.4	8.4
Czech	**All participants**	78	9.1	3.9
	Men	85	9.6	4.0
	Women	66	8.2	3.7
Slovak	**All participants**	70	8.5	5.6
	Men	80	7.8	5.3
	Women	62	9.1	5.8

3.10.6 Weight research output

Finally, masses which should be used for flight planning must be determined. Since weight is for many people something they do not want to share, the expectation is that the real weight will be slightly higher than the weight calculated from the results of the questionnaire. Therefore, a safety margin of 5% will be added to the values from the research.

According to the research, in terms of body weight, gender plays an important role. Due to this fact, average weights calculated for each gender will be used for determination of new standard masses.

Table 12: New standard masses - gender

	Man [kg]	Woman [kg]
Body weight	84	64
Body weight + 5%	88.2	67.2
Hand luggage LCC	9.2	8.7
Hand luggage major	5.1	5.0
Total weight LCC	97.4	75.9
Total weight major	93.3	72.2

In table 13, new standard masses of passengers coming from research are introduced. Line “Body weight” presents the weight of passengers for both genders. This value is multiplied by 1.05 in order to reach the safety margin of 5%. Therefore, the new value for average weight of man is 88.2 kg, the new value for average weight of woman is 67.2.

Since the standard mass includes the mass of a passenger as well as mass of their hand luggage, these two values will be counted together. The total mass of a man passenger will then be 97.4 kg in case of flight with a low-cost carrier, and 93.3 kg in case of flight with a major carrier. The total mass of a woman passenger will be 75.9 kg in case of flight with a low-cost carrier, and 72.2 kg in case of flight with a major carrier.

These results will be used to count an average mass of all passengers on different types of flight. Three main categories will be considered: Flight operated by low-cost carrier, flight operated by major carrier and holiday charter. The methodology of establishing standard

weight of all passengers is following. For first two examples, the expected ratio of men on board is approximately 80% (and 20% women), for a holiday charter, the expected ratio of men on board is approximately 50% (and 50% women). [10]

Table 13: New standard masses – all pax

	All pax [kg]
Weight LCC	93.4
Weight major	89.1
Weight holiday charter	82.8

These masses will be used for flight planning purposes in chapter 4, and the results will be compared with chapter 2.

4. Application of the results in operations

In this chapter, data obtained from the research will be used for flight planning purposes. The values taken for calculation are defined in chapter 3, table 13. Finally, comparison to flights planned within chapter 2 will be performed. In total, 180 passengers are used for calculation of flight plans. This will allow to compare outputs with results obtained in chapter 2.

4.1 Holiday charter operated by Airbus A320

Weight of a passenger on charter flight was set to 82.8 kg. In addition, passenger on a charter flight is expected to have checked luggage. Since flight to Dubai is considered as intercontinental flight, weight of such luggage according to current legislation is 15 kg. Therefore, the calculation of payload will be following:

$$180 \cdot (82.8 + 15) = 17604 \text{ kg}$$

```
VERT.PROF: FL330 KONUK/FL350

         TIME    FUEL DIST WCOMP  WDIR    ISA DEV      PLN     ACT
TRIP     05:34/ 15319 2578   23 308/ 22.1   0.0
ALTN1    00:28/  1281  140    0 360/  0.0   0.0
FIN.RES. 00:30/  1104  FMS RES  2385
CONT. 3% 00:10/   460                              ZFW  60408 ........
ADD.FUEL 00:00/     0  C30 CRUISE
TAXI    (00:10)   200                              FOB  18163 ........
MIN.FUEL 06:43/ 18363
COMP EXT 00:00/     0                              TOW  78572 ........
--------------------
FUEL SUM 06:43/ 18363                              TF   15319 ........
CAPT EXT       ......
TOT.FUEL       ......  DOW: ........ DOI: .....   LAW  63252 ........
```

Figure 18: Flight plan A320 charter overview – research data [Annex 5]

The estimated flight time from Prague to Dubai is 5 hours and 34 minutes. Trip fuel is in this case 15319 kg, alternate fuel is 1281 kg, final reserve is 1104 kg, 3% fuel contingency is 460 kg and taxi fuel is 200 kg. In sum, there is 18363 kg on board. The zero fuel weight is 60408 kg, which after adding fuel sum and burning taxi fuel results in 78572 kg take of weight. Landing weight is calculated 63252 kg.

The airplane will climb after take-off to flight level 330, where it remains till the waypoint KONUK. From there, the airplane will climb to flight level 350.

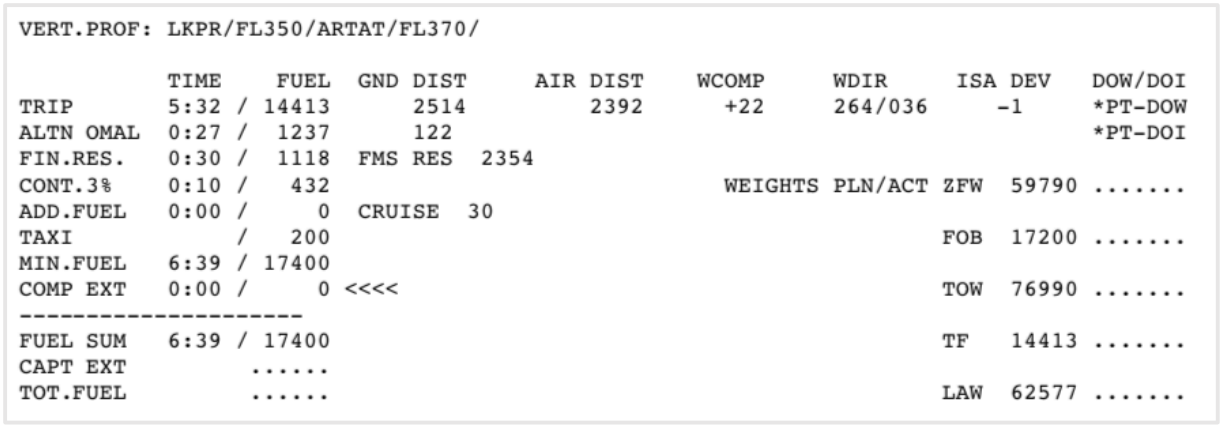
Table 14: Waypoints A320 holiday charter – research data [Annex 5]

Waypoint	FL	TAS [kn]	Fuel burn [kg]	Remaining time
LKPR	climb	-	18163	5:34
VOZ	climb	365	17427	5:25
LIKSA	climb	365	16819	5:17
IVOLI	climb	365	16576	5:14
PEPIK	climb	365	16236	5:10
BERVA	330	460	16019	5:07
RONBU	330	460	13212	4:09
ERGUN	330	460	10751	3:17
TUBAR	350	456	7688	2:10
RADID	350	456	4861	1:04
LVA	350	456	3589	0:34
DATUT	350	456	3486	0:32
ELIRA	350	456	3407	0:30
ORSAR	350	456	3302	0:27
DESDI	descent	300	3084	0:20
OMDB	descent	300	2844	0:00

Table 14 describes the same parameters as tables in chapter 2. For each waypoint, the flight level, true air speed, remaining fuel and the remaining time to the final destination are mentioned.

4.2 Holiday charter operated by Boeing 737-800

Weight of passengers on a charter flight operated by Boeing 737-800 will have the same value as in case of a charter flight operated by Airbus A320. The weight of a passenger with their hand luggage is 82.8 kg. Checked luggage of 15 kg is also considered for this case. The payload used for calculation of a flight plan is then 17604 kg.



```
VERT.PROF: LKPR/FL350/ARTAT/FL370/

           TIME    FUEL  GND DIST     AIR DIST    WCOMP     WDIR     ISA DEV   DOW/DOI
TRIP       5:32 / 14413      2514         2392      +22     264/036     -1     *PT-DOW
ALTN OMAL  0:27 /  1237      122                                              *PT-DOI
FIN.RES.   0:30 /  1118  FMS RES  2354
CONT.3%    0:10 /   432                              WEIGHTS PLN/ACT ZFW  59790 .......
ADD.FUEL   0:00 /     0  CRUISE  30
TAXI           /   200                                          FOB  17200 .......
MIN.FUEL   6:39 / 17400
COMP EXT   0:00 /     0 <<<<                                    TOW  76990 .......
---------------------
FUEL SUM   6:39 / 17400                                        TF   14413 .......
CAPT EXT        ......
TOT.FUEL        ......                                         LAW  62577 .......
```

Figure 19: Flight plan B737 charter overview – research data [Annex 6]

The calculated flight time to Dubai is 5h and 32 minutes. During this time, it is expected to burn 14413 kg of trip fuel. The alternate fuel on board is 1237 kg, final reserve is 1118 kg and 3% contingency fuel is 432 kg. Total weight of fuel with 200 kg of taxi fuel is then 17400 kg.

Table 15: Waypoints B737 holiday charter – research data [Annex 6]

Waypoint	FL	TAS [kn]	Fuel burn [kg]	Remaining time
LKPR	climb	-	17200	5:32
VOZ	climb	364	16271	5:22
LIKSA	climb	364	15558	5:14
IVOLI	climb	364	15328	5:11
PEPIK	350	451	15081	5:07
BERVA	350	451	14960	5:04
RONBU	350	451	12320	4:06
ERGUN	370	449	9935	3:11
TUBAR	370	450	7141	2:04
RADID	370	450	4416	0:58
LVA	370	450	3178	0:27
DATUT	descent	202	3106	0:24
ELIRA	descent	202	3067	0:21
ORSAR	descent	202	3019	0:17
DESDI	descent	202	2891	0:08
OMDB	descent	202	2787	0:00

After take-off, the flight will remain in the flight level 350 until the waypoint ARTAT, where the climb to flight level 370 will start.

The table 15 describes again the flight level, true air speed, remaining fuel and remaining time to Dubai.

4.3 Scheduled major flight operated by Airbus A320

The weight of a passenger on a scheduled flight was within the research set to 89.1 kg. Since this flight is operated by a major carrier, it is expected that passengers check-in baggage. According to current legislation, for intercontinental flight, baggage is considered 15 kg per passenger. With 180 passengers on board, the calculation of payload is following:

$$180 \cdot (89.1 + 15) = 18738 \text{ kg}$$

```
VERT.PROF: FL310 ERGOM/FL330 VAN/FL350

         TIME    FUEL DIST WCOMP  WDIR    ISA DEV      PLN     ACT
TRIP     05:34/ 15556 2578   23 308/ 22.1   0.0
ALTN1    00:28/  1281  140    0 360/  0.0   0.0
FIN.RES. 00:30/  1132  FMS RES  2413
CONT. 3% 00:10/   467                            ZFW  61542 ........
ADD.FUEL 00:00/     0  C30 CRUISE
TAXI    (00:10)   200                            FOB  18437 ........
MIN.FUEL 06:43/ 18637
COMP EXT 00:00/     0                            TOW  79979 ........
--------------------
FUEL SUM 06:43/ 18637                            TF   15556 ........
CAPT EXT       ......
TOT.FUEL       ......  DOW: ........ DOI: .....  LAW  64422 ........
```

Figure 20: Flight plan A320 scheduled overview – research data [Annex 7]

Flight time calculated for this trip is in this case 5 hours and 34 minutes. The trip fuel is 15556 kg, alternate fuel is 1281 kg, the final reserve is 1132 kg, 3% of contingency fuel is 467 kg and fuel for taxiing is 200 kg. The airplane would take-off with 79979 kg and after burning the trip fuel land with 64422 kg.

In this case, three flight levels would be used during the flight. After take-off, flight level 310 would be maintained, after the waypoint ERGOM, the flight level 330 would be maintained. After the waypoint VAN, flight level 350 would be reached.

Table 16: Waypoints A320 scheduled – research data [Annex 7]

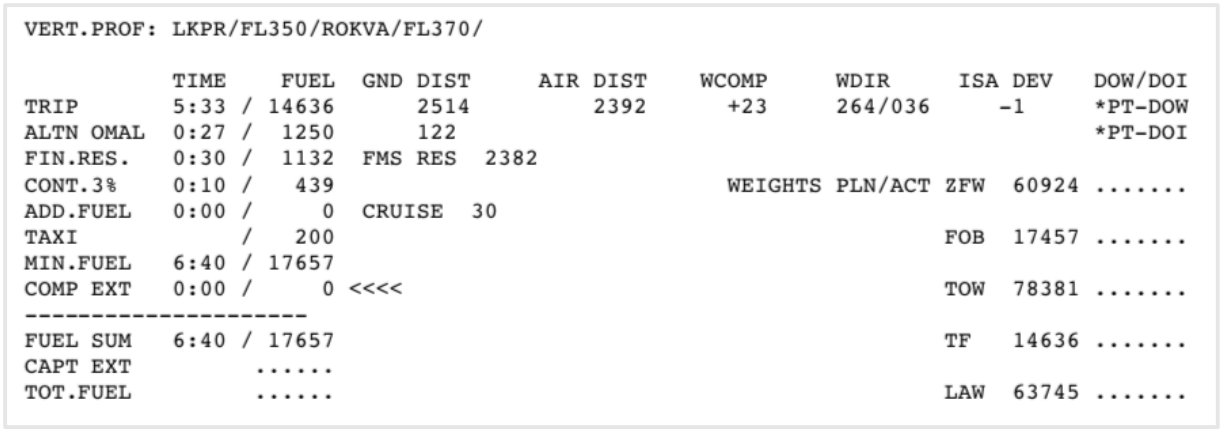
Waypoint	FL	TAS [kn]	Fuel burn [kg]	Remaining time
LKPR	climb	-	18437	5:34
VOZ	climb	350	17645	5:25
LIKSA	climb	350	16991	5:17
IVOLI	climb	350	16729	5:13
PEPIK	310	464	16419	5:09
BERVA	310	464	16287	5:07
RONBU	330	460	13407	4:09
ERGUN	330	460	10914	3:16
TUBAR	350	456	7787	2:10
RADID	350	456	4919	1:04
LVA	350	456	3631	0:34
DATUT	350	456	3527	0:32
ELIRA	350	456	3447	0:30
ORSAR	350	456	3341	0:27
DESDI	descent	300	3121	0:20
OMDB	descent	300	2880	0:00

Table 16 provides data from 16 waypoints regarding the flight level, true air speed, remaining fuel to the final destination and the remaining time to landing.

4.4 Scheduled major flight operated by Boeing 737

The same approach in terms of payload is applied to a flight operated by Boeing 737 on a scheduled route. Passenger with hand luggage is expected to have 89.1 kg, checked bag is according to the current legislation 15 kg. Therefore the payload calculation is following:

$$180 \cdot (89.1 + 15) = 18738 \text{ kg}$$



```
VERT.PROF: LKPR/FL350/ROKVA/FL370/

           TIME    FUEL  GND DIST     AIR DIST    WCOMP     WDIR     ISA DEV   DOW/DOI
TRIP       5:33 / 14636       2514         2392      +23     264/036      -1     *PT-DOW
ALTN OMAL  0:27 /  1250       122                                               *PT-DOI
FIN.RES.   0:30 /  1132  FMS RES  2382
CONT.3%    0:10 /   439                              WEIGHTS PLN/ACT ZFW  60924 .......
ADD.FUEL   0:00 /     0  CRUISE  30
TAXI            /   200                                          FOB  17457 .......
MIN.FUEL   6:40 / 17657
COMP EXT   0:00 /     0 <<<<                                     TOW  78381 .......
---------------------
FUEL SUM   6:40 / 17657                                          TF   14636 .......
CAPT EXT         ......
TOT.FUEL         ......                                          LAW  63745 .......
```

Figure 21: Flight plan B737 scheduled overview – research data [Annex 8]

Time needed for performing this flight is 5 hours 33 minutes. Trip fuel burnt during this period is equal to 14636 kg. Alternate fuel is 1250 kg, final reserve is 1132 kg and 3% contingency fuel is 439 kg. In addition, 200 kg of taxi fuel will be on board. With zero fuel weight of 60924 kg, the take-off weight will be 78381 kg. The landing weight is expected to be 63745 kg.

Table 17: Waypoints B737 scheduled – research data [Annex 8]

Waypoint	FL	TAS [kn]	Fuel burn [kg]	Remaining time
LKPR	climb	-	17457	5:33
VOZ	climb	364	16527	5:22
LIKSA	climb	364	15842	5:14
IVOLI	climb	364	15582	5:11
PEPIK	350	451	15309	5:07
BERVA	350	451	15187	5:04
RONBU	350	451	12505	4:06
ERGUN	370	449	10080	3:11
TUBAR	370	450	7238	2:04
RADID	370	450	4469	0:58
LVA	370	450	3213	0:27
DATUT	descent	202	3140	0:24
ELIRA	descent	202	3102	0:21
ORSAR	descent	202	3053	0:17
DESDI	descent	202	2926	0:08
OMDB	descent	202	2821	0:00

Flight will be operated in flight level 350 after take-off. The flight level will change above the waypoint ROKVA to 370.

The table 17 provides information about flight level, true air speed, remaining fuel and remaining time for selected waypoints. This allows to compare values on flight plans calculated with mass values defined in current legislation and values given by research.

4.5 Scheduled low-cost flight operated by Airbus A320

A new approach based on data from research is considered within following two chapters. Since the low-cost carriers are currently using the same standard masses as major carriers, different values should be taken into account due to the difference of products offered to passengers.

In this case, no checked baggage is included in the price of the ticket. As a result, heavier hand luggage can be expected. According to the research, an average passenger with hand luggage has then 93.4 kg. With 180 passengers on board, the payload used for the calculation is following:

$$180 \cdot 93.4 = 16812 \text{ kg}$$

```
VERT.PROF: FL330 ASVOD/FL350 ELIRA/FL370

         TIME    FUEL DIST WCOMP  WDIR    ISA DEV      PLN     ACT
TRIP     05:35/ 15150 2578   23 308/ 22.1   0.0
ALTN1    00:28/  1281  140    0 360/  0.0   0.0
FIN.RES. 00:30/  1104  FMS RES  2385
CONT. 3% 00:10/   454                            ZFW  59616 ........
ADD.FUEL 00:00/     0  C30 CRUISE
TAXI    (00:10)   200                            FOB  17989 ........
MIN.FUEL 06:43/ 18189
COMP EXT 00:00/     0                            TOW  77605 ........
--------------------
FUEL SUM 06:43/ 18189                            TF   15150 ........
CAPT EXT       ......
TOT.FUEL       ......  DOW: ........ DOI: .....  LAW  62455 ........
```

Figure 22: Flight plan A320 low-cost overview – research data [Annex 9]

The calculated flight time is in this case 5 hours and 38 minutes. Trip fuel is 15150 kg. To reach the alternate airport, 1281 kg of alternate fuel is on board. Final reserve is 1104 kg and 3% of

contingency fuel is 454 kg. After adding 200 kg of taxi fuel, the fuel sum is 18189 kg. Aircraft would then take-off with 77605 kg and land with 62455 kg.

Flight will be operated in three flight levels. From Prague to ASVOD in flight level 330, then in level 350 till the waypoint ELIRA. The final part of the leg will be flown in level 370.

Table 18: Waypoints A320 low-cost – research data [Annex 9]

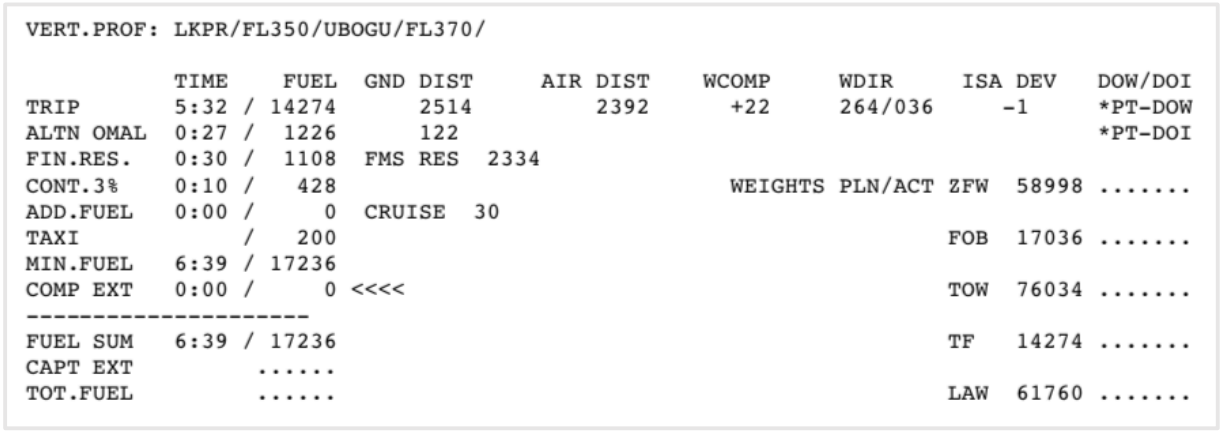
Waypoint	FL	TAS [kn]	Fuel burn [kg]	Remaining time
LKPR	climb	-	17989	5:35
VOZ	climb	366	17247	5:25
LIKSA	climb	366	16634	5:18
IVOLI	climb	366	16389	5:15
PEPIK	climb	366	16047	5:10
BERVA	330	460	15865	5:08
RONBU	330	460	13088	4:10
ERGUN	330	461	10649	3:17
TUBAR	350	456	7640	2:10
RADID	350	456	4839	1:05
LVA	350	456	3577	0:35
DATUT	350	456	3475	0:32
ELIRA	350	456	3397	0:30
ORSAR	370	454	3274	0:28
DESDI	descent	298	3075	0:21
OMDB	descent	298	2839	0:00

In the table 18, values of flight level, true air speed, remaining fuel and remaining time can be found.

4.6 Scheduled low-cost flight operated by Boeing 737-800

For a low-cost flight operated by Boeing 737-800, the same values from the research will be used. It will allow to compare performance of this type of aircraft with different values of masses. Comparison to Airbus A320 can also be made. Weight of a passenger is then expected 93.4 kg with hand luggage and no checked luggage. The final payload mass is then following:

$$180 \cdot 93.4 = 16812 \text{ kg}$$



```
VERT.PROF: LKPR/FL350/UBOGU/FL370/

           TIME    FUEL  GND DIST     AIR DIST    WCOMP     WDIR     ISA DEV   DOW/DOI
TRIP       5:32 / 14274       2514         2392      +22     264/036     -1     *PT-DOW
ALTN OMAL  0:27 /  1226       122                                             *PT-DOI
FIN.RES.   0:30 /  1108  FMS RES  2334
CONT.3%    0:10 /   428                              WEIGHTS PLN/ACT ZFW  58998 .......
ADD.FUEL   0:00 /     0  CRUISE  30
TAXI            /   200                                          FOB  17036 .......
MIN.FUEL   6:39 / 17236
COMP EXT   0:00 /     0 <<<<                                     TOW  76034 .......
---------------------
FUEL SUM   6:39 / 17236                                          TF   14274 .......
CAPT EXT         ......
TOT.FUEL         ......                                          LAW  61760 .......
```

Figure 23: Flight plan B737 low-cost overview – research data [Annex 10]

Table 19: Waypoints B737 low-cost – research data [Annex 10]

Waypoint	FL	TAS [kn]	Fuel burn [kg]	Remaining time
LKPR	climb	-	17036	5:32
VOZ	climb	363	16104	5:22
LIKSA	climb	363	15419	5:14
IVOLI	climb	363	15158	5:11
PEPIK	350	451	14935	5:07
BERVA	350	451	14816	5:04
RONBU	350	449	12113	4:06
ERGUN	370	450	9840	3:11
TUBAR	370	450	7077	2:04
RADID	370	450	4381	0:58
LVA	370	449	3154	0:27
DATUT	descent	202	3081	0:24
ELIRA	descent	202	3043	0:21
ORSAR	descent	202	2995	0:17
DESDI	descent	202	2867	0:08
OMDB	descent	202	2762	0:00

The estimated flight time is 5 hours and 32 minutes. Within this time, 14274 kg of trip fuel is expected to be burnt. Alternate fuel is 1226 kg, final reserve is 1108 kg, 3% contingency fuel is 428 kg. The total mass of fuel on board is then 17236 kg. The take-off weight is 76034 kg and the landing weight is 61760 kg.

Four factors in 16 waypoints are also analysed. In the table 19, data regarding the flight level, true air speed, remaining fuel and remaining time to the final destination are mentioned.

4.7 Summary

To evaluate the results in chapter 4, fuel burn for different scenarios will be compared. The table 20 presents the difference in fuel burn between different types of aircraft as well as between different types of flight. Masses used for flight plan calculation were based on results of research described in chapter 3.

In the table 20, remaining fuel to the final destination can be observed for different waypoints. Difference between fuel in LKPR (airport in Prague) and OMDB (airport in Dubai) is a trip fuel. Remaining fuel in OMDB is then sum of alternate fuel, final reserve and 3% contingency fuel.

If this flight is operated as a regular flight by Airbus A320, the trip fuel is 15556 kg. By operating this flight as a holiday charter flight, the expected trip fuel would be 237 kg lower. In case of low-cost flight, the expected savings would be 406 kg.

If the flight is operated as a regular flight by Boeing 737-800, the trip fuel is 14636 kg. Savings of 223 kg would be expected if the flight was operated as a holiday charter. In case of low-cost flight, the expected savings would be 362 kg.

Table 20: Fuel burn based on research data [Annexes 5-10]

Waypoint	Fuel burn [kg]					
	Charter flight		Scheduled flight		Low-cost flight	
	A320	737-800	A320	737-800	A320	737-800
LKPR	18163	17200	18437	17457	17989	17036
VOZ	17427	16271	17645	16527	17247	16104
LIKSA	16819	15558	16991	15842	16634	15419
IVOLI	16576	15328	16729	15582	16389	15158
PEPIK	16236	15081	16419	15309	16047	14935
BERVA	16019	14960	16287	15187	15865	14816
RONBU	13212	12320	13407	12505	13088	12113
ERGUN	10751	9935	10914	10080	10649	9840
TUBAR	7688	7141	7787	7238	7640	7077
RADID	4861	4416	4919	4469	4839	4381
LVA	3589	3178	3631	3213	3577	3154
DATUT	3486	3106	3527	3140	3475	3081
ELIRA	3407	3067	3447	3102	3397	3043
ORSAR	3302	3019	3341	3053	3274	2995
DESDI	3084	2891	3121	2926	3075	2867
OMDB	2844	2787	2880	2821	2839	2762
Trip fuel	15319	14413	15556	14636	15150	14274

4.8 Comparison of results with current legislation

Finally, the trip fuel used for the flight will be compared with data, which were calculated according to current legislation or research.

Table 21: Charter comparison [Annexes 1, 2, 5, 6]

	Trip fuel [kg] - charter flight	
Data / Aircraft	**A320**	**737-800**
Current legislation	15051	14197
Research	15319	14413

In case of a holiday charter flight, the fuel consumption for the flight operated by Airbus A320 will be 268 kg higher if the values are based on research. If the flight is operated by Boeing 737-800, the increase in terms of fuel consumption will be 216 kg.

Table 22: Scheduled comparison [Annexes 3, 4, 7, 8]

	Trip fuel [kg] - scheduled flight	
Data / Aircraft	**A320**	**737-800**
Current legislation	15365	14455
Research	15557	14636

For scheduled flight, increase of burnt fuel is also expected, since the masses from research are higher. If this flight is operated by Airbus A320, the increase is 192 kg. For Boeing 737-800, the calculated increase is 181 kg.

Table 23: Low-cost comparison [Annexes 3, 4, 9, 10]

	Trip fuel [kg] - low-cost flight	
Data / Aircraft	**A320**	**737-800**
Current legislation	15365	14455
Research	15150	14274

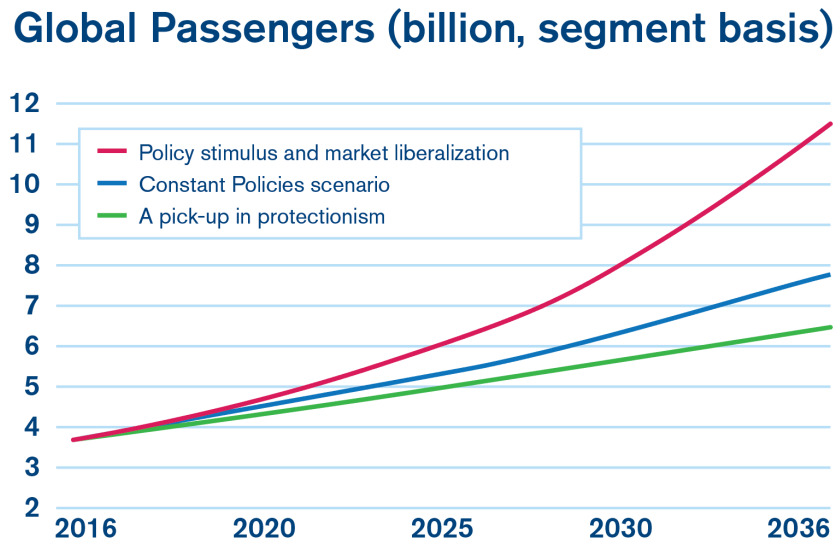
Since current legislation does not make a difference between a flight operated by a major carrier and a low-cost flight, data for low-cost carrier will be compared to calculations based on current data for any flight except holiday charter. If a flight between Prague and Dubai is operated by Airbus A320, the expected savings of fuel will be 215 kg. If the flight is operated by Boeing 737-800, expected savings will be 181 kg of trip fuel.

5. Proposals for changes of legislation

According to the research, weight and preferences of passengers are changing. It is essential that the legislation reflects the trends within the industry and society. Ignoring such indicators could have impact on comfort of passengers, as well as on safety.

5.1 Trends within the industry

IATA forecasts and statistics show that the air transport market is growing. [19] One of the main reason is the expansion of low-cost carriers. In 2015, LCCs transported 28% of the world total scheduled passengers. [20]



Graph 13: IATA Forecast [19]

Such carriers are able to attract high number of passengers by low prices and point-to-point flights. If profit of a carrier is defined as a difference of income and cost, low-cost carriers are maximizing the profit by decreasing cost, not by increasing price. Price of a ticket does not include any additional services such as checked baggage, catering or seat selection.

A flight without checked luggage included in a price of the ticket should expect higher weight of hand luggage, according to the research in chapter 3.

5.2 Passengers weight change

The research proved that weight of population is increasing. If the standard mass for all adult passengers is compared, in case of legacy carrier, the increase is 6%. If a holiday charter flight is considered, the increase is 9%.

Since the trend of growing market share of low-cost carriers has not been reflected in current legislation, flights have been planned as scheduled flights operated by major carriers. However, such passengers are expected to have heavier luggage and the increase of weight compared to current legislation is 11%. On the other hand, this difference is compensated by 15 kg of checked luggage, which is included in calculation of flight plans.

Table 24: Weight difference demonstration

	Legacy	Low-cost	Charter
Legislation [kg]	84.0	84.0	76.0
Research [kg]	89.1	93.4	82.8
Increase [%]	6	11	9

5.3 Standard masses proposal

To react on trends of increasing weight and passenger preferences, following changes in legislation should be implemented:

Table 25: Standard masses proposal – gender

	Mass - major/charter [kg]	Mass – LCC [kg]
Man	93.3	97.4
Woman	72.2	75.9
Child	35.0	35.0

With reference to results of the research, weight of an adult man with hand luggage is 93.3 kg on a flight operated by major carrier or on a charter flight. On a flight operated by low-cost carrier, the weight of a man and his luggage is 97.4 kg. An adult woman with hand luggage is expected to have 72.2 kg on a major carrier / charter flight and 75.9 kg on a low-cost flight.

Weight of child was kept for all cases 35 kg, since analysis of weight of children was not a purpose of this thesis.

Table 26: Standard masses proposal – all adult

	All pax [kg]
Weight LCC	93.4
Weight major	89.1
Weight holiday charter	82.8
Child	35.0

If gender is not defined, an adult passenger is expected to have 89.1 kg on a flight operated by major carrier, 82.8 kg on a charter flight and 93.4 kg on a flight operated by a low-cost carrier.

Table 27: Baggage standard masses [10]

Type of flight	Baggage standard mass
Domestic	11 kg
Within the European region	13 kg
Intercontinental	15 kg
All other	13 kg

Since standard masses of checked luggage are considered as sufficient, for domestic flight, 11kg of checked luggage can be used for flight plan calculation. For a flight within Europe, 13 kg of checked luggage is sufficient. Weight of luggage for intercontinental flight should remain 15 kg. On any flight which is not classified as a domestic, European or intercontinental, the standard mass 13 kg can be used for flight plan calculations.

5.4 Impact of changes

If the changes proposed within chapter 5 were accepted, charter flights and flights operated by major carriers would remain safe. By ignoring the trend of increasing weight of population, the margins might become insufficient. Standard masses are also used in order to determine weight of aircraft. In some cases, one of the maximum structural masses might be exceeded.

If the standard masses for low-cost carriers were implemented, the efficiency would increase. The fuel consumption would be lower, since less fuel would be carried on board and aircraft would be therefore lighter. This would have a positive impact on environment and on cost, which is the main target of low-cost carriers.

Finally, carriers would be more flexible in terms of their product. Certain business models could be applied on selected routes. Major carriers could differ between passengers who are purchasing low-cost product on their flight (ticket without checked luggage), and passengers who are paying for full service.

Conclusion

This Master thesis is analysing current legislation – especially Commission Regulation (EU) 965/2012, since this document has significant influence on flight planning in all EASA member states. Current standard masses are introduced and described.

Operational flight plans for route from Prague to Dubai are calculated and deeply analysed for Airbus A320 and for Boeing 737-800. The values from flight plans are compared and explained. Two different scenarios are taken into account – holiday charter flight and any other flight (scheduled flight) for each type of aircraft. Final comparison is focused on impact of standard masses on fuel on board.

Research about weight of passengers with nearly 600 participants is performed and results are analysed. Various factors influencing the weight of passenger are considered. The gender, origin, age group and customer preferences are introduced and their relationship to weight of passenger and weight of hand luggage is explained. Special attention is paid to Czech and Slovak passengers, since most of the answers in research were provided by nationals of these two countries. Finally, new standard masses are determined and justified. Difference between passengers of major carrier and low-cost passengers is explained and this group of passengers is considered.

Afterwards, operational flight plans are calculated for the same route. For each aircraft, three scenarios are considered – charter flight, flight operated by major carrier (including checked baggage) and flight operated by low-cost carrier (only hand luggage included). Comparison of fuel on board for different all the cases is made. Finally, comparison to flight plans based on values in current legislation is made, and impact of different approaches is examined.

Proposals for improvement of current legislation are introduced and explained. Impact of changes is identified and explained. Emphasis is put on lack of up-to-date in current legislation. Trends in industry and society are overseen and it could have negative impact on safety in aviation.

To conclude, an update of legislation will prevent potential risks based on increase of weight of population. Implementing a new category of passengers (low-cost travellers) will also increase efficiency of air transport in Europe.

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Annex 1 - Holiday charter - A320 - Current legislation

```
FLT: TVS        PLN PAX: 180   PLN CARGO: 0 KGS      DATE: 7.5.2018
NON-ETOPS   AC/ REG: A320 /OKHCA   PERF COEF: 1.034  CRTE: PRG-DXB1T
COMP.BY+TIME: MF D.M.YYYY/HH:MM          WX VALIDITY:  AVG. WIND

CAPT: ............. F/O:  .................   CTOT INFO: ..........
ADEP :RWY24 /PRAGUE-RUZYNE       LKPR/PRG 0000 Z/ FUEL PRICE=  OLD
ADES :RWY30 /DUBAI-DUBAI INTL    OMDB/DXB 0000 Z/ FUEL PRICE=  OLD
ALTN1:       AL AIN-AL AIN INTL  OMAL/AAN       / FUEL PRICE=  OLD
ALTN2:
3%ERA:       KUWAIT-KUWAIT INTL  OKBK/KWI       / FUEL PRICE=  OLD

ADEP ALTN:  ...................

VERT.PROF: FL330 ERGUN/FL350 LAM/FL370

          TIME    FUEL DIST WCOMP  WDIR    ISA DEV      PLN     ACT
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ALTN1     00:28/  1281  140    0 360/  0.0   0.0
FIN.RES.  00:30/  1090  FMS RES  2371
CONT. 3%  00:10/   452                            ZFW  59184 ........
ADD.FUEL  00:00/     0  C30 CRUISE
TAXI     (00:10)   200                            FOB  17873 ........
MIN.FUEL  06:43/ 18073
COMP EXT  00:00/     0                            TOW  77057 ........
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FUEL SUM  06:43/ 18073                            TF   15050 ........
CAPT EXT        ......
TOT.FUEL        ......  DOW: ........ DOI: .....  LAW  62006 ........

ADEP   OFF BLOCK  ......    TAKEOFF  ......
ADES   IN BLOCK   ......    LANDING  ......
       BLOCK TIME ......    FLT TIME ......      FUEL REM   ........
-------------------------------------------------------------------
FL.PLANNING NOTICE: PL: 16380

ADEP ATIS: ..........................................................
           ..........................................................

RTE: LKPR VOZ2A VOZ L993 IVOLI Z650 PEPIK DCT BERVA DCT ERGOM DCT
     TEGRI L605 NEKUL P975 ARTAT UP975 ERGUN UL124 UMH G781 ROVON
     M317 RADID L319 DASDO UL223 LAM G666 ORSAR B416 DESDI DESDI1C
OMDB

ATC CLRN:  ..........................................................

           ..........................................................
-------------------------------------------------------------------
PERF     CURRENT LPCNG FILE:
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RWY:.... F:... DER:.... FLX.TMP=.... N1=...  V1=.... VR=.... V2=....

RWY:.... F:... DER:.... FLX.TMP=.... N1=...  V1=.... VR=.... V2=....
```

ENG-OUT PROC.: .....

.....

RVSM:
ALTITUDE CAPT ..... STBY ..... F/O .....
FL ..... CAPT ..... STBY ..... F/O .....

AWY	COORD	WPT /NAME	TM	MT	DIST	W/	TAS	FL	FOB
G.MORA		FREQ CT AT	TTGO	MH	DTGO	V	GS	+ISA	mFOB
FIR								BURN/	act.
ADEP	N5006.1	LKPR /PRAHA/RUZYNE							17873
	E01415.6	....	05:35		2578				17873
								0/	_____
VOZ2A	N4931.9	VOZ /VOZICE	9	dep	60	325/	367	clb	17129
	E01452.5	11695	05:25	dep	2518	23	390	0	17106
								744/	_____
L993	N4909.2	LIKSA/LIKSA	8	112	50	296/	367	clb	16514
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L993	N4900.0	IVOLI/IVOLI	3	113	20	297/	367	clb	16267
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Z650	N4847.0	PEPIK/PEPIK	4	114	28	298/	367	clb	15925
4500	E01704.8	....	05:11	114	2421	23	390	0	15866
lzbb								1948/	_____
DCT		TOC /	1	114	6	298/	367	clb	15852
4500		....	05:10	118	2416	23	390	0	15792
								2020/	_____
DCT	N4837.1	BERVA/BERVA	2	114	15	298/	460	330	15761
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								2111/	_____
DCT	N4748.5	ERGOM/ERGOM	9	131	69	315/	460	330	15351
7100	E01844.0	....	04:59	131	2332	23	483	0	15276
lhcc								2522/	_____
DCT	N4615.8	TEGRI/TEGRI	17	128	134	313/	460	330	14551
4500	E02106.3	....	04:43	128	2197	23	483	0	14451
lrbb								3322/	_____
L605	N4555.4	GESBA/GESBA	4	120	35	305/	460	330	14345
5000	E02147.4	....	04:38	120	2163	23	483	0	14240
								3527/	_____
L605	N4531.0	NEKUL/NEKUL	5	121	41	305/	460	330	14102
10600	E02235.2	....	04:33	121	2121	23	483	0	13989
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P975	N4445.8	UBOGU/UBOGU	12	112	99	297/	460	330	13517
10600	E02440.1	....	04:21	112	2022	23	483	0	13387
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P975	N4403.1	RONBU/RONBU	11	113	89	298/	460	330	12999
3800	E02629.9	....	04:10	113	1933	23	483	0	12853
lbsr								4874/	_____
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                                                              6422/_____
UP975   N4141.7 UNVUS/UNVUS          3  105   23 290/ 461  330 11319
8900   E03208.5          .... .... 03:34  105 1643  23  484    0 11122
                                                              6554/_____
UP975   N4140.2 ASMOB/ASMOB          1  098    5 283/ 461  330 11292
8900   E03214.0          .... .... 03:33  098 1639  23  484    0 11095
                                                              6580/_____
UP975   N4138.7 RELTU/RELTU          1  112    4 297/ 460  330 11268
8900   E03219.4          .... .... 03:33  112 1634  23  484    0 11070
                                                              6605/_____
UP975   N4135.6 APTOX/APTOX          1  105    9 290/ 460  330 11218
8900   E03230.3          .... .... 03:32  105 1626  23  484    0 11018
                                                              6655/_____
UP975   N4127.2 TEPKI/TEPKI          3  105   23 290/ 460  330 11085
8900   E03259.6          .... .... 03:29  105 1602  23  483    0 10882
                                                              6787/_____
UP975   N4121.1 PIPUR/PIPUR          2  113   13 298/ 460  330 11013
10900  E03314.3          .... .... 03:27  113 1590  23  483    0 10807
                                                              6860/_____
UP975   N4117.5 ORMAN/ORMAN          1  115    8 300/ 460  330 10968
10900  E03323.2          .... .... 03:26  115 1582  23  483    0 10761
                                                              6905/_____
UP975   N4044.8 ERGUN/ERGUN          9  113   70 298/ 460  330 10571
10900  E03444.3          .... .... 03:17  113 1512  23  483    0 10352
                                                              7301/_____
UL124   N4004.9 ASVOD/ASVOD         17  101  136 286/ 456  350  9773
11700  E03734.4          .... .... 03:00  101 1377  23  479    0  9530
                                                              8099/_____
UL124   N3930.7 KONUK/KONUK         12  105   94 291/ 456  350  9252
14100  E03928.1          .... .... 02:49  105 1283  23  479    0  8993
                                                              8621/_____
UL124   N3919.5 EVSAS/EVSAS          4  103   35 288/ 456  350  9059
14100  E04011.3          .... .... 02:44  103 1248  23  479    0  8795
                                                              8814/_____
UL124   N3828.0 VAN  /VAN           19  103  155 288/ 456  350  8207
15800  E04319.5 11520    .... .... 02:25  103 1093  23  479    0  7917
                                                              9666/_____
UL124   N3815.9 ZELSU/ZELSU          3  115   25 300/ 456  350  8069
14500  E04347.0          .... .... 02:22  115 1067  23  479    0  7775
                                                              9804/_____
UL124   N3802.9 BONAM/BONAM          3  113   28 298/ 456  350  7919
14500  E04418.0          .... .... 02:18  113 1040  23  479    0  7620
oiix                                                          9954/_____
UL124   N3753.0 TUDNU/TUDNU          3  109   23 294/ 456  350  7797
16000  E04444.8          .... .... 02:15  109 1017  23  479    0  7494
                                                             10076/_____
UL124   N3741.2 UMH  /UROMIYEH       3  121   20 306/ 456  350  7686
16000  E04505.1 11350    .... .... 02:13  121  997  23  479    0  7380
                                                             10187/_____
G781    N3730.3 TUBAR/TUBAR          2  118   20 303/ 456  350  7578
12200  E04526.2          .... .... 02:10  118  977  23  479    0  7269
                                                             10295/_____
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G781    N3716.0 ROVON/ROVON          3  118   26 303/ 456  350  7440
12200   E04553.4        .... .... 02:07  118  951  23  479    0  7127
                                                          10433/_____
M317    N3605.5 PAREX/PAREX         11  142   85 326/ 456  350  6982
14500   E04651.9        .... .... 01:56  142  866  23  479    0  6655
                                                          10891/_____
M317    N3504.9 KEBEP/KEBEP          9  142   73 327/ 456  350  6591
13500   E04740.2        .... .... 01:47  142  793  23  479    0  6253
                                                          11281/_____
M317    N3317.8 NOTSA/NOTSA         16  143  127 327/ 456  350  5912
15700   E04903.3        .... .... 01:31  143  666  23  479    0  5553
                                                          11961/_____
M317    N3024.9 RADID/RADID         26  142  211 324/ 456  350  4792
16900   E05125.7        .... .... 01:05  142  455  23  479    0  4400
                                                          13080/_____
L319    N3014.3 IMGOD/IMGOD          1  154   11 337/ 456  350  4735
16900   E05130.8        .... .... 01:04  154  444  23  479    0  4341
                                                          13138/_____
L319    N2854.0 DASDO/DASDO         11  156   86 339/ 456  350  4286
16900   E05205.9        .... .... 00:53  156  358  23  479    0  3879
                                                          13587/_____
UL223   N2833.1 LAGSA/LAGSA          3  145   25 328/ 456  350  4157
12800   E05220.9        .... .... 00:50  145  334  23  479    0  3745
                                                          13716/_____
UL223   N2722.4 LAM  /LAMERD        11  145   84 327/ 456  350  3719
12800   E05311.0 11700  .... .... 00:39  145  250  23  479    0  3294
                                                          14154/_____
G666    N2648.7 LVA  /LAVAN ISL      4  163   35 345/ 454  370  3535
9500    E05321.4 11685  .... .... 00:35  163  214  23  477    0  3104
                                                          14338/_____
G666    N2633.5 DATUT/DATUT          2  138   20 320/ 454  370  3435
5800    E05335.6        .... .... 00:32  138  195  23  477    0  3002
                                                          14438/_____
G666    N2621.1 ELIRA/ELIRA          2  142   15 323/ 454  370  3359
5800    E05345.0        .... .... 00:30  142  180  23  477    0  2923
                                                          14514/_____
G666    N2604.5 ORSAR/ORSAR          3  146   20 327/ 454  370  3256
5800    E05357.5        .... .... 00:28  146  160  23  477    0  2818
omae                                                      14617/_____
B416    N2551.9 PEBAT/PEBAT          3  116   27 298/ 454  370  3117
7300    E05424.0        .... .... 00:25  116  132  23  477    0  2674
                                                          14756/_____
B416            TOD  /               1  131    4 298/ 454  370  3096
1500                    .... .... 00:24  134  128  23  476    0  2653
                                                          14776/_____
B416    N2536.1 DESDI/DESDI          3  131   18 313/ 298  des  3058
1500    E05442.5        .... .... 00:21  131  110  23  320    0  2613
                                                          14815/_____
DESDI1C N2515.2 OMDB /DUBAI         21  arr  110 301/ 298  des  2822
        E05521.9        .... .... 00:00  arr    0  23  320    0  2371
                                                          15050/_____
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ADES ATIS: ..........................................................
           ..........................................................
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FIR: LZBB0024 LHCC0035 LRBB0052 LBSR0125 LTBB0146 LTAA0154
     OIIX0316 OMAE0507/0028


## ALTN INFORMATION: ##
 ALTN AD ICAO/NAME        DIST TIME    TF   WCOMP   WDIR    ISA DEV
                          RTE / ALTN AVAILABILITY
--------------------------------------------------------------------
*OMAL/AL AIN-AL AIN INTL   140 00:28  1281     0  360/  0.0    0.0
          '->  RTE: ANVIX R401 GIDIS G783 ALN
          '--> AVAIL: H24

(* SIGN DENOTES ALTN USED FOR MIN.FUEL CALCULATION)
--------------------------------------------------------------------
3%ERA AD: OKBK/KUWAIT-KUWAIT INT
   AVAIL: H24
--------------------------------------------------------------------
## END ALTN INFORMATION ##


## COMPANY NOTAMS: ##
CNOTAM 1063A  [ISSUED 6.2.2017/MA, EFF:6.2.2017-UFN]
PRAGUE PRG/LKPR
TAKE OFF MINIMA RWY 12/30 RAISED TO RVR 800M ACCORDING TO CZECH CAA
 AIP AD 1.1.4.10 - AOM. THIS CHANGE IS NOT YET INCORPORATED IN
JEPPESEN CHARTS. REVISED CHARTS WILL BE PUBLISHED AFTER CZECH CAA
PUBLISHES UPDATED REGULATION WITH CLARIFIED CONTENT.

CNOTAM 18R  [ISSUED 27.3.2015/PP, EFF:1.4.2015-UFN]
LKPR - SPECIAL NOISE ABATEMENT PROCEDURE
Please utilize the following departure procedure for B737 and A320:
 Take-off to 1500ft AAL:
  - Take-off thrust
  - Take-off flaps
  - Climb at V2 + 10kts (or as limited by max pitch attitude)
 At 1500ft AAL:
  - Reduce thrust to not less than climb thrust
  - Acceleration during climb and flaps retraction
  - Transition to normal climb speed
See also Nav. Warning 04/2015

CNOTAM 19R  [ISSUED 13.4.2015/PP, EFF:13.4.2015-UFN]
JEPPESEN E-LINK LOGIN DATA VALID UNTIL 21JUN:
  http://jeppesen.com/icharts/index.jsp
     login: PilotTVS
  password: A24Banshee


## END COMPANY NOTAMS ##

## WIND | +ISA SUMMARY ##
--------------------------------------------------------------------
WPT   |   FL180    |   FL240   |   FL300   |   FL340   |    FL390  |
--------------------------------------------------------------------
VOZ   |325/  23|  0|325/ 23|  0|325/ 23|  0|325/ 23|  0|325/ 23|  0|
```

LIKSA	296/	23	0	296/ 23	0	296/ 23	0	296/ 23	0	296/ 23	0
IVOLI	297/	23	0	297/ 23	0	297/ 23	0	297/ 23	0	297/ 23	0
PEPIK	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
BERVA	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ERGOM	315/	23	0	315/ 23	0	315/ 23	0	315/ 23	0	315/ 23	0
TEGRI	313/	23	0	313/ 23	0	313/ 23	0	313/ 23	0	313/ 23	0
GESBA	305/	23	0	305/ 23	0	305/ 23	0	305/ 23	0	305/ 23	0
NEKUL	305/	23	0	305/ 23	0	305/ 23	0	305/ 23	0	305/ 23	0
UBOGU	297/	23	0	297/ 23	0	297/ 23	0	297/ 23	0	297/ 23	0
RONBU	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ARTAT	306/	23	0	306/ 23	0	306/ 23	0	306/ 23	0	306/ 23	0
ERMUP	288/	23	0	288/ 23	0	288/ 23	0	288/ 23	0	288/ 23	0
ROKVA	291/	23	0	291/ 23	0	291/ 23	0	291/ 23	0	291/ 23	0
UNVUS	290/	23	0	290/ 23	0	290/ 23	0	290/ 23	0	290/ 23	0
ASMOB	283/	23	0	283/ 23	0	283/ 23	0	283/ 23	0	283/ 23	0
RELTU	297/	23	0	297/ 23	0	297/ 23	0	297/ 23	0	297/ 23	0
APTOX	290/	23	0	290/ 23	0	290/ 23	0	290/ 23	0	290/ 23	0
TEPKI	290/	23	0	290/ 23	0	290/ 23	0	290/ 23	0	290/ 23	0
PIPUR	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ORMAN	300/	23	0	300/ 23	0	300/ 23	0	300/ 23	0	300/ 23	0
ERGUN	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ASVOD	286/	23	0	286/ 23	0	286/ 23	0	286/ 23	0	286/ 23	0
KONUK	291/	23	0	291/ 23	0	291/ 23	0	291/ 23	0	291/ 23	0
EVSAS	288/	23	0	288/ 23	0	288/ 23	0	288/ 23	0	288/ 23	0
VAN	288/	23	0	288/ 23	0	288/ 23	0	288/ 23	0	288/ 23	0
ZELSU	300/	23	0	300/ 23	0	300/ 23	0	300/ 23	0	300/ 23	0
BONAM	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
TUDNU	294/	23	0	294/ 23	0	294/ 23	0	294/ 23	0	294/ 23	0
UMH	306/	23	0	306/ 23	0	306/ 23	0	306/ 23	0	306/ 23	0
TUBAR	303/	23	0	303/ 23	0	303/ 23	0	303/ 23	0	303/ 23	0
ROVON	303/	23	0	303/ 23	0	303/ 23	0	303/ 23	0	303/ 23	0
PAREX	326/	23	0	326/ 23	0	326/ 23	0	326/ 23	0	326/ 23	0
KEBEP	327/	23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
NOTSA	327/	23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
RADID	324/	23	0	324/ 23	0	324/ 23	0	324/ 23	0	324/ 23	0
IMGOD	337/	23	0	337/ 23	0	337/ 23	0	337/ 23	0	337/ 23	0
DASDO	339/	23	0	339/ 23	0	339/ 23	0	339/ 23	0	339/ 23	0
LAGSA	328/	23	0	328/ 23	0	328/ 23	0	328/ 23	0	328/ 23	0
LAM	327/	23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
LVA	345/	23	0	345/ 23	0	345/ 23	0	345/ 23	0	345/ 23	0
DATUT	320/	23	0	320/ 23	0	320/ 23	0	320/ 23	0	320/ 23	0
ELIRA	323/	23	0	323/ 23	0	323/ 23	0	323/ 23	0	323/ 23	0
ORSAR	327/	23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
PEBAT	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
DESDI	313/	23	0	313/ 23	0	313/ 23	0	313/ 23	0	313/ 23	0
OMDB	301/	23	0	301/ 23	0	301/ 23	0	301/ 23	0	301/ 23	0

END WIND | +ISA SUMMARY

Annex 2 - Holiday charter - B737 - Current legislation

```
FLT    : TVS          PLN PAX  :  180   PLN CARGO: *PT-CARGO  Kg      DATE: 07.05.2018
AC/REG : B738 /OKTVS  PERF COEF:  4.3        CREW: *PT-CCPL    WX VALIDITY: 05071900
AC CONF: *PT-ACC      PANTRY   :  *PT-PTRY

CAPT : ..............  F/O: ..............  CTOT INFO: ........     TOTAL PERS: ........

ADEP : PRAGUE/RUZYNE     LKPR/PRG 19:00Z          RW30.VOZ2B.VOZ
ADES : DUBAI INTL        OMDB/DXB 00:34Z
ALTN1: AL AIN INTL       OMAL/AAN
ALTN2:                       /
ERA  : KUWAIT INTL       OKBK/KWI

ADEP ALTN:                       /                ADEP STAND: ............

VERT.PROF: LKPR/FL350/GESBA/FL370/

           TIME    FUEL  GND DIST     AIR DIST    WCOMP     WDIR     ISA DEV   DOW/DOI
TRIP       5:34 / 14197      2514         2392      +23     264/036     -1     *PT-DOW
ALTN OMAL  0:27 /  1220      122                                               *PT-DOI
FIN.RES.   0:30 /  1102  FMS RES  2322
CONT.3%    0:10 /   426                          WEIGHTS PLN/ACT ZFW  58566 .......
ADD.FUEL   0:00 /     0  CRUISE  30
TAXI           /   200                                          FOB  16945 .......
MIN.FUEL   6:41 / 17145
COMP EXT   0:00 /     0 <<<<                                    TOW  75510 .......
---------------------
FUEL SUM   6:41 / 17145                                        TF   14197 .......
CAPT EXT         ......
TOT.FUEL         ......                                        LAW  61313 .......

ADEP  OFF BLOCK  ...... TAKEOFF  .......
ADES  IN BLOCK   ...... LANDING  .......
      BLOCK TIME ...... FLT TIME .......                       FUEL REM   .......
--------------------------------------------------------------------------------
FL.PLANNING NOTICE:


TANKERING RECOMMENDATIONS:    LOSS 174$/TON

TRIP FUEL MODIFICATIONS:              STATISTICAL EXTRA FUEL:       FUEL PRICE ADEP:
ZFW +/- 1000KG          157 Kg        NO. OF FLTS    : 55              *PT-FPRICEDEP
TRIP FUEL FOR +2000FT 14233 Kg       95% STAT       : -96          FUEL PRICE ADES:
TRIP FUEL FOR -2000FT 14239 Kg       99% STAT       : 33              *PT-FPRICEDES
                                     REMARK         :

ADEP ATIS: ....................................................................

           ....................................................................

RTE: LKPR VOZ L993 IVOLI Z650 PEPIK DCT BERVA DCT ERGOM DCT TEGRI
     L605 GESBA/N0449F370 L605 NEKUL P975 ARTAT UP975 ERGUN G781
     ROVON M317 RADID L319 DASDO UL223 LAM G666 ORSAR DCT DESDI



ATC CLRN:  ....................................................................

           ....................................................................


RWY: .....  F: ....  DER: ....  ASS.TMP= ....  N1= ....  V1= ....  VR= ....  V2= ....

RWY: .....  F: ....  DER: ....  ASS.TMP= ....  N1= ....  V1= ....  VR= ....  V2= ....

ENG-OUT PROC.: ................................................................

               ................................................................

ALTIMETERS: ALTITUDE         CAPT .........     STBY .........     F/O .........
            FL .........     CAPT .........     STBY .........     F/O .........
```

ETOPS CROSSFEED CHECK: PRE-DEPARTURE: TIME ..... STATUS .....
(ETOPS FLIGHTS ONLY) LAST HOUR OF CRUISE FLIGHT: TIME ..... STATUS .....

AWY	COORD	WPT	/NAME	TM	MT	DIST	W/	TAS	FL	FU	FOB
G.MORA	N50:06.0	LKPR	PRAGUE/RUZYNE	TGO	MH	DTGO	V	GS	+ISA		16945
FIR	E014:15.6	1234ft		5:34		2514				aFU	aFOB
VOZ2B	N49:31.9	VOZ	VOZICE	11	141	68	277/	361	CLB	1135	16010
47	E014:52.5	116.95	....	5:23	144	2446	030	387	0		15584
LKAA										_____	_____
L993	N49:09.2	LIKSA	LIKSA	8	113	50	277/	361	CLB	1823	15322
43	E016:00.9		....	5:15	114	2396	030	387	0		14896
LKAA										_____	_____
L993	N49:00.0	IVOLI	IVOLI	3	114	19	277/	361	CLB	2084	15061
42	E016:27.5		....	5:12	115	2377	030	387	0		14635
LKAA										_____	_____
Z650	N48:57.2	-TOC-		1	114	6	277/	451	350	2166	14978
42	E016:35.6		....	5:11	115	2371	030	477	0		14552
										_____	_____
Z650	N48:47.0	PEPIK	FIR PEPIK	3	114	22	277/	451	350	2291	14854
46	E017:04.8		....	5:08	115	2349	030	477	0		14428
LKAA										_____	_____
DCT	N48:37.1	BERVA	BERVA	3	114	21	277/	451	350	2409	14736
46	E017:32.5		....	5:05	115	2328	030	477	0		14310
LZBB										_____	_____
DCT	N47:48.5	ERGOM	FIR ERGOM	9	130	68	278/	451	350	2793	14352
71	E018:44.0		....	4:56	132	2260	030	473	0		13926
LZBB										_____	_____
DCT	N46:15.8	TEGRI	FIR TEGRI	17	128	134	278/	451	350	3545	13599
42	E021:06.3		....	4:39	130	2126	029	472	0		13173
LHCC										_____	_____
L605	N45:55.4	GESBA	GESBA	4	120	35	278/	451	350	3740	13405
50	E021:47.4		....	4:35	121	2091	029	475	0		12979
LRBB										_____	_____
L605	N45:31.0	NEKUL	NEKUL	5	121	42	278/	449	370	4066	13079
103	E022:35.2		....	4:30	122	2049	030	473	0		12653
LRBB										_____	_____
P975	N44:45.8	UBOGU	UBOGU	13	111	99	276/	449	370	4610	12534
103	E024:40.1		....	4:17	112	1950	030	475	0		12108
LRBB										_____	_____
P975	N44:03.1	RONBU	FIR RONBU	11	112	89	274/	449	370	5098	12046
28	E026:29.9		....	4:06	113	1861	030	474	0		11621
LRBB										_____	_____
P975	N42:21.8	ARTAT	FIR ARTAT	22	119	170	272/	449	370	6023	11121
45	E029:37.5		....	3:44	121	1691	030	472	0		10696
LBSR										_____	_____
UP975	N42:00.0	ERMUP	ERMUP	8	103	66	267/	450	370	6376	10768
11	E031:01.4		....	3:36	104	1625	032	478	0		10343
LTBB										_____	_____

AWY G.MORA FIR	COORD	WPT FREQ	/NAME CT	AT	TM TTGO	MT MH	DIST DTGO	W/ V	TAS GS	FL +ISA	FU aFU	FOB mFOB aFOB
UP975	N41:49.8	ROKVA	ROKVA		4	104	30	267/	450	370	6537	10608
79	E031:39.4		....	....	3:32	105	1595	032	477	0		10182
LTAA											_____	_____
UP975	N41:41.7	UNVUS	UNVUS		3	104	23	267/	450	370	6660	10485
86	E032:08.5		....	....	3:29	105	1572	032	477	0		10059
LTAA											_____	_____
UP975	N41:40.2	ASMOB	ASMOB		1	105	4	267/	450	370	6681	10464
86	E032:14.0		....	....	3:28	106	1568	032	477	0		10038
LTAA											_____	_____
UP975	N41:38.7	RELTU	RELTU		1	104	5	267/	450	370	6708	10437
86	E032:19.4		....	....	3:27	105	1563	032	477	0		10011
LTAA											_____	_____
UP975	N41:35.6	APTOX	APTOX		1	105	8	267/	450	370	6750	10394
86	E032:30.3		....	....	3:26	106	1555	032	477	0		9969
LTAA											_____	_____
UP975	N41:27.2	TEPKI	TEPKI		3	105	24	264/	450	370	6878	10267
86	E032:59.6		....	....	3:23	106	1531	033	477	0		9841
LTAA											_____	_____
UP975	N41:21.1	PIPUR	PIPUR		2	113	13	264/	450	370	6948	10197
105	E033:14.3		....	....	3:21	115	1518	033	475	0		9771
LTAA											_____	_____
UP975	N41:17.5	ORMAN	ORMAN		1	112	7	264/	450	370	6985	10160
105	E033:23.1		....	....	3:20	114	1511	033	475	0		9734
LTAA											_____	_____
UP975	N40:44.8	ERGUN	ERGUN		9	112	70	264/	450	370	7357	9788
105	E034:44.3		....	....	3:11	114	1441	033	475	0		9362
LTAA											_____	_____
G781	N39:20.4	-FC1-	Fuel Check 1		32	101	257	259/	450	370	8688	8457
136	E040:02.0	113.50	....	....	2:39	103	1184	036	479	0		8031
LTAA											_____	_____
G781	N37:41.2	UMH	UROMIYEH		32	106	257	254/	450	370	9999	7146
156	E045:05.1	113.50	....	....	2:07	108	927	038	478	0		6720
LTAA											_____	_____
G781	N37:30.3	TUBAR	TUBAR		3	118	20	254/	450	370	10102	7043
118	E045:26.1		....	....	2:04	121	907	040	473	0		6617
OIIX											_____	_____
G781	N37:16.0	ROVON	ROVON		3	117	26	256/	450	370	10235	6910
118	E045:53.4		....	....	2:01	120	881	042	476	0		6484
OIIX											_____	_____
M317	N36:05.4	PAREX	PAREX		11	140	85	256/	450	370	10680	6464
141	E046:51.9		....	....	1:50	145	796	042	461	0		6038
OIIX											_____	_____
M317	N35:04.9	KEBEP	KEBEP		9	142	72	256/	450	370	11057	6088
128	E047:40.2		....	....	1:41	147	724	042	460	0		5662
OIIX											_____	_____

AWY G.MORA FIR	COORD	WPT FREQ	/NAME CT	AT	TM TTGO	MT MH	DIST DTGO	W/ V	TAS GS	FL +ISA	FU aFU	FOB mFOB aFOB
M317 156 OIIX	N33:17.7 E049:03.3	NOTSA	NOTSA	....	16 1:25	142 147	127 597	258/ 043	450 462	370 0	11712	5433 5007
M317 165 OIIX	N30:24.7 E051:26.2	RADID	RADID	....	27 0:58	140 145	212 385	260/ 044	450 466	370 0	12784	4361 3935
L319 165 OIIX	N30:14.3 E051:30.8	IMGOD	IMGOD	....	1 0:57	155 160	11 374	260/ 044	450 454	370 0	12841	4304 3878
L319 165 OIIX	N28:54.0 E052:05.9	DASDO	DASDO	....	11 0:46	156 161	86 288	262/ 044	450 456	370 0	13283	3862 3436
UL223 124 OIIX	N28:33.1 E052:20.9	LAGSA	LAGSA	....	3 0:43	145 150	24 264	262/ 044	449 463	370 0	13404	3741 3315
UL223 124 OIIX	N27:22.4 E053:11.0	LAM 117.00	LAMERD	....	11 0:32	145 150	84 180	263/ 044	449 464	370 0	13826	3319 2893
G666 91 OIIX	N26:48.7 E053:21.4	LVA 116.85	LAVAN ISLAND	....	5 0:27	163 168	35 145	263/ 043	449 451	370 0	14006	3139 2713
G666 51	N26:41.8 E053:27.8	-TOD-		....	2 0:25	138 142	9 136	263/ 043	449 469	370 0	14058	3087 2661
G666 51 OIIX	N26:33.5 E053:35.6	DATUT	DATUT	....	1 0:24	138 142	11 125	263/ 042	202 199	DSC 0	14078	3067 2641
G666 51 OIIX	N26:21.1 E053:45.0	ELIRA	ELIRA	....	3 0:21	144 151	15 110	263/ 042	202 199	DSC 0	14116	3028 2603
G666 51 OIIX	N26:04.5 E053:57.5	ORSAR	FIR ORSAR	....	4 0:17	144 151	19 91	263/ 042	202 199	DSC 0	14165	2980 2554
DCT 60 OMAE	N25:36.0 E054:42.5	DESDI	DESDI	....	9 0:08	123 128	50 41	263/ 042	202 199	DSC 0	14292	2852 2427
 38	N25:15.2 E055:21.9	OMDB 62ft		....	8 0:00	118 122	41 0	263/ 042	202 199	 0	14397	2748 2322

ADES ATIS: .....

.....

ROUTE TO ALTERNATE:

AWY G.MORA FIR	COORD	WPT FREQ	/NAME CT	AT	TM MT TTGO MH	DIST W/ DTGO V	TAS GS	FL +ISA	FU aFU	FOB mFOB aFOB
Alternate OMAL ANVIX R401 GIDIS G783 ALN										
SID	N25:14.9	C460F	SID WAYPOINT		0 123	1 261/	334	CLB	14407	2738
38	E055:22.3		....	....		039	359	0		2312
OMAE										
SID	N25:17.8	DB570	SID WAYPOINT		1 303	5 261/	334	CLB	14457	2688
38	E055:17.7		....	....		039	303	0		2262
OMAE										
SID	N25:13.7	DB575	SID WAYPOINT		2 235	7 261/	334	90	14527	2618
38	E055:10.9		....	....		039	296	0		2192
OMAE										
SID	N25:08.5	DB581	SID WAYPOINT		1 135	7 261/	334	90	14597	2548
38	E055:16.2		....	....		039	352	0		2122
OMAE										
SID	N25:06.5	DB571	SID WAYPOINT		1 118	4 261/	334	90	14637	2508
38	E055:19.9		....	....		039	361	0		2082
OMAE										
SID	N25:04.4	DB572	SID WAYPOINT		1 113	5 261/	334	90	14687	2458
38	E055:25.0		....	....		039	364	0		2032
OMAE										
SID	N25:01.2	ULADO	SID WAYPOINT		2 111	8 261/	334	90	14767	2378
38	E055:33.2		....	....		039	364	0		1952
OMAE										
SID	N24:56.5	RAPMO	SID WAYPOINT		2 119	9 261/	334	90	14857	2288
49	E055:41.9		....	....		039	361	0		1862
OMAE										
SID	N24:50.5	LOPUV	SID WAYPOINT		2 124	10 261/	334	90	14957	2188
49	E055:50.9		....	....		039	358	0		1762
OMAE										
SID	N24:46.9	ANVIX	SID WAYPOINT		2 125	6 261/	334	90	15017	2128
49	E055:56.3		....	....		039	358	0		1702
OMAE										
R401	N24:36.0	GIDIS	GIDIS		2 179	11 261/	334	90	15127	2018
49	E055:56.0		....	....		039	323	0		1592
OMAE										
G783	N24:22.4	DESVU	DESVU		4 219	18 261/	334	DSC	15307	1838
49	E055:42.9		....	....		039	301	0		1412
OMAE										
G783	N24:15.6	ALN	AL AIN		2 219	9 261/	334	DSC	15397	1748
49	E055:36.4	112.60	....	....		039	301	0		1322
OMAE										
STAR	N24:26.4	KEDAD	STAR WAYPOINT		3 008	11 261/	334	DSC	15507	1638
49	E055:38.5		....	....		039	343	0		1212
OMAE										
DCT	N24:15.7	OMAL	AL AIN INTL		2 187	11 261/	334	DSC	15617	1528
49	E055:36.6		....	....		039	318	0		1102

AWY	COORD	WPT	/NAME		TM	MT	DIST	W/	TAS	FL	FU	FOB
G.MORA		FREQ	CT	AT	TTGO	MH	DTGO	V	GS	+ISA		mFOB
FIR											aFU	aFOB

ICAO	NAME	WIND	FL	NM	MT	TIME	FUEL	---BLOCK---	
OMRK RKT	RAS AL KHAIMAH	263/ 42	110	63	053	0:17	730	6:21	16655
OMDW DWC	DUBAI/AL MAKTOU	263/ 42	80	48	205	0:14	572	6:18	16498
OMAA AUH	ABU DHABI INTL	261/ 39	140	88	216	0:23	1003	6:27	16928

FIR: EET/LZBB0026 LHCC0038 LRBB0055 LBSR0128 LTBB0150 LTAA0158 OIIX0322
OMAE0518

ENROUTE WINDS

IDENT	FL 260		FL 300		FL 340		FL 380		FL 410	
	W/V	TMP	W/V	TMP	W/V	TMP	W/V	TMP	W/V	TMP
VOZ	282/032	-37	275/029	-45	277/030	-53	277/031	-56	277/031	-56
LIKSA	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
IVOLI	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
-TOC-	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
PEPIK	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
BERVA	280/032	-37	276/029	-45	278/030	-53	277/030	-56	277/030	-56
ERGOM	280/032	-37	276/029	-45	278/030	-53	277/030	-56	277/030	-56
TEGRI	280/030	-37	276/027	-45	278/029	-53	277/030	-56	277/030	-56
GESBA	280/030	-37	276/027	-45	278/029	-53	277/030	-56	277/030	-56
NEKUL	278/030	-37	276/027	-45	277/029	-53	276/030	-56	276/030	-56
UBOGU	278/030	-37	275/027	-45	276/029	-53	274/030	-56	274/031	-56
RONBU	276/030	-37	275/027	-45	275/029	-53	273/030	-56	273/031	-56
ARTAT	272/032	-37	273/028	-45	271/030	-53	269/032	-56	269/033	-56
ERMUP	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
ROKVA	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
UNVUS	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
ASMOB	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
RELTU	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
APTOX	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
TEPKI	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
PIPUR	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
ORMAN	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
ERGUN	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
-FC1-	260/037	-37	253/034	-45	254/037	-53	255/038	-56	255/039	-56
UMH	259/038	-37	253/035	-45	254/038	-53	255/040	-56	255/041	-56
TUBAR	259/038	-37	253/035	-45	254/038	-53	255/040	-56	255/041	-56
ROVON	259/042	-37	254/037	-45	255/040	-53	256/042	-56	256/043	-56
PAREX	259/042	-37	254/037	-45	255/040	-53	256/042	-56	256/043	-56
KEBEP	260/042	-37	255/038	-45	256/041	-53	257/042	-56	257/043	-56
NOTSA	260/046	-37	257/039	-45	257/042	-53	258/043	-56	258/044	-56
RADID	263/049	-37	260/040	-45	260/043	-53	261/044	-56	261/045	-56
IMGOD	263/049	-37	260/040	-45	260/043	-53	261/044	-56	261/045	-56
DASDO	264/051	-37	261/040	-45	261/043	-53	262/045	-56	262/046	-56
LAGSA	264/051	-37	261/040	-45	261/043	-53	262/045	-56	262/046	-56
LAM	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
LVA	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
-TOD-	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
DATUT	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
ELIRA	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
ORSAR	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
DESDI	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56

ATC FPL:
(FPL-TVS-IS
-B738/M-SDFGHILORVWXYZ/LB1
-LKPR1900
-N0451F350 VOZ L993 IVOLI Z650 PEPIK DCT BERVA DCT ERGOM DCT
TEGRI L605 GESBA/N0449F370 L605 NEKUL P975 ARTAT UP975
ERGUN G781 ROVON M317 RADID L319 DASDO UL223 LAM G666 ORSAR
DCT DESDI
-OMDB0534 OMAL
-PBN/A1B1D1O1S2 COM/TCAS DOF/180507 REG/OKTVS EET/LZBB0026
LHCC0038 LRBB0055 LBSR0128 LTBB0150 LTAA0158 OIIX0322
OMAE0518 SEL/LRKP CODE/49D1CD RVR/200 OPR/TVS
ORGN/LKPRTVSX RALT/OKBK RMK/
-E/0648 P/180 R/UVE J/L
A/WHITE
C/)

Annex 3 - Scheduled - A320 - Current legislation

```
FLT: TVS        PLN PAX: 180   PLN CARGO: 0 KGS      DATE: 7.5.2018
NON-ETOPS   AC/ REG: A320 /OKHCA   PERF COEF: 1.034  CRTE: PRG-DXB1T
COMP.BY+TIME: MF D.M.YYYY/HH:MM          WX VALIDITY:  AVG. WIND

CAPT: ............. F/O:  .................   CTOT INFO: ..........
ADEP :RWY24 /PRAGUE-RUZYNE       LKPR/PRG 0000 Z/ FUEL PRICE=  OLD
ADES :RWY30 /DUBAI-DUBAI INTL    OMDB/DXB 0000 Z/ FUEL PRICE=  OLD
ALTN1:       AL AIN-AL AIN INTL  OMAL/AAN       / FUEL PRICE=  OLD
ALTN2:
3%ERA:       KUWAIT-KUWAIT INTL  OKBK/KWI       / FUEL PRICE=  OLD

ADEP ALTN:  ...................

VERT.PROF: FL330 KONUK/FL350

          TIME    FUEL DIST WCOMP  WDIR    ISA DEV      PLN     ACT
TRIP      05:34/ 15365 2578   23 308/ 22.1   0.0
ALTN1     00:28/  1281  140    0 360/  0.0   0.0
FIN.RES.  00:30/  1118  FMS RES  2399
CONT. 3%  00:10/   461                            ZFW  60624 ........
ADD.FUEL  00:00/     0  C30 CRUISE
TAXI     (00:10)   200                            FOB  18225 ........
MIN.FUEL  06:43/ 18425
COMP EXT  00:00/     0                            TOW  78849 ........
----------------------
FUEL SUM  06:43/ 18425                            TF   15365 ........
CAPT EXT        ......
TOT.FUEL        ......  DOW: ........ DOI: .....  LAW  63484 ........

ADEP   OFF BLOCK  ......    TAKEOFF  ......
ADES   IN BLOCK   ......    LANDING  ......
       BLOCK TIME ......    FLT TIME ......      FUEL REM   ........
-------------------------------------------------------------------
FL.PLANNING NOTICE:

ADEP ATIS: ..........................................................
           ..........................................................

RTE: LKPR VOZ2A VOZ L993 IVOLI Z650 PEPIK DCT BERVA DCT ERGOM DCT
     TEGRI L605 NEKUL P975 ARTAT UP975 ERGUN UL124 UMH G781 ROVON
     M317 RADID L319 DASDO UL223 LAM G666 ORSAR B416 DESDI DESDI1C
OMDB

ATC CLRN:  ..........................................................

           ..........................................................
-------------------------------------------------------------------
PERF     CURRENT LPCNG FILE:
----
RWY:.... F:... DER:.... FLX.TMP=.... N1=...  V1=.... VR=.... V2=....

RWY:.... F:... DER:.... FLX.TMP=.... N1=...  V1=.... VR=.... V2=....
```

ENG-OUT PROC.: .....

.....

RVSM:
ALTITUDE CAPT ..... STBY ..... F/O .....
FL ..... CAPT ..... STBY ..... F/O .....

AWY	COORD	WPT /NAME	TM	MT	DIST	W/	TAS	FL	FOB
G.MORA		FREQ CT AT	TTGO	MH	DTGO	V	GS	+ISA	mFOB
FIR								BURN/	act.
ADEP	N5006.1	LKPR /PRAHA/RUZYNE							18225
	E01415.6	....	05:34		2578				18225
								0/	_____
VOZ2A	N4931.9	VOZ /VOZICE	9	dep	60	325/	364	clb	17491
	E01452.5	11695	05:25	dep	2518	23	387	0	17469
								734/	_____
L993	N4909.2	LIKSA/LIKSA	8	112	50	296/	364	clb	16884
4100	E01600.9	....	05:17	112	2469	23	387	0	16844
								1341/	_____
L993	N4900.0	IVOLI/IVOLI	3	113	20	297/	364	clb	16641
4100	E01627.5	....	05:14	113	2449	23	387	0	16594
								1584/	_____
Z650	N4847.0	PEPIK/PEPIK	4	114	28	298/	364	clb	16303
4500	E01704.8	....	05:10	114	2421	23	387	0	16245
lzbb								1922/	_____
DCT		TOC /	3	114	16	298/	364	clb	16103
4500		....	05:08	118	2405	23	387	0	16039
								2122/	_____
DCT	N4837.1	BERVA/BERVA	1	114	5	298/	460	330	16075
4500	E01732.5	....	05:07	114	2400	23	483	0	16010
								2151/	_____
DCT	N4748.5	ERGOM/ERGOM	9	131	69	315/	460	330	15656
7100	E01844.0	....	04:58	131	2332	23	483	0	15579
lhcc								2569/	_____
DCT	N4615.8	TEGRI/TEGRI	17	128	134	313/	460	330	14840
4500	E02106.3	....	04:42	128	2197	23	483	0	14738
lrbb								3386/	_____
L605	N4555.4	GESBA/GESBA	4	120	35	305/	460	330	14630
5000	E02147.4	....	04:37	120	2163	23	483	0	14522
								3595/	_____
L605	N4531.0	NEKUL/NEKUL	5	121	41	305/	460	330	14382
10600	E02235.2	....	04:32	121	2121	23	483	0	14267
								3843/	_____
P975	N4445.8	UBOGU/UBOGU	12	112	99	297/	460	330	13787
10600	E02440.1	....	04:20	112	2022	23	483	0	13654
								4438/	_____
P975	N4403.1	RONBU/RONBU	11	113	89	298/	460	330	13260
3800	E02629.9	....	04:09	113	1933	23	483	0	13111
lbsr								4966/	_____
P975	N4221.8	ARTAT/ARTAT	21	120	171	306/	460	330	12249
4700	E02937.5	....	03:48	120	1762	23	483	0	12070
ltbb								5976/	_____
UP975	N4200.0	ERMUP/ERMUP	8	103	66	288/	460	330	11864

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1000   E03101.4        .... .... 03:40  103 1697  23  483    0 11673
ltaa                                                        6361/_____
UP975   N4149.8 ROKVA/ROKVA          4  106   30 291/ 460  330 11687
7800   E03139.4        .... .... 03:36  106 1666  23  483    0 11491
                                                            6538/_____
UP975   N4141.7 UNVUS/UNVUS          3  105   23 290/ 460  330 11552
8900   E03208.5        .... .... 03:33  105 1643  23  483    0 11352
                                                            6673/_____
UP975   N4140.2 ASMOB/ASMOB          1  098    5 283/ 460  330 11526
8900   E03214.0        .... .... 03:32  098 1639  23  483    0 11325
                                                            6700/_____
UP975   N4138.7 RELTU/RELTU          1  112    4 297/ 460  330 11501
8900   E03219.4        .... .... 03:32  112 1634  23  483    0 11299
                                                            6725/_____
UP975   N4135.6 APTOX/APTOX          1  105    9 290/ 460  330 11450
8900   E03230.3        .... .... 03:31  105 1626  23  483    0 11247
                                                            6775/_____
UP975   N4127.2 TEPKI/TEPKI          3  105   23 290/ 460  330 11315
8900   E03259.6        .... .... 03:28  105 1602  23  483    0 11108
                                                            6910/_____
UP975   N4121.1 PIPUR/PIPUR          2  113   13 298/ 460  330 11241
10900  E03314.3        .... .... 03:26  113 1590  23  483    0 11031
                                                            6984/_____
UP975   N4117.5 ORMAN/ORMAN          1  115    8 300/ 460  330 11196
10900  E03323.2        .... .... 03:25  115 1582  23  483    0 10985
                                                            7030/_____
UP975   N4044.8 ERGUN/ERGUN          9  113   70 298/ 460  330 10792
10900  E03444.3        .... .... 03:17  113 1512  23  483    0 10569
                                                            7433/_____
UL124   N4004.9 ASVOD/ASVOD         17  101  136 286/ 461  330 10009
11700  E03734.4        .... .... 03:00  101 1377  23  484    0  9763
                                                            8216/_____
UL124   N3930.7 KONUK/KONUK         12  105   94 291/ 461  330  9470
14100  E03928.1        .... .... 02:48  105 1283  23  484    0  9208
                                                            8755/_____
UL124   N3919.5 EVSAS/EVSAS          4  103   35 288/ 456  350  9226
14100  E04011.3        .... .... 02:44  103 1248  23  479    0  8956
                                                            8999/_____
UL124   N3828.0 VAN  /VAN           19  103  155 288/ 456  350  8356
15800  E04319.5 11520  .... .... 02:24  103 1093  23  479    0  8060
                                                            9869/_____
UL124   N3815.9 ZELSU/ZELSU          3  115   25 300/ 456  350  8215
14500  E04347.0        .... .... 02:21  115 1067  23  479    0  7915
                                                           10010/_____
UL124   N3802.9 BONAM/BONAM          3  113   28 298/ 456  350  8062
14500  E04418.0        .... .... 02:18  113 1040  23  479    0  7757
oiix                                                       10163/_____
UL124   N3753.0 TUDNU/TUDNU          3  109   23 294/ 456  350  7938
16000  E04444.8        .... .... 02:15  109 1017  23  479    0  7629
                                                           10288/_____
UL124   N3741.2 UMH  /UROMIYEH       3  121   20 306/ 456  350  7825
16000  E04505.1 11350  .... .... 02:12  121  997  23  479    0  7513
                                                           10400/_____
G781    N3730.3 TUBAR/TUBAR          2  118   20 303/ 456  350  7715
12200  E04526.2        .... .... 02:10  118  977  23  479    0  7400
                                                           10510/_____
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G781    N3716.0 ROVON/ROVON          3  118   26 303/ 456  350  7574
12200   E04553.4        .... .... 02:07  118  951  23  479    0  7254
                                                          10651/_____
M317    N3605.5 PAREX/PAREX         11  142   85 326/ 456  350  7108
14500   E04651.9        .... .... 01:56  142  866  23  479    0  6774
                                                          11117/_____
M317    N3504.9 KEBEP/KEBEP          9  142   73 327/ 456  350  6710
13500   E04740.2        .... .... 01:47  142  793  23  479    0  6365
                                                          11515/_____
M317    N3317.8 NOTSA/NOTSA         16  143  127 327/ 456  350  6018
15700   E04903.3        .... .... 01:31  143  666  23  479    0  5652
                                                          12207/_____
M317    N3024.9 RADID/RADID         26  142  211 324/ 456  350  4881
16900   E05125.7        .... .... 01:04  142  455  23  479    0  4480
                                                          13345/_____
L319    N3014.3 IMGOD/IMGOD          1  154   11 337/ 456  350  4822
16900   E05130.8        .... .... 01:03  154  444  23  479    0  4420
                                                          13403/_____
L319    N2854.0 DASDO/DASDO         11  156   86 339/ 456  350  4366
16900   E05205.9        .... .... 00:52  156  358  23  479    0  3951
                                                          13859/_____
UL223   N2833.1 LAGSA/LAGSA          3  145   25 328/ 456  350  4235
12800   E05220.9        .... .... 00:49  145  334  23  479    0  3815
                                                          13990/_____
UL223   N2722.4 LAM  /LAMERD        11  145   84 327/ 456  350  3790
12800   E05311.0 11700  .... .... 00:39  145  250  23  479    0  3357
                                                          14435/_____
G666    N2648.7 LVA  /LAVAN ISL      4  163   35 345/ 456  350  3605
9500    E05321.4 11685  .... .... 00:34  163  214  23  479    0  3166
                                                          14620/_____
G666    N2633.5 DATUT/DATUT          2  138   20 320/ 456  350  3502
5800    E05335.6        .... .... 00:32  138  195  23  479    0  3060
                                                          14723/_____
G666    N2621.1 ELIRA/ELIRA          2  142   15 323/ 456  350  3423
5800    E05345.0        .... .... 00:30  142  180  23  479    0  2979
                                                          14802/_____
G666    N2604.5 ORSAR/ORSAR          3  146   20 327/ 456  350  3318
5800    E05357.5        .... .... 00:27  146  160  23  479    0  2871
omae                                                      14908/_____
B416    N2551.9 PEBAT/PEBAT          3  116   27 298/ 456  350  3174
7300    E05424.0        .... .... 00:24  116  132  23  479    0  2722
                                                          15052/_____
B416            TOD  /               1  131    8 298/ 456  350  3130
1500                    .... .... 00:23  134  124  23  478    0  2677
                                                          15096/_____
B416    N2536.1 DESDI/DESDI          3  131   14 313/ 300  des  3100
1500    E05442.5        .... .... 00:20  131  110  23  323    0  2646
                                                          15126/_____
DESDI1C N2515.2 OMDB /DUBAI         20  arr  110 301/ 300  des  2860
        E05521.9        .... .... 00:00  arr    0  23  323    0  2399
                                                          15365/_____
-------------------------------------------------------------------

ADES ATIS: ..........................................................
           ..........................................................
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--------------------------------------------------------------------
FIR: LZBB0024 LHCC0036 LRBB0053 LBSR0125 LTBB0147 LTAA0155
     OIIX0317 OMAE0507/0027


## ALTN INFORMATION: ##
 ALTN AD ICAO/NAME        DIST TIME    TF   WCOMP   WDIR    ISA DEV
                          RTE / ALTN AVAILABILITY
--------------------------------------------------------------------
*OMAL/AL AIN-AL AIN INTL   140 00:28  1281     0  360/  0.0    0.0
          '->  RTE: ANVIX R401 GIDIS G783 ALN
          '--> AVAIL: H24

(* SIGN DENOTES ALTN USED FOR MIN.FUEL CALCULATION)
--------------------------------------------------------------------
3%ERA AD: OKBK/KUWAIT-KUWAIT INT
   AVAIL: H24
--------------------------------------------------------------------
## END ALTN INFORMATION ##


## COMPANY NOTAMS: ##
CNOTAM 1063A  [ISSUED 6.2.2017/MA, EFF:6.2.2017-UFN]
PRAGUE PRG/LKPR
TAKE OFF MINIMA RWY 12/30 RAISED TO RVR 800M ACCORDING TO CZECH CAA
AIP AD 1.1.4.10 - AOM. THIS CHANGE IS NOT YET INCORPORATED IN
JEPPESEN CHARTS. REVISED CHARTS WILL BE PUBLISHED AFTER CZECH CAA
PUBLISHES UPDATED REGULATION WITH CLARIFIED CONTENT.

CNOTAM 18R  [ISSUED 27.3.2015/PP, EFF:1.4.2015-UFN]
LKPR - SPECIAL NOISE ABATEMENT PROCEDURE
Please utilize the following departure procedure for B737 and A320:
 Take-off to 1500ft AAL:
  - Take-off thrust
  - Take-off flaps
  - Climb at V2 + 10kts (or as limited by max pitch attitude)
 At 1500ft AAL:
  - Reduce thrust to not less than climb thrust
  - Acceleration during climb and flaps retraction
  - Transition to normal climb speed
See also Nav. Warning 04/2015

CNOTAM 19R  [ISSUED 13.4.2015/PP, EFF:13.4.2015-UFN]
JEPPESEN E-LINK LOGIN DATA VALID UNTIL 21JUN:
  http://jeppesen.com/icharts/index.jsp
     login: PilotTVS
  password: A24Banshee


## END COMPANY NOTAMS ##

## WIND | +ISA SUMMARY ##
--------------------------------------------------------------------
WPT   |   FL180    |   FL240   |   FL300   |   FL340   |    FL390  |
--------------------------------------------------------------------
VOZ   |325/  23|  0|325/ 23|  0|325/ 23|  0|325/ 23|  0|325/ 23|  0|
```

LIKSA	296/	23	0	296/ 23	0	296/ 23	0	296/ 23	0	296/ 23	0
IVOLI	297/	23	0	297/ 23	0	297/ 23	0	297/ 23	0	297/ 23	0
PEPIK	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
BERVA	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ERGOM	315/	23	0	315/ 23	0	315/ 23	0	315/ 23	0	315/ 23	0
TEGRI	313/	23	0	313/ 23	0	313/ 23	0	313/ 23	0	313/ 23	0
GESBA	305/	23	0	305/ 23	0	305/ 23	0	305/ 23	0	305/ 23	0
NEKUL	305/	23	0	305/ 23	0	305/ 23	0	305/ 23	0	305/ 23	0
UBOGU	297/	23	0	297/ 23	0	297/ 23	0	297/ 23	0	297/ 23	0
RONBU	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ARTAT	306/	23	0	306/ 23	0	306/ 23	0	306/ 23	0	306/ 23	0
ERMUP	288/	23	0	288/ 23	0	288/ 23	0	288/ 23	0	288/ 23	0
ROKVA	291/	23	0	291/ 23	0	291/ 23	0	291/ 23	0	291/ 23	0
UNVUS	290/	23	0	290/ 23	0	290/ 23	0	290/ 23	0	290/ 23	0
ASMOB	283/	23	0	283/ 23	0	283/ 23	0	283/ 23	0	283/ 23	0
RELTU	297/	23	0	297/ 23	0	297/ 23	0	297/ 23	0	297/ 23	0
APTOX	290/	23	0	290/ 23	0	290/ 23	0	290/ 23	0	290/ 23	0
TEPKI	290/	23	0	290/ 23	0	290/ 23	0	290/ 23	0	290/ 23	0
PIPUR	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ORMAN	300/	23	0	300/ 23	0	300/ 23	0	300/ 23	0	300/ 23	0
ERGUN	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ASVOD	286/	23	0	286/ 23	0	286/ 23	0	286/ 23	0	286/ 23	0
KONUK	291/	23	0	291/ 23	0	291/ 23	0	291/ 23	0	291/ 23	0
EVSAS	288/	23	0	288/ 23	0	288/ 23	0	288/ 23	0	288/ 23	0
VAN	288/	23	0	288/ 23	0	288/ 23	0	288/ 23	0	288/ 23	0
ZELSU	300/	23	0	300/ 23	0	300/ 23	0	300/ 23	0	300/ 23	0
BONAM	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
TUDNU	294/	23	0	294/ 23	0	294/ 23	0	294/ 23	0	294/ 23	0
UMH	306/	23	0	306/ 23	0	306/ 23	0	306/ 23	0	306/ 23	0
TUBAR	303/	23	0	303/ 23	0	303/ 23	0	303/ 23	0	303/ 23	0
ROVON	303/	23	0	303/ 23	0	303/ 23	0	303/ 23	0	303/ 23	0
PAREX	326/	23	0	326/ 23	0	326/ 23	0	326/ 23	0	326/ 23	0
KEBEP	327/	23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
NOTSA	327/	23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
RADID	324/	23	0	324/ 23	0	324/ 23	0	324/ 23	0	324/ 23	0
IMGOD	337/	23	0	337/ 23	0	337/ 23	0	337/ 23	0	337/ 23	0
DASDO	339/	23	0	339/ 23	0	339/ 23	0	339/ 23	0	339/ 23	0
LAGSA	328/	23	0	328/ 23	0	328/ 23	0	328/ 23	0	328/ 23	0
LAM	327/	23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
LVA	345/	23	0	345/ 23	0	345/ 23	0	345/ 23	0	345/ 23	0
DATUT	320/	23	0	320/ 23	0	320/ 23	0	320/ 23	0	320/ 23	0
ELIRA	323/	23	0	323/ 23	0	323/ 23	0	323/ 23	0	323/ 23	0
ORSAR	327/	23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
PEBAT	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
DESDI	313/	23	0	313/ 23	0	313/ 23	0	313/ 23	0	313/ 23	0
OMDB	301/	23	0	301/ 23	0	301/ 23	0	301/ 23	0	301/ 23	0

END WIND | +ISA SUMMARY

Annex 4 - Scheduled - B737 - Current legislation

```
FLT    : TVS          PLN PAX  :  180   PLN CARGO: *PT-CARGO  Kg      DATE: 07.05.2018
AC/REG : B738 /OKTVS  PERF COEF:  4.3        CREW: *PT-CCPL    WX VALIDITY: 05071900
AC CONF: *PT-ACC      PANTRY   :  *PT-PTRY

CAPT : ..............  F/O: ..............  CTOT INFO: ........     TOTAL PERS: ........

ADEP : PRAGUE/RUZYNE     LKPR/PRG 19:00Z           RW30.VOZ2B.VOZ
ADES : DUBAI INTL        OMDB/DXB 00:32Z
ALTN1: AL AIN INTL       OMAL/AAN
ALTN2:                       /
ERA  : KUWAIT INTL       OKBK/KWI

ADEP ALTN:                       /                ADEP STAND: ............

VERT.PROF: LKPR/FL350/ARTAT/FL370/

           TIME    FUEL  GND DIST     AIR DIST    WCOMP     WDIR     ISA DEV   DOW/DOI
TRIP       5:32 / 14455      2514         2392      +22     264/036     -1     *PT-DOW
ALTN OMAL  0:27 /  1238      122                                               *PT-DOI
FIN.RES.   0:30 /  1120  FMS RES  2358
CONT.3%    0:10 /   434                          WEIGHTS PLN/ACT ZFW  60006 .......
ADD.FUEL   0:00 /     0  CRUISE  30
TAXI           /   200                                        FOB  17251 .......
MIN.FUEL   6:39 / 17447
COMP EXT   0:00 /     4 <<<<                                  TOW  77257 .......
---------------------
FUEL SUM   6:39 / 17451                                       TF   14455 .......
CAPT EXT         ......
TOT.FUEL         ......                                       LAW  62802 .......

ADEP  OFF BLOCK  ...... TAKEOFF  .......
ADES  IN BLOCK   ...... LANDING  .......
      BLOCK TIME ...... FLT TIME .......                      FUEL REM   .......
--------------------------------------------------------------------------------
FL.PLANNING NOTICE:


TANKERING RECOMMENDATIONS:    LOSS 176$/TON

TRIP FUEL MODIFICATIONS:              STATISTICAL EXTRA FUEL:       FUEL PRICE ADEP:
ZFW +/- 1000KG          162 Kg        NO. OF FLTS    : 55              *PT-FPRICEDEP
TRIP FUEL FOR +2000FT 14515 Kg       95% STAT       : -96          FUEL PRICE ADES:
TRIP FUEL FOR -2000FT 14477 Kg       99% STAT       : 33              *PT-FPRICEDES
                                     REMARK         :

ADEP ATIS: ....................................................................

           ....................................................................

RTE: LKPR VOZ L993 IVOLI Z650 PEPIK DCT BERVA DCT ERGOM DCT TEGRI
     L605 NEKUL P975 ARTAT/N0449F370 UP975 ERGUN G781 ROVON M317
     RADID L319 DASDO UL223 LAM G666 ORSAR DCT DESDI



ATC CLRN:  ....................................................................

           ....................................................................


RWY: .....  F: ....  DER: ....  ASS.TMP= ....  N1= ....  V1= ....  VR= ....  V2= ....

RWY: .....  F: ....  DER: ....  ASS.TMP= ....  N1= ....  V1= ....  VR= ....  V2= ....

ENG-OUT PROC.: ................................................................

               ................................................................

ALTIMETERS: ALTITUDE         CAPT .........     STBY .........     F/O .........
            FL .........     CAPT .........     STBY .........     F/O .........
```

ETOPS CROSSFEED CHECK: PRE-DEPARTURE: TIME ..... STATUS .....
(ETOPS FLIGHTS ONLY) LAST HOUR OF CRUISE FLIGHT: TIME ..... STATUS .....

AWY	COORD	WPT	/NAME	TM	MT	DIST	W/	TAS	FL	FU	FOB
G.MORA	N50:06.0	LKPR	PRAGUE/RUZYNE	TGO	MH	DTGO	V	GS	+ISA		17251
FIR	E014:15.6	1234ft		5:32		2514				aFU	aFOB
VOZ2B	N49:31.9	VOZ	VOZICE	10	141	68	277/	365	CLB	1127	16324
47	E014:52.5	116.95	....	5:22	144	2446	030	391	0		15886
LKAA										_____	_____
L993	N49:09.2	LIKSA	LIKSA	8	113	50	277/	365	CLB	1809	15642
43	E016:00.9		....	5:14	114	2396	030	391	0		15205
LKAA										_____	_____
L993	N49:00.0	IVOLI	IVOLI	3	114	19	277/	365	CLB	2068	15383
42	E016:27.5		....	5:11	115	2377	030	391	0		14946
LKAA										_____	_____
Z650	N48:54.4	-TOC-		2	114	12	277/	451	350	2231	15220
42	E016:43.6		....	5:09	115	2365	030	477	0		14782
										_____	_____
Z650	N48:47.0	PEPIK	FIR PEPIK	2	114	16	277/	451	350	2323	15128
46	E017:04.8		....	5:07	115	2349	030	477	0		14690
LKAA										_____	_____
DCT	N48:37.1	BERVA	BERVA	3	114	21	277/	451	350	2444	15007
46	E017:32.5		....	5:04	115	2328	030	477	0		14569
LZBB										_____	_____
DCT	N47:48.5	ERGOM	FIR ERGOM	9	130	68	278/	451	350	2836	14615
71	E018:44.0		....	4:55	132	2260	030	473	0		14177
LZBB										_____	_____
DCT	N46:15.8	TEGRI	FIR TEGRI	17	128	134	278/	451	350	3603	13848
42	E021:06.3		....	4:38	130	2126	029	472	0		13410
LHCC										_____	_____
L605	N45:55.4	GESBA	GESBA	4	120	35	278/	451	350	3802	13649
50	E021:47.4		....	4:34	121	2091	029	475	0		13211
LRBB										_____	_____
L605	N45:31.0	NEKUL	NEKUL	5	121	42	278/	451	350	4040	13411
103	E022:35.2		....	4:29	122	2049	029	474	0		12973
LRBB										_____	_____
P975	N44:45.8	UBOGU	UBOGU	12	111	99	277/	451	350	4596	12855
103	E024:40.1		....	4:17	112	1950	029	476	0		12417
LRBB										_____	_____
P975	N44:03.1	RONBU	FIR RONBU	11	112	89	275/	451	350	5092	12359
28	E026:29.9		....	4:06	113	1861	030	476	0		11921
LRBB										_____	_____
P975	N42:21.8	ARTAT	FIR ARTAT	22	119	170	274/	451	350	6034	11417
45	E029:37.5		....	3:44	121	1691	030	474	0		10979
LBSR										_____	_____
UP975	N42:00.0	ERMUP	ERMUP	8	103	66	267/	449	370	6483	10968
11	E031:01.4		....	3:36	104	1625	032	477	0		10530
LTBB										_____	_____

AWY G.MORA FIR	COORD	WPT FREQ	/NAME CT	AT	TM TTGO	MT MH	DIST DTGO	W/ V	TAS GS	FL +ISA	FU aFU	FOB mFOB aFOB
UP975	N41:49.8	ROKVA	ROKVA		4	104	30	267/	449	370	6647	10804
79	E031:39.4		....	....	3:32	105	1595	032	476	0		10366
LTAA												
UP975	N41:41.7	UNVUS	UNVUS		3	104	23	267/	449	370	6773	10678
86	E032:08.5		....	....	3:29	105	1572	032	476	0		10240
LTAA												
UP975	N41:40.2	ASMOB	ASMOB		1	105	4	267/	449	370	6795	10656
86	E032:14.0		....	....	3:28	106	1568	032	476	0		10218
LTAA												
UP975	N41:38.7	RELTU	RELTU		1	104	5	267/	449	370	6822	10629
86	E032:19.4		....	....	3:27	105	1563	032	476	0		10191
LTAA												
UP975	N41:35.6	APTOX	APTOX		1	105	8	267/	449	370	6866	10585
86	E032:30.3		....	....	3:26	106	1555	032	476	0		10148
LTAA												
UP975	N41:27.2	TEPKI	TEPKI		3	105	24	264/	449	370	6996	10455
86	E032:59.6		....	....	3:23	106	1531	033	476	0		10017
LTAA												
UP975	N41:21.1	PIPUR	PIPUR		2	113	13	264/	449	370	7067	10383
105	E033:14.3		....	....	3:21	115	1518	033	474	0		9946
LTAA												
UP975	N41:17.5	ORMAN	ORMAN		1	112	7	264/	449	370	7106	10345
105	E033:23.1		....	....	3:20	114	1511	033	474	0		9907
LTAA												
UP975	N40:44.8	ERGUN	ERGUN		9	112	70	264/	449	370	7486	9965
105	E034:44.3		....	....	3:11	114	1441	033	474	0		9527
LTAA												
G781	N39:20.4	-FC1-	Fuel Check 1		32	101	257	259/	450	370	8845	8606
136	E040:02.0	113.50	....	....	2:39	103	1184	036	479	0		8168
LTAA												
G781	N37:41.2	UMH	UROMIYEH		32	106	257	254/	450	370	10183	7268
156	E045:05.1	113.50	....	....	2:07	108	927	038	478	0		6830
LTAA												
G781	N37:30.3	TUBAR	TUBAR		3	118	20	254/	450	370	10288	7162
118	E045:26.1		....	....	2:04	121	907	040	473	0		6725
OIIX												
G781	N37:16.0	ROVON	ROVON		3	117	26	256/	450	370	10424	7027
118	E045:53.4		....	....	2:01	120	881	042	476	0		6589
OIIX												
M317	N36:05.4	PAREX	PAREX		11	140	85	256/	450	370	10879	6572
141	E046:51.9		....	....	1:50	145	796	042	461	0		6134
OIIX												
M317	N35:04.9	KEBEP	KEBEP		9	142	72	256/	450	370	11263	6188
128	E047:40.2		....	....	1:41	147	724	042	460	0		5750
OIIX												

AWY G.MORA FIR	COORD	WPT FREQ	/NAME CT	AT	TM TTGO	MT MH	DIST DTGO	W/ V	TAS GS	FL +ISA	FU aFU	FOB mFOB aFOB
M317 156 OIIX	N33:17.7 E049:03.3	NOTSA	NOTSA	....	16 1:25	142 147	127 597	258/ 043	450 462	370 0	11932	5519 5081
M317 165 OIIX	N30:24.7 E051:26.2	RADID	RADID	....	27 0:58	140 145	212 385	260/ 044	450 466	370 0	13022	4429 3991
L319 165 OIIX	N30:14.3 E051:30.8	IMGOD	IMGOD	....	1 0:57	155 160	11 374	260/ 044	450 454	370 0	13080	4371 3933
L319 165 OIIX	N28:54.0 E052:05.9	DASDO	DASDO	....	11 0:46	156 161	86 288	262/ 044	450 456	370 0	13529	3921 3484
UL223 124 OIIX	N28:33.1 E052:20.9	LAGSA	LAGSA	....	3 0:43	145 150	24 264	262/ 044	450 464	370 0	13652	3798 3361
UL223 124 OIIX	N27:22.4 E053:11.0	LAM 117.00	LAMERD	....	11 0:32	145 150	84 180	263/ 044	450 465	370 0	14080	3371 2933
G666 91 OIIX	N26:48.7 E053:21.4	LVA 116.85	LAVAN ISLAND	....	5 0:27	163 168	35 145	263/ 043	450 452	370 0	14263	3188 2750
G666 51	N26:41.8 E053:27.8	-TOD-		....	2 0:25	138 142	9 136	263/ 043	450 470	370 0	14316	3135 2697
G666 51 OIIX	N26:33.5 E053:35.6	DATUT	DATUT	....	1 0:24	138 142	11 125	263/ 042	202 199	DSC 0	14336	3115 2677
G666 51 OIIX	N26:21.1 E053:45.0	ELIRA	ELIRA	....	3 0:21	144 151	15 110	263/ 042	202 199	DSC 0	14374	3077 2639
G666 51 OIIX	N26:04.5 E053:57.5	ORSAR	FIR ORSAR	....	4 0:17	144 151	19 91	263/ 042	202 199	DSC 0	14422	3028 2591
DCT 60 OMAE	N25:36.0 E054:42.5	DESDI	DESDI	....	9 0:08	123 128	50 41	263/ 042	202 199	DSC 0	14550	2901 2463
 38	N25:15.2 E055:21.9	OMDB 62ft		....	8 0:00	118 122	41 0	263/ 042	202 199	 0	14655	2796 2358

ADES ATIS: .....

.....

ROUTE TO ALTERNATE:

AWY G.MORA FIR	COORD	WPT FREQ	/NAME CT	AT	TM MT TTGO MH	DIST DTGO	W/ V	TAS GS	FL +ISA	FU aFU	FOB mFOB aFOB
Alternate OMAL ANVIX R401 GIDIS G783 ALN											
SID 38 OMAE	N25:14.9 E055:22.3	C460F	SID WAYPOINT	....	0 123	1	261/ 039	336 361	CLB 0	14665	2786 2348
SID 38 OMAE	N25:17.8 E055:17.7	DB570	SID WAYPOINT	....	1 303	5	261/ 039	336 305	CLB 0	14716	2735 2298
SID 38 OMAE	N25:13.7 E055:10.9	DB575	SID WAYPOINT	....	2 235	7	261/ 039	336 298	90 0	14787	2664 2227
SID 38 OMAE	N25:08.5 E055:16.2	DB581	SID WAYPOINT	....	1 135	7	261/ 039	336 354	90 0	14858	2593 2155
SID 38 OMAE	N25:06.5 E055:19.9	DB571	SID WAYPOINT	....	1 118	4	261/ 039	336 363	90 0	14898	2553 2115
SID 38 OMAE	N25:04.4 E055:25.0	DB572	SID WAYPOINT	....	1 113	5	261/ 039	336 366	90 0	14949	2502 2064
SID 38 OMAE	N25:01.2 E055:33.2	ULADO	SID WAYPOINT	....	2 111	8	261/ 039	336 366	90 0	15030	2421 1983
SID 49 OMAE	N24:56.5 E055:41.9	RAPMO	SID WAYPOINT	....	2 119	9	261/ 039	336 363	90 0	15121	2329 1892
SID 49 OMAE	N24:50.5 E055:50.9	LOPUV	SID WAYPOINT	....	2 124	10	261/ 039	336 360	90 0	15223	2228 1790
SID 49 OMAE	N24:46.9 E055:56.3	ANVIX	SID WAYPOINT	....	2 125	6	261/ 039	336 360	90 0	15284	2167 1729
R401 49 OMAE	N24:36.0 E055:56.0	GIDIS	GIDIS	....	2 179	11	261/ 039	336 325	90 0	15395	2055 1618
G783 49 OMAE	N24:22.4 E055:42.9	DESVU	DESVU	....	4 219	18	261/ 039	336 303	DSC 0	15578	1873 1435
G783 49 OMAE	N24:15.6 E055:36.4	ALN 112.60	AL AIN	....	2 219	9	261/ 039	336 303	DSC 0	15669	1781 1344
STAR 49 OMAE	N24:26.4 E055:38.5	KEDAD	STAR WAYPOINT	....	3 008	11	261/ 039	336 345	DSC 0	15781	1670 1232
DCT 49	N24:15.7 E055:36.6	OMAL	AL AIN INTL	....	2 187	11	261/ 039	336 320	DSC 0	15893	1558 1120

AWY	COORD	WPT	/NAME		TM	MT	DIST	W/	TAS	FL	FU	FOB
G.MORA		FREQ	CT	AT	TTGO	MH	DTGO	V	GS	+ISA		mFOB
FIR											aFU	aFOB

ICAO	NAME	WIND	FL	NM	MT	TIME	FUEL	---BLOCK---	
OMRK RKT	RAS AL KHAIMAH	263/ 42	110	63	053	0:17	746	6:19	16955
OMDW DWC	DUBAI/AL MAKTOU	263/ 42	80	48	205	0:13	575	6:15	16784
OMAA AUH	ABU DHABI INTL	261/ 39	140	88	216	0:22	1012	6:24	17220

FIR: EET/LZBB0025 LHCC0037 LRBB0054 LBSR0126 LTBB0148 LTAA0156 OIIX0320
OMAE0516

ENROUTE WINDS

IDENT	FL 260		FL 300		FL 340		FL 380		FL 410	
	W/V	TMP	W/V	TMP	W/V	TMP	W/V	TMP	W/V	TMP
VOZ	282/032	-37	275/029	-45	277/030	-53	277/031	-56	277/031	-56
LIKSA	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
IVOLI	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
-TOC-	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
PEPIK	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
BERVA	280/032	-37	276/029	-45	278/030	-53	277/030	-56	277/030	-56
ERGOM	280/032	-37	276/029	-45	278/030	-53	277/030	-56	277/030	-56
TEGRI	280/030	-37	276/027	-45	278/029	-53	277/030	-56	277/030	-56
GESBA	280/030	-37	276/027	-45	278/029	-53	277/030	-56	277/030	-56
NEKUL	278/030	-37	276/027	-45	277/029	-53	276/030	-56	276/030	-56
UBOGU	278/030	-37	275/027	-45	276/029	-53	274/030	-56	274/031	-56
RONBU	276/030	-37	275/027	-45	275/029	-53	273/030	-56	273/031	-56
ARTAT	272/032	-37	273/028	-45	271/030	-53	269/032	-56	269/033	-56
ERMUP	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
ROKVA	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
UNVUS	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
ASMOB	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
RELTU	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
APTOX	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
TEPKI	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
PIPUR	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
ORMAN	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
ERGUN	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
-FC1-	260/037	-37	253/034	-45	254/037	-53	255/038	-56	255/039	-56
UMH	259/038	-37	253/035	-45	254/038	-53	255/040	-56	255/041	-56
TUBAR	259/038	-37	253/035	-45	254/038	-53	255/040	-56	255/041	-56
ROVON	259/042	-37	254/037	-45	255/040	-53	256/042	-56	256/043	-56
PAREX	259/042	-37	254/037	-45	255/040	-53	256/042	-56	256/043	-56
KEBEP	260/042	-37	255/038	-45	256/041	-53	257/042	-56	257/043	-56
NOTSA	260/046	-37	257/039	-45	257/042	-53	258/043	-56	258/044	-56
RADID	263/049	-37	260/040	-45	260/043	-53	261/044	-56	261/045	-56
IMGOD	263/049	-37	260/040	-45	260/043	-53	261/044	-56	261/045	-56
DASDO	264/051	-37	261/040	-45	261/043	-53	262/045	-56	262/046	-56
LAGSA	264/051	-37	261/040	-45	261/043	-53	262/045	-56	262/046	-56
LAM	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
LVA	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
-TOD-	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
DATUT	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
ELIRA	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
ORSAR	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
DESDI	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56

ATC FPL:
(FPL-TVS-IS
-B738/M-SDFGHILORVWXYZ/LB1
-LKPR1900
-N0451F350 VOZ L993 IVOLI Z650 PEPIK DCT BERVA DCT ERGOM DCT
TEGRI L605 NEKUL P975 ARTAT/N0449F370 UP975 ERGUN G781
ROVON M317 RADID L319 DASDO UL223 LAM G666 ORSAR DCT DESDI
-OMDB0532 OMAL
-PBN/A1B1D1O1S2 COM/TCAS DOF/180507 REG/OKTVS EET/LZBB0025
LHCC0037 LRBB0054 LBSR0126 LTBB0148 LTAA0156 OIIX0320
OMAE0516 SEL/LRKP CODE/49D1CD RVR/200 OPR/TVS
ORGN/LKPRTVSX RALT/OKBK RMK/
-E/0646 P/180 R/UVE J/L
A/WHITE
C/)

Annex 5 - Holiday charter - A320 - Research data

```
FLT: TVS        PLN PAX: 180   PLN CARGO: 0 KGS      DATE: 7.5.2018
NON-ETOPS   AC/ REG: A320 /OKHCA   PERF COEF: 1.034  CRTE: PRG-DXB1T
COMP.BY+TIME: MF D.M.YYYY/HH:MM          WX VALIDITY:  AVG. WIND

CAPT: ............. F/O:  .................   CTOT INFO: ..........
ADEP :RWY24 /PRAGUE-RUZYNE       LKPR/PRG 0000 Z/ FUEL PRICE=  OLD
ADES :RWY30 /DUBAI-DUBAI INTL    OMDB/DXB 0000 Z/ FUEL PRICE=  OLD
ALTN1:       AL AIN-AL AIN INTL  OMAL/AAN       / FUEL PRICE=  OLD
ALTN2:
3%ERA:       KUWAIT-KUWAIT INTL  OKBK/KWI       / FUEL PRICE=  OLD

ADEP ALTN:  ...................

VERT.PROF: FL330 KONUK/FL350

          TIME    FUEL DIST WCOMP  WDIR    ISA DEV      PLN     ACT
TRIP     05:34/ 15319 2578   23 308/ 22.1   0.0
ALTN1    00:28/  1281  140    0 360/  0.0   0.0
FIN.RES. 00:30/  1104  FMS RES  2385
CONT. 3% 00:10/   460                            ZFW  60408 ........
ADD.FUEL 00:00/     0  C30 CRUISE
TAXI    (00:10)   200                            FOB  18163 ........
MIN.FUEL 06:43/ 18363
COMP EXT 00:00/     0                            TOW  78572 ........
---------------------
FUEL SUM 06:43/ 18363                            TF   15319 ........
CAPT EXT       ......
TOT.FUEL       ......  DOW: ........ DOI: .....  LAW  63252 ........

ADEP   OFF BLOCK  ......    TAKEOFF  ......
ADES   IN BLOCK   ......    LANDING  ......
       BLOCK TIME ......    FLT TIME ......      FUEL REM   ........
-------------------------------------------------------------------
FL.PLANNING NOTICE:

ADEP ATIS: ..........................................................
           ..........................................................

RTE: LKPR VOZ2A VOZ L993 IVOLI Z650 PEPIK DCT BERVA DCT ERGOM DCT
     TEGRI L605 NEKUL P975 ARTAT UP975 ERGUN UL124 UMH G781 ROVON
     M317 RADID L319 DASDO UL223 LAM G666 ORSAR B416 DESDI DESDI1C
OMDB

ATC CLRN:  ..........................................................

           ..........................................................
-------------------------------------------------------------------
PERF     CURRENT LPCNG FILE:
----
RWY:.... F:... DER:.... FLX.TMP=.... N1=...  V1=.... VR=.... V2=....

RWY:.... F:... DER:.... FLX.TMP=.... N1=...  V1=.... VR=.... V2=....
```

ENG-OUT PROC.: .....

.....

RVSM:
ALTITUDE CAPT ..... STBY ..... F/O .....
FL ..... CAPT ..... STBY ..... F/O .....

AWY	COORD	WPT /NAME	TM	MT	DIST	W/	TAS	FL	FOB
G.MORA		FREQ CT AT	TTGO	MH	DTGO	V	GS	+ISA	mFOB
FIR								BURN/	act.
ADEP	N5006.1	LKPR /PRAHA/RUZYNE							18163
	E01415.6	....	05:34		2578				18163
								0/	_____
VOZ2A	N4931.9	VOZ /VOZICE	9	dep	60	325/	365	clb	17427
	E01452.5	11695	05:25	dep	2518	23	388	0	17405
								736/	_____
L993	N4909.2	LIKSA/LIKSA	8	112	50	296/	365	clb	16819
4100	E01600.9	....	05:17	112	2469	23	387	0	16779
								1344/	_____
L993	N4900.0	IVOLI/IVOLI	3	113	20	297/	365	clb	16576
4100	E01627.5	....	05:14	113	2449	23	387	0	16528
								1588/	_____
Z650	N4847.0	PEPIK/PEPIK	4	114	28	298/	365	clb	16236
4500	E01704.8	....	05:10	114	2421	23	388	0	16179
lzbb								1927/	_____
DCT		TOC /	2	114	15	298/	365	clb	16058
4500		....	05:08	118	2407	23	388	0	15995
								2106/	_____
DCT	N4837.1	BERVA/BERVA	1	114	6	298/	460	330	16019
4500	E01732.5	....	05:07	114	2400	23	483	0	15954
								2145/	_____
DCT	N4748.5	ERGOM/ERGOM	9	131	69	315/	460	330	15601
7100	E01844.0	....	04:58	131	2332	23	483	0	15524
lhcc								2562/	_____
DCT	N4615.8	TEGRI/TEGRI	17	128	134	313/	460	330	14788
4500	E02106.3	....	04:42	128	2197	23	483	0	14686
lrbb								3376/	_____
L605	N4555.4	GESBA/GESBA	4	120	35	305/	460	330	14579
5000	E02147.4	....	04:37	120	2163	23	483	0	14471
								3585/	_____
L605	N4531.0	NEKUL/NEKUL	5	121	41	305/	460	330	14332
10600	E02235.2	....	04:32	121	2121	23	483	0	14217
								3832/	_____
P975	N4445.8	UBOGU/UBOGU	12	112	99	297/	460	330	13738
10600	E02440.1	....	04:20	112	2022	23	483	0	13605
								4426/	_____
P975	N4403.1	RONBU/RONBU	11	113	89	298/	460	330	13212
3800	E02629.9	....	04:09	113	1933	23	483	0	13064
lbsr								4951/	_____
P975	N4221.8	ARTAT/ARTAT	21	120	171	306/	460	330	12204
4700	E02937.5	....	03:48	120	1762	23	483	0	12026
ltbb								5959/	_____
UP975	N4200.0	ERMUP/ERMUP	8	103	66	288/	460	330	11820

```
1000   E03101.4          .... .... 03:40  103 1697  23  483    0 11630
ltaa                                                          6343/_____
UP975   N4149.8 ROKVA/ROKVA          4  106   30 291/ 460  330 11643
7800   E03139.4          .... .... 03:36  106 1666  23  483    0 11448
                                                              6520/_____
UP975   N4141.7 UNVUS/UNVUS          3  105   23 290/ 460  330 11509
8900   E03208.5          .... .... 03:33  105 1643  23  483    0 11310
                                                              6654/_____
UP975   N4140.2 ASMOB/ASMOB          1  098    5 283/ 460  330 11482
8900   E03214.0          .... .... 03:32  098 1639  23  483    0 11282
                                                              6681/_____
UP975   N4138.7 RELTU/RELTU          1  112    4 297/ 460  330 11458
8900   E03219.4          .... .... 03:32  112 1634  23  483    0 11256
                                                              6706/_____
UP975   N4135.6 APTOX/APTOX          1  105    9 290/ 460  330 11407
8900   E03230.3          .... .... 03:31  105 1626  23  483    0 11204
                                                              6757/_____
UP975   N4127.2 TEPKI/TEPKI          3  105   23 290/ 460  330 11272
8900   E03259.6          .... .... 03:28  105 1602  23  483    0 11066
                                                              6891/_____
UP975   N4121.1 PIPUR/PIPUR          2  113   13 298/ 460  330 11199
10900  E03314.3          .... .... 03:26  113 1590  23  483    0 10990
                                                              6965/_____
UP975   N4117.5 ORMAN/ORMAN          1  115    8 300/ 460  330 11154
10900  E03323.2          .... .... 03:25  115 1582  23  483    0 10943
                                                              7010/_____
UP975   N4044.8 ERGUN/ERGUN          9  113   70 298/ 460  330 10751
10900  E03444.3          .... .... 03:17  113 1512  23  483    0 10529
                                                              7412/_____
UL124   N4004.9 ASVOD/ASVOD         17  101  136 286/ 461  330  9971
11700  E03734.4          .... .... 03:00  101 1377  23  484    0  9725
                                                              8193/_____
UL124   N3930.7 KONUK/KONUK         12  105   94 291/ 460  330  9433
14100  E03928.1          .... .... 02:48  105 1283  23  483    0  9171
                                                              8731/_____
UL124   N3919.5 EVSAS/EVSAS          4  103   35 288/ 456  350  9194
14100  E04011.3          .... .... 02:44  103 1248  23  479    0  8925
                                                              8970/_____
UL124   N3828.0 VAN  /VAN           19  103  155 288/ 456  350  8327
15800  E04319.5 11520    .... .... 02:24  103 1093  23  479    0  8032
                                                              9837/_____
UL124   N3815.9 ZELSU/ZELSU          3  115   25 300/ 456  350  8186
14500  E04347.0          .... .... 02:21  115 1067  23  479    0  7887
                                                              9977/_____
UL124   N3802.9 BONAM/BONAM          3  113   28 298/ 456  350  8033
14500  E04418.0          .... .... 02:18  113 1040  23  479    0  7730
oiix                                                         10130/_____
UL124   N3753.0 TUDNU/TUDNU          3  109   23 294/ 456  350  7909
16000  E04444.8          .... .... 02:15  109 1017  23  479    0  7602
                                                             10254/_____
UL124   N3741.2 UMH  /UROMIYEH       3  121   20 306/ 456  350  7797
16000  E04505.1 11350    .... .... 02:12  121  997  23  479    0  7486
                                                             10366/_____
G781    N3730.3 TUBAR/TUBAR          2  118   20 303/ 456  350  7688
12200  E04526.2          .... .... 02:10  118  977  23  479    0  7373
                                                             10476/_____
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G781    N3716.0 ROVON/ROVON          3  118   26 303/ 456  350  7547
12200   E04553.4        .... .... 02:07  118  951  23  479    0  7228
                                                          10617/_____
M317    N3605.5 PAREX/PAREX         11  142   85 326/ 456  350  7082
14500   E04651.9        .... .... 01:56  142  866  23  479    0  6750
                                                          11081/_____
M317    N3504.9 KEBEP/KEBEP          9  142   73 327/ 456  350  6685
13500   E04740.2        .... .... 01:47  142  793  23  479    0  6341
                                                          11478/_____
M317    N3317.8 NOTSA/NOTSA         16  143  127 327/ 456  350  5996
15700   E04903.3        .... .... 01:31  143  666  23  479    0  5631
                                                          12168/_____
M317    N3024.9 RADID/RADID         26  142  211 324/ 456  350  4861
16900   E05125.7        .... .... 01:04  142  455  23  479    0  4462
                                                          13302/_____
L319    N3014.3 IMGOD/IMGOD          1  154   11 337/ 456  350  4803
16900   E05130.8        .... .... 01:03  154  444  23  479    0  4402
                                                          13361/_____
L319    N2854.0 DASDO/DASDO         11  156   86 339/ 456  350  4348
16900   E05205.9        .... .... 00:52  156  358  23  479    0  3934
                                                          13815/_____
UL223   N2833.1 LAGSA/LAGSA          3  145   25 328/ 456  350  4217
12800   E05220.9        .... .... 00:49  145  334  23  479    0  3799
                                                          13946/_____
UL223   N2722.4 LAM  /LAMERD        11  145   84 327/ 456  350  3773
12800   E05311.0 11700  .... .... 00:39  145  250  23  479    0  3342
                                                          14390/_____
G666    N2648.7 LVA  /LAVAN ISL      4  163   35 345/ 456  350  3589
9500    E05321.4 11685  .... .... 00:34  163  214  23  479    0  3151
                                                          14575/_____
G666    N2633.5 DATUT/DATUT          2  138   20 320/ 456  350  3486
5800    E05335.6        .... .... 00:32  138  195  23  479    0  3045
                                                          14678/_____
G666    N2621.1 ELIRA/ELIRA          2  142   15 323/ 456  350  3407
5800    E05345.0        .... .... 00:30  142  180  23  479    0  2965
                                                          14756/_____
G666    N2604.5 ORSAR/ORSAR          3  146   20 327/ 456  350  3302
5800    E05357.5        .... .... 00:27  146  160  23  479    0  2856
omae                                                      14862/_____
B416    N2551.9 PEBAT/PEBAT          3  116   27 298/ 456  350  3158
7300    E05424.0        .... .... 00:24  116  132  23  479    0  2708
                                                          15005/_____
B416            TOD  /               1  131    8 298/ 456  350  3114
1500                    .... .... 00:23  134  124  23  478    0  2663
                                                          15049/_____
B416    N2536.1 DESDI/DESDI          3  131   14 313/ 300  des  3084
1500    E05442.5        .... .... 00:20  131  110  23  323    0  2632
                                                          15079/_____
DESDI1C N2515.2 OMDB /DUBAI         20  arr  110 301/ 300  des  2844
        E05521.9        .... .... 00:00  arr    0  23  323    0  2385
                                                          15319/_____
-------------------------------------------------------------------

ADES ATIS: ..........................................................
           ..........................................................
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--------------------------------------------------------------------
FIR: LZBB0024 LHCC0036 LRBB0053 LBSR0125 LTBB0147 LTAA0155
     OIIX0317 OMAE0507/0027


## ALTN INFORMATION: ##
 ALTN AD ICAO/NAME        DIST TIME    TF   WCOMP   WDIR    ISA DEV
                          RTE / ALTN AVAILABILITY
--------------------------------------------------------------------
*OMAL/AL AIN-AL AIN INTL   140 00:28  1281     0  360/  0.0    0.0
          '->  RTE: ANVIX R401 GIDIS G783 ALN
          '--> AVAIL: H24

(* SIGN DENOTES ALTN USED FOR MIN.FUEL CALCULATION)
--------------------------------------------------------------------
3%ERA AD: OKBK/KUWAIT-KUWAIT INT
   AVAIL: H24
--------------------------------------------------------------------
## END ALTN INFORMATION ##


## COMPANY NOTAMS: ##
CNOTAM 1063A  [ISSUED 6.2.2017/MA, EFF:6.2.2017-UFN]
PRAGUE PRG/LKPR
TAKE OFF MINIMA RWY 12/30 RAISED TO RVR 800M ACCORDING TO CZECH CAA
AIP AD 1.1.4.10 - AOM. THIS CHANGE IS NOT YET INCORPORATED IN
JEPPESEN CHARTS. REVISED CHARTS WILL BE PUBLISHED AFTER CZECH CAA
PUBLISHES UPDATED REGULATION WITH CLARIFIED CONTENT.

CNOTAM 18R  [ISSUED 27.3.2015/PP, EFF:1.4.2015-UFN]
LKPR - SPECIAL NOISE ABATEMENT PROCEDURE
Please utilize the following departure procedure for B737 and A320:
 Take-off to 1500ft AAL:
  - Take-off thrust
  - Take-off flaps
  - Climb at V2 + 10kts (or as limited by max pitch attitude)
 At 1500ft AAL:
  - Reduce thrust to not less than climb thrust
  - Acceleration during climb and flaps retraction
  - Transition to normal climb speed
See also Nav. Warning 04/2015

CNOTAM 19R  [ISSUED 13.4.2015/PP, EFF:13.4.2015-UFN]
JEPPESEN E-LINK LOGIN DATA VALID UNTIL 21JUN:
  http://jeppesen.com/icharts/index.jsp
     login: PilotTVS
  password: A24Banshee


## END COMPANY NOTAMS ##

## WIND | +ISA SUMMARY ##
--------------------------------------------------------------------
WPT   |   FL180    |   FL240   |   FL300   |   FL340   |    FL390  |
--------------------------------------------------------------------
VOZ   |325/  23|  0|325/ 23|  0|325/ 23|  0|325/ 23|  0|325/ 23|  0|
```

LIKSA	296/	23	0	296/ 23	0	296/ 23	0	296/ 23	0	296/ 23	0
IVOLI	297/	23	0	297/ 23	0	297/ 23	0	297/ 23	0	297/ 23	0
PEPIK	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
BERVA	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ERGOM	315/	23	0	315/ 23	0	315/ 23	0	315/ 23	0	315/ 23	0
TEGRI	313/	23	0	313/ 23	0	313/ 23	0	313/ 23	0	313/ 23	0
GESBA	305/	23	0	305/ 23	0	305/ 23	0	305/ 23	0	305/ 23	0
NEKUL	305/	23	0	305/ 23	0	305/ 23	0	305/ 23	0	305/ 23	0
UBOGU	297/	23	0	297/ 23	0	297/ 23	0	297/ 23	0	297/ 23	0
RONBU	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ARTAT	306/	23	0	306/ 23	0	306/ 23	0	306/ 23	0	306/ 23	0
ERMUP	288/	23	0	288/ 23	0	288/ 23	0	288/ 23	0	288/ 23	0
ROKVA	291/	23	0	291/ 23	0	291/ 23	0	291/ 23	0	291/ 23	0
UNVUS	290/	23	0	290/ 23	0	290/ 23	0	290/ 23	0	290/ 23	0
ASMOB	283/	23	0	283/ 23	0	283/ 23	0	283/ 23	0	283/ 23	0
RELTU	297/	23	0	297/ 23	0	297/ 23	0	297/ 23	0	297/ 23	0
APTOX	290/	23	0	290/ 23	0	290/ 23	0	290/ 23	0	290/ 23	0
TEPKI	290/	23	0	290/ 23	0	290/ 23	0	290/ 23	0	290/ 23	0
PIPUR	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ORMAN	300/	23	0	300/ 23	0	300/ 23	0	300/ 23	0	300/ 23	0
ERGUN	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ASVOD	286/	23	0	286/ 23	0	286/ 23	0	286/ 23	0	286/ 23	0
KONUK	291/	23	0	291/ 23	0	291/ 23	0	291/ 23	0	291/ 23	0
EVSAS	288/	23	0	288/ 23	0	288/ 23	0	288/ 23	0	288/ 23	0
VAN	288/	23	0	288/ 23	0	288/ 23	0	288/ 23	0	288/ 23	0
ZELSU	300/	23	0	300/ 23	0	300/ 23	0	300/ 23	0	300/ 23	0
BONAM	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
TUDNU	294/	23	0	294/ 23	0	294/ 23	0	294/ 23	0	294/ 23	0
UMH	306/	23	0	306/ 23	0	306/ 23	0	306/ 23	0	306/ 23	0
TUBAR	303/	23	0	303/ 23	0	303/ 23	0	303/ 23	0	303/ 23	0
ROVON	303/	23	0	303/ 23	0	303/ 23	0	303/ 23	0	303/ 23	0
PAREX	326/	23	0	326/ 23	0	326/ 23	0	326/ 23	0	326/ 23	0
KEBEP	327/	23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
NOTSA	327/	23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
RADID	324/	23	0	324/ 23	0	324/ 23	0	324/ 23	0	324/ 23	0
IMGOD	337/	23	0	337/ 23	0	337/ 23	0	337/ 23	0	337/ 23	0
DASDO	339/	23	0	339/ 23	0	339/ 23	0	339/ 23	0	339/ 23	0
LAGSA	328/	23	0	328/ 23	0	328/ 23	0	328/ 23	0	328/ 23	0
LAM	327/	23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
LVA	345/	23	0	345/ 23	0	345/ 23	0	345/ 23	0	345/ 23	0
DATUT	320/	23	0	320/ 23	0	320/ 23	0	320/ 23	0	320/ 23	0
ELIRA	323/	23	0	323/ 23	0	323/ 23	0	323/ 23	0	323/ 23	0
ORSAR	327/	23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
PEBAT	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
DESDI	313/	23	0	313/ 23	0	313/ 23	0	313/ 23	0	313/ 23	0
OMDB	301/	23	0	301/ 23	0	301/ 23	0	301/ 23	0	301/ 23	0

END WIND | +ISA SUMMARY

Annex 6 - Holiday charter - B737 - Research data

```
FLT    : TVS          PLN PAX  :  180   PLN CARGO: *PT-CARGO  Kg      DATE: 07.05.2018
AC/REG : B738 /OKTVS  PERF COEF:  4.3        CREW: *PT-CCPL    WX VALIDITY: 05071900
AC CONF: *PT-ACC      PANTRY   :  *PT-PTRY

CAPT : ............ F/O: ............ CTOT INFO: ........     TOTAL PERS: ........

ADEP : PRAGUE/RUZYNE     LKPR/PRG 19:00Z          RW30.VOZ2B.VOZ
ADES : DUBAI INTL        OMDB/DXB 00:32Z
ALTN1: AL AIN INTL       OMAL/AAN
ALTN2:                       /
ERA  : KUWAIT INTL       OKBK/KWI

ADEP ALTN:                       /               ADEP STAND: ............

VERT.PROF: LKPR/FL350/ARTAT/FL370/

           TIME    FUEL  GND DIST     AIR DIST    WCOMP     WDIR     ISA DEV   DOW/DOI
TRIP       5:32 / 14413      2514         2392      +22     264/036     -1     *PT-DOW
ALTN OMAL  0:27 /  1237      122                                               *PT-DOI
FIN.RES.   0:30 /  1118  FMS RES  2354
CONT.3%    0:10 /   432                          WEIGHTS PLN/ACT ZFW  59790 .......
ADD.FUEL   0:00 /     0  CRUISE  30
TAXI           /   200                                          FOB  17200 .......
MIN.FUEL   6:39 / 17400
COMP EXT   0:00 /     0 <<<<                                    TOW  76990 .......
---------------------
FUEL SUM   6:39 / 17400                                        TF   14413 .......
CAPT EXT         ......
TOT.FUEL         ......                                        LAW  62577 .......

ADEP  OFF BLOCK  ...... TAKEOFF  .......
ADES   IN BLOCK  ...... LANDING  .......
      BLOCK TIME ...... FLT TIME .......                       FUEL REM   .......
-------------------------------------------------------------------------------
FL.PLANNING NOTICE:


TANKERING RECOMMENDATIONS:    LOSS 176$/TON

TRIP FUEL MODIFICATIONS:              STATISTICAL EXTRA FUEL:       FUEL PRICE ADEP:
ZFW +/- 1000KG          158 Kg        NO. OF FLTS    : 55             *PT-FPRICEDEP
TRIP FUEL FOR +2000FT 14469 Kg       95% STAT       : -96         FUEL PRICE ADES:
TRIP FUEL FOR -2000FT 14436 Kg       99% STAT       : 33             *PT-FPRICEDES
                                     REMARK         :

ADEP ATIS: ....................................................................

           ....................................................................

RTE: LKPR VOZ L993 IVOLI Z650 PEPIK DCT BERVA DCT ERGOM DCT TEGRI
     L605 NEKUL P975 ARTAT/N0449F370 UP975 ERGUN G781 ROVON M317
     RADID L319 DASDO UL223 LAM G666 ORSAR DCT DESDI


ATC CLRN:  ....................................................................

           ....................................................................


RWY: .....  F: ....  DER: ....  ASS.TMP= ....  N1= ....  V1= ....  VR= ....  V2= ....

RWY: .....  F: ....  DER: ....  ASS.TMP= ....  N1= ....  V1= ....  VR= ....  V2= ....

ENG-OUT PROC.: ................................................................

               ................................................................

ALTIMETERS: ALTITUDE         CAPT ..........     STBY ..........     F/O ..........
            FL .........     CAPT ..........     STBY ..........     F/O ..........
```

ETOPS CROSSFEED CHECK: PRE-DEPARTURE: TIME ..... STATUS .....
(ETOPS FLIGHTS ONLY) LAST HOUR OF CRUISE FLIGHT: TIME ..... STATUS .....

AWY	COORD	WPT	/NAME	TM	MT	DIST	W/	TAS	FL	FU	FOB
G.MORA	N50:06.0	LKPR	PRAGUE/RUZYNE	TGO	MH	DTGO	V	GS	+ISA		17200
FIR	E014:15.6	1234ft		5:32		2514				aFU	aFOB
VOZ2B	N49:31.9	VOZ	VOZICE	10	141	68	277/	364	CLB	1129	16271
47	E014:52.5	116.95	....	5:22	144	2446	030	390	0		15838
LKAA										_____	_____
L993	N49:09.2	LIKSA	LIKSA	8	113	50	277/	364	CLB	1812	15588
43	E016:00.9		....	5:14	114	2396	030	390	0		15155
LKAA										_____	_____
L993	N49:00.0	IVOLI	IVOLI	3	114	19	277/	364	CLB	2071	15328
42	E016:27.5		....	5:11	115	2377	030	390	0		14896
LKAA										_____	_____
Z650	N48:54.9	-TOC-		2	114	11	277/	451	350	2222	15178
42	E016:42.3		....	5:09	115	2366	030	477	0		14746
										_____	_____
Z650	N48:47.0	PEPIK	FIR PEPIK	2	114	17	277/	451	350	2319	15081
46	E017:04.8		....	5:07	115	2349	030	477	0		14648
LKAA										_____	_____
DCT	N48:37.1	BERVA	BERVA	3	114	21	277/	451	350	2439	14960
46	E017:32.5		....	5:04	115	2328	030	477	0		14528
LZBB										_____	_____
DCT	N47:48.5	ERGOM	FIR ERGOM	9	130	68	278/	451	350	2830	14569
71	E018:44.0		....	4:55	132	2260	030	473	0		14137
LZBB										_____	_____
DCT	N46:15.8	TEGRI	FIR TEGRI	17	128	134	278/	451	350	3595	13805
42	E021:06.3		....	4:38	130	2126	029	472	0		13372
LHCC										_____	_____
L605	N45:55.4	GESBA	GESBA	4	120	35	278/	451	350	3793	13606
50	E021:47.4		....	4:34	121	2091	029	475	0		13174
LRBB										_____	_____
L605	N45:31.0	NEKUL	NEKUL	5	121	42	278/	451	350	4031	13369
103	E022:35.2		....	4:29	122	2049	029	474	0		12937
LRBB										_____	_____
P975	N44:45.8	UBOGU	UBOGU	12	111	99	277/	451	350	4585	12815
103	E024:40.1		....	4:17	112	1950	029	476	0		12383
LRBB										_____	_____
P975	N44:03.1	RONBU	FIR RONBU	11	112	89	275/	451	350	5080	12320
28	E026:29.9		....	4:06	113	1861	030	476	0		11887
LRBB										_____	_____
P975	N42:21.8	ARTAT	FIR ARTAT	22	119	170	274/	451	350	6019	11381
45	E029:37.5		....	3:44	121	1691	030	474	0		10948
LBSR										_____	_____
UP975	N42:00.0	ERMUP	ERMUP	8	103	66	267/	449	370	6465	10935
11	E031:01.4		....	3:36	104	1625	032	477	0		10503
LTBB										_____	_____

AWY G.MORA FIR	COORD	WPT FREQ	/NAME CT	AT	TM TTGO	MT MH	DIST DTGO	W/ V	TAS GS	FL +ISA	FU aFU	FOB mFOB aFOB
UP975	N41:49.8	ROKVA	ROKVA		4	104	30	267/	449	370	6628	10771
79	E031:39.4		....	....	3:32	105	1595	032	476	0		10339
LTAA												
UP975	N41:41.7	UNVUS	UNVUS		3	104	23	267/	449	370	6754	10646
86	E032:08.5		....	....	3:29	105	1572	032	476	0		10214
LTAA												
UP975	N41:40.2	ASMOB	ASMOB		1	105	4	267/	449	370	6775	10624
86	E032:14.0		....	....	3:28	106	1568	032	476	0		10192
LTAA												
UP975	N41:38.7	RELTU	RELTU		1	104	5	267/	449	370	6803	10597
86	E032:19.4		....	....	3:27	105	1563	032	476	0		10165
LTAA												
UP975	N41:35.6	APTOX	APTOX		1	105	8	267/	449	370	6846	10554
86	E032:30.3		....	....	3:26	106	1555	032	476	0		10121
LTAA												
UP975	N41:27.2	TEPKI	TEPKI		3	105	24	264/	449	370	6976	10423
86	E032:59.6		....	....	3:23	106	1531	033	476	0		9991
LTAA												
UP975	N41:21.1	PIPUR	PIPUR		2	113	13	264/	449	370	7047	10352
105	E033:14.3		....	....	3:21	115	1518	033	474	0		9920
LTAA												
UP975	N41:17.5	ORMAN	ORMAN		1	112	7	264/	449	370	7085	10314
105	E033:23.1		....	....	3:20	114	1511	033	474	0		9882
LTAA												
UP975	N40:44.8	ERGUN	ERGUN		9	112	70	264/	449	370	7465	9935
105	E034:44.3		....	....	3:11	114	1441	033	474	0		9502
LTAA												
G781	N39:20.4	-FC1-	Fuel Check 1		32	101	257	259/	450	370	8820	8580
136	E040:02.0	113.50	....	....	2:39	103	1184	036	479	0		8148
LTAA												
G781	N37:41.2	UMH	UROMIYEH		32	106	257	254/	450	370	10154	7246
156	E045:05.1	113.50	....	....	2:07	108	927	038	478	0		6814
LTAA												
G781	N37:30.3	TUBAR	TUBAR		3	118	20	254/	450	370	10258	7141
118	E045:26.1		....	....	2:04	121	907	040	473	0		6709
OIIX												
G781	N37:16.0	ROVON	ROVON		3	117	26	256/	450	370	10394	7006
118	E045:53.4		....	....	2:01	120	881	042	476	0		6574
OIIX												
M317	N36:05.4	PAREX	PAREX		11	140	85	256/	450	370	10847	6553
141	E046:51.9		....	....	1:50	145	796	042	461	0		6120
OIIX												
M317	N35:04.9	KEBEP	KEBEP		9	142	72	256/	450	370	11230	6170
128	E047:40.2		....	....	1:41	147	724	042	460	0		5737
OIIX												

AWY G.MORA FIR	COORD	WPT FREQ	/NAME CT	AT	TM TTGO	MT MH	DIST DTGO	W/ V	TAS GS	FL +ISA	FU aFU	FOB mFOB aFOB
M317 156 OIIX	N33:17.7 E049:03.3	NOTSA	NOTSA	....	16 1:25	142 147	127 597	258/ 043	450 462	370 0	11897	5503 5071
M317 165 OIIX	N30:24.7 E051:26.2	RADID	RADID	....	27 0:58	140 145	212 385	260/ 044	450 466	370 0	12984	4416 3984
L319 165 OIIX	N30:14.3 E051:30.8	IMGOD	IMGOD	....	1 0:57	155 160	11 374	260/ 044	450 454	370 0	13042	4358 3926
L319 165 OIIX	N28:54.0 E052:05.9	DASDO	DASDO	....	11 0:46	156 161	86 288	262/ 044	450 456	370 0	13490	3910 3478
UL223 124 OIIX	N28:33.1 E052:20.9	LAGSA	LAGSA	....	3 0:43	145 150	24 264	262/ 044	450 464	370 0	13612	3787 3355
UL223 124 OIIX	N27:22.4 E053:11.0	LAM 117.00	LAMERD	....	11 0:32	145 150	84 180	263/ 044	450 465	370 0	14039	3361 2928
G666 91 OIIX	N26:48.7 E053:21.4	LVA 116.85	LAVAN ISLAND	....	5 0:27	163 168	35 145	263/ 043	450 452	370 0	14221	3178 2746
G666 51	N26:41.8 E053:27.8	-TOD-		....	2 0:25	138 142	9 136	263/ 043	450 470	370 0	14274	3126 2693
G666 51 OIIX	N26:33.5 E053:35.6	DATUT	DATUT	....	1 0:24	138 142	11 125	263/ 042	202 199	DSC 0	14294	3106 2673
G666 51 OIIX	N26:21.1 E053:45.0	ELIRA	ELIRA	....	3 0:21	144 151	15 110	263/ 042	202 199	DSC 0	14332	3067 2635
G666 51 OIIX	N26:04.5 E053:57.5	ORSAR	FIR ORSAR	....	4 0:17	144 151	19 91	263/ 042	202 199	DSC 0	14381	3019 2587
DCT 60 OMAE	N25:36.0 E054:42.5	DESDI	DESDI	....	9 0:08	123 128	50 41	263/ 042	202 199	DSC 0	14508	2891 2459
 38	N25:15.2 E055:21.9	OMDB 62ft		....	8 0:00	118 122	41 0	263/ 042	202 199	 0	14613	2787 2354

ADES ATIS: .....

.....

ROUTE TO ALTERNATE:

AWY	COORD	WPT	/NAME		TM	MT	DIST	W/	TAS	FL	FU	FOB
G.MORA		FREQ	CT	AT	TTGO	MH	DTGO	V	GS	+ISA		mFOB
FIR											aFU	aFOB
Alternate OMAL ANVIX R401 GIDIS G783 ALN												
SID	N25:14.9	C460F	SID WAYPOINT		0	123	1	261/	335	CLB	14623	2777
38	E055:22.3		....	....				039	360	0		2344
OMAE												
SID	N25:17.8	DB570	SID WAYPOINT		1	303	5	261/	335	CLB	14674	2726
38	E055:17.7		....	....				039	304	0		2294
OMAE												
SID	N25:13.7	DB575	SID WAYPOINT		2	235	7	261/	335	90	14745	2655
38	E055:10.9		....	....				039	297	0		2223
OMAE												
SID	N25:08.5	DB581	SID WAYPOINT		1	135	7	261/	335	90	14816	2584
38	E055:16.2		....	....				039	353	0		2152
OMAE												
SID	N25:06.5	DB571	SID WAYPOINT		1	118	4	261/	335	90	14856	2543
38	E055:19.9		....	....				039	362	0		2111
OMAE												
SID	N25:04.4	DB572	SID WAYPOINT		1	113	5	261/	335	90	14907	2493
38	E055:25.0		....	....				039	365	0		2060
OMAE												
SID	N25:01.2	ULADO	SID WAYPOINT		2	111	8	261/	335	90	14988	2412
38	E055:33.2		....	....				039	365	0		1979
OMAE												
SID	N24:56.5	RAPMO	SID WAYPOINT		2	119	9	261/	335	90	15079	2320
49	E055:41.9		....	....				039	362	0		1888
OMAE												
SID	N24:50.5	LOPUV	SID WAYPOINT		2	124	10	261/	335	90	15181	2219
49	E055:50.9		....	....				039	359	0		1787
OMAE												
SID	N24:46.9	ANVIX	SID WAYPOINT		2	125	6	261/	335	90	15241	2158
49	E055:56.3		....	....				039	359	0		1726
OMAE												
R401	N24:36.0	GIDIS	GIDIS		2	179	11	261/	335	90	15353	2047
49	E055:56.0		....	....				039	324	0		1614
OMAE												
G783	N24:22.4	DESVU	DESVU		4	219	18	261/	335	DSC	15535	1864
49	E055:42.9		....	....				039	302	0		1432
OMAE												
G783	N24:15.6	ALN	AL AIN		2	219	9	261/	335	DSC	15627	1773
49	E055:36.4	112.60	....	....				039	302	0		1341
OMAE												
STAR	N24:26.4	KEDAD	STAR WAYPOINT		3	008	11	261/	335	DSC	15738	1662
49	E055:38.5		....	....				039	344	0		1229
OMAE												
DCT	N24:15.7	OMAL	AL AIN INTL		2	187	11	261/	335	DSC	15850	1550
49	E055:36.6		....	....				039	319	0		1118

AWY	COORD	WPT	/NAME		TM	MT	DIST	W/	TAS	FL	FU	FOB
G.MORA		FREQ	CT	AT	TTGO	MH	DTGO	V	GS	+ISA		mFOB
FIR											aFU	aFOB

ICAO	NAME	WIND	FL	NM	MT	TIME	FUEL	---BLOCK---	
OMRK RKT	RAS AL KHAIMAH	263/ 42	110	63	053	0:17	744	6:19	16907
OMDW DWC	DUBAI/AL MAKTOU	263/ 42	80	48	205	0:13	573	6:15	16736
OMAA AUH	ABU DHABI INTL	261/ 39	140	88	216	0:22	1009	6:24	17172

FIR: EET/LZBB0025 LHCC0037 LRBB0054 LBSR0126 LTBB0148 LTAA0156 OIIX0320
OMAE0516

ENROUTE WINDS

IDENT	FL 260		FL 300		FL 340		FL 380		FL 410	
	W/V	TMP	W/V	TMP	W/V	TMP	W/V	TMP	W/V	TMP
VOZ	282/032	-37	275/029	-45	277/030	-53	277/031	-56	277/031	-56
LIKSA	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
IVOLI	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
-TOC-	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
PEPIK	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
BERVA	280/032	-37	276/029	-45	278/030	-53	277/030	-56	277/030	-56
ERGOM	280/032	-37	276/029	-45	278/030	-53	277/030	-56	277/030	-56
TEGRI	280/030	-37	276/027	-45	278/029	-53	277/030	-56	277/030	-56
GESBA	280/030	-37	276/027	-45	278/029	-53	277/030	-56	277/030	-56
NEKUL	278/030	-37	276/027	-45	277/029	-53	276/030	-56	276/030	-56
UBOGU	278/030	-37	275/027	-45	276/029	-53	274/030	-56	274/031	-56
RONBU	276/030	-37	275/027	-45	275/029	-53	273/030	-56	273/031	-56
ARTAT	272/032	-37	273/028	-45	271/030	-53	269/032	-56	269/033	-56
ERMUP	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
ROKVA	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
UNVUS	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
ASMOB	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
RELTU	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
APTOX	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
TEPKI	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
PIPUR	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
ORMAN	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
ERGUN	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
-FC1-	260/037	-37	253/034	-45	254/037	-53	255/038	-56	255/039	-56
UMH	259/038	-37	253/035	-45	254/038	-53	255/040	-56	255/041	-56
TUBAR	259/038	-37	253/035	-45	254/038	-53	255/040	-56	255/041	-56
ROVON	259/042	-37	254/037	-45	255/040	-53	256/042	-56	256/043	-56
PAREX	259/042	-37	254/037	-45	255/040	-53	256/042	-56	256/043	-56
KEBEP	260/042	-37	255/038	-45	256/041	-53	257/042	-56	257/043	-56
NOTSA	260/046	-37	257/039	-45	257/042	-53	258/043	-56	258/044	-56
RADID	263/049	-37	260/040	-45	260/043	-53	261/044	-56	261/045	-56
IMGOD	263/049	-37	260/040	-45	260/043	-53	261/044	-56	261/045	-56
DASDO	264/051	-37	261/040	-45	261/043	-53	262/045	-56	262/046	-56
LAGSA	264/051	-37	261/040	-45	261/043	-53	262/045	-56	262/046	-56
LAM	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
LVA	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
-TOD-	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
DATUT	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
ELIRA	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
ORSAR	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
DESDI	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56

ATC FPL:
(FPL-TVS-IS
-B738/M-SDFGHILORVWXYZ/LB1
-LKPR1900
-N0451F350 VOZ L993 IVOLI Z650 PEPIK DCT BERVA DCT ERGOM DCT
TEGRI L605 NEKUL P975 ARTAT/N0449F370 UP975 ERGUN G781
ROVON M317 RADID L319 DASDO UL223 LAM G666 ORSAR DCT DESDI
-OMDB0532 OMAL
-PBN/A1B1D1O1S2 COM/TCAS DOF/180507 REG/OKTVS EET/LZBB0025
LHCC0037 LRBB0054 LBSR0126 LTBB0148 LTAA0156 OIIX0320
OMAE0516 SEL/LRKP CODE/49D1CD RVR/200 OPR/TVS
ORGN/LKPRTVSX RALT/OKBK RMK/
-E/0646 P/180 R/UVE J/L
A/WHITE
C/)

Annex 7 - Scheduled - A320 - Research data

```
FLT: TVS        PLN PAX: 180   PLN CARGO: 0 KGS      DATE: 7.5.2018
NON-ETOPS   AC/ REG: A320 /OKHCA   PERF COEF: 1.034  CRTE: PRG-DXB1T
COMP.BY+TIME: MF D.M.YYYY/HH:MM          WX VALIDITY:  AVG. WIND

CAPT: ............. F/O:  .................   CTOT INFO: ..........
ADEP :RWY24 /PRAGUE-RUZYNE       LKPR/PRG 0000 Z/ FUEL PRICE=  OLD
ADES :RWY30 /DUBAI-DUBAI INTL    OMDB/DXB 0000 Z/ FUEL PRICE=  OLD
ALTN1:       AL AIN-AL AIN INTL  OMAL/AAN       / FUEL PRICE=  OLD
ALTN2:
3%ERA:       KUWAIT-KUWAIT INTL  OKBK/KWI       / FUEL PRICE=  OLD

ADEP ALTN:  ...................

VERT.PROF: FL310 ERGOM/FL330 VAN/FL350

          TIME    FUEL DIST WCOMP  WDIR    ISA DEV      PLN     ACT
TRIP      05:34/ 15556 2578   23 308/ 22.1   0.0
ALTN1     00:28/  1281  140    0 360/  0.0   0.0
FIN.RES.  00:30/  1132  FMS RES  2413
CONT. 3%  00:10/   467                            ZFW  61542 ........
ADD.FUEL  00:00/     0  C30 CRUISE
TAXI     (00:10)   200                            FOB  18437 ........
MIN.FUEL  06:43/ 18637
COMP EXT  00:00/     0                            TOW  79979 ........
----------------------
FUEL SUM  06:43/ 18637                            TF   15556 ........
CAPT EXT        ......
TOT.FUEL        ......  DOW: ........ DOI: .....  LAW  64422 ........

ADEP   OFF BLOCK  ......    TAKEOFF  ......
ADES   IN BLOCK   ......    LANDING  ......
       BLOCK TIME ......    FLT TIME ......      FUEL REM   ........
-------------------------------------------------------------------
FL.PLANNING NOTICE:

ADEP ATIS: ..........................................................
           ..........................................................

RTE: LKPR VOZ2A VOZ L993 IVOLI Z650 PEPIK DCT BERVA DCT ERGOM DCT
     TEGRI L605 NEKUL P975 ARTAT UP975 ERGUN UL124 UMH G781 ROVON
     M317 RADID L319 DASDO UL223 LAM G666 ORSAR B416 DESDI DESDI1C
OMDB

ATC CLRN:  ..........................................................

           ..........................................................
-------------------------------------------------------------------
PERF     CURRENT LPCNG FILE:
----
RWY:.... F:... DER:.... FLX.TMP=.... N1=...  V1=.... VR=.... V2=....

RWY:.... F:... DER:.... FLX.TMP=.... N1=...  V1=.... VR=.... V2=....
```

ENG-OUT PROC.: .....

.....

RVSM:
ALTITUDE CAPT ..... STBY ..... F/O .....
FL ..... CAPT ..... STBY ..... F/O .....

AWY	COORD	WPT /NAME	TM	MT	DIST	W/	TAS	FL	FOB
G.MORA		FREQ CT AT	TTGO	MH	DTGO	V	GS	+ISA	mFOB
FIR								BURN/	act.
ADEP	N5006.1	LKPR /PRAHA/RUZYNE							18437
	E01415.6	....	05:34		2578				18437
								0/	_____
VOZ2A	N4931.9	VOZ /VOZICE	10	dep	60	325/	350	clb	17645
	E01452.5	11695	05:25	dep	2518	23	373	0	17621
								792/	_____
L993	N4909.2	LIKSA/LIKSA	8	112	50	296/	350	clb	16991
4100	E01600.9	....	05:17	112	2469	23	373	0	16947
								1446/	_____
L993	N4900.0	IVOLI/IVOLI	3	113	20	297/	350	clb	16729
4100	E01627.5	....	05:13	113	2449	23	373	0	16677
								1708/	_____
Z650		TOC /	3	114	20	298/	350	clb	16469
4500		....	05:10	118	2429	23	373	0	16410
								1967/	_____
Z650	N4847.0	PEPIK/PEPIK	1	114	8	298/	464	310	16419
4500	E01704.8	....	05:09	114	2421	23	487	0	16359
lzbb								2017/	_____
DCT	N4837.1	BERVA/BERVA	3	114	21	298/	464	310	16287
4500	E01732.5	....	05:07	114	2400	23	487	0	16223
								2149/	_____
DCT	N4748.5	ERGOM/ERGOM	8	131	69	315/	464	310	15858
7100	E01844.0	....	04:58	131	2332	23	487	0	15781
lhcc								2579/	_____
DCT	N4615.8	TEGRI/TEGRI	17	128	134	313/	460	330	15006
4500	E02106.3	....	04:42	128	2197	23	483	0	14903
lrbb								3430/	_____
L605	N4555.4	GESBA/GESBA	4	120	35	305/	460	330	14794
5000	E02147.4	....	04:37	120	2163	23	483	0	14685
								3642/	_____
L605	N4531.0	NEKUL/NEKUL	5	121	41	305/	460	330	14543
10600	E02235.2	....	04:32	121	2121	23	483	0	14427
								3893/	_____
P975	N4445.8	UBOGU/UBOGU	12	112	99	297/	460	330	13940
10600	E02440.1	....	04:20	112	2022	23	483	0	13806
								4496/	_____
P975	N4403.1	RONBU/RONBU	11	113	89	298/	460	330	13407
3800	E02629.9	....	04:09	113	1933	23	483	0	13256
lbsr								5030/	_____
P975	N4221.8	ARTAT/ARTAT	21	120	171	306/	460	330	12385
4700	E02937.5	....	03:48	120	1762	23	483	0	12203
ltbb								6052/	_____
UP975	N4200.0	ERMUP/ERMUP	8	103	66	288/	460	330	11996

```
1000   E03101.4          .... .... 03:39  103 1697  23  483    0 11803
ltaa                                                          6441/_____
UP975   N4149.8 ROKVA/ROKVA          4  106   30 291/ 460  330 11817
7800   E03139.4          .... .... 03:36  106 1666  23  483    0 11618
                                                              6620/_____
UP975   N4141.7 UNVUS/UNVUS          3  105   23 290/ 460  330 11681
8900   E03208.5          .... .... 03:33  105 1643  23  483    0 11478
                                                              6755/_____
UP975   N4140.2 ASMOB/ASMOB          1  098    5 283/ 460  330 11654
8900   E03214.0          .... .... 03:32  098 1639  23  483    0 11451
                                                              6782/_____
UP975   N4138.7 RELTU/RELTU          1  112    4 297/ 460  330 11629
8900   E03219.4          .... .... 03:32  112 1634  23  483    0 11425
                                                              6808/_____
UP975   N4135.6 APTOX/APTOX          1  105    9 290/ 460  330 11578
8900   E03230.3          .... .... 03:31  105 1626  23  483    0 11372
                                                              6859/_____
UP975   N4127.2 TEPKI/TEPKI          3  105   23 290/ 460  330 11442
8900   E03259.6          .... .... 03:28  105 1602  23  483    0 11232
                                                              6995/_____
UP975   N4121.1 PIPUR/PIPUR          2  113   13 298/ 460  330 11367
10900  E03314.3          .... .... 03:26  113 1590  23  483    0 11155
                                                              7069/_____
UP975   N4117.5 ORMAN/ORMAN          1  115    8 300/ 460  330 11321
10900  E03323.2          .... .... 03:25  115 1582  23  483    0 11108
                                                              7115/_____
UP975   N4044.8 ERGUN/ERGUN          9  113   70 298/ 460  330 10914
10900  E03444.3          .... .... 03:16  113 1512  23  483    0 10689
                                                              7522/_____
UL124   N4004.9 ASVOD/ASVOD         17  101  136 286/ 460  330 10123
11700  E03734.4          .... .... 03:00  101 1377  23  483    0  9874
                                                              8313/_____
UL124   N3930.7 KONUK/KONUK         12  105   94 291/ 460  330  9579
14100  E03928.1          .... .... 02:48  105 1283  23  483    0  9313
                                                              8858/_____
UL124   N3919.5 EVSAS/EVSAS          4  103   35 288/ 461  330  9377
14100  E04011.3          .... .... 02:44  103 1248  23  484    0  9105
                                                              9060/_____
UL124   N3828.0 VAN  /VAN           19  103  155 288/ 461  330  8486
15800  E04319.5 11520    .... .... 02:24  103 1093  23  484    0  8188
                                                              9950/_____
UL124   N3815.9 ZELSU/ZELSU          3  115   25 300/ 456  350  8293
14500  E04347.0          .... .... 02:21  115 1067  23  479    0  7989
                                                             10143/_____
UL124   N3802.9 BONAM/BONAM          3  113   28 298/ 456  350  8138
14500  E04418.0          .... .... 02:18  113 1040  23  479    0  7829
oiix                                                          10298/_____
UL124   N3753.0 TUDNU/TUDNU          3  109   23 294/ 456  350  8012
16000  E04444.8          .... .... 02:15  109 1017  23  479    0  7699
                                                             10424/_____
UL124   N3741.2 UMH  /UROMIYEH       3  121   20 306/ 456  350  7898
16000  E04505.1 11350    .... .... 02:12  121  997  23  479    0  7582
                                                             10539/_____
G781    N3730.3 TUBAR/TUBAR          2  118   20 303/ 456  350  7787
12200  E04526.2          .... .... 02:10  118  977  23  479    0  7467
                                                             10650/_____
```

```
G781    N3716.0 ROVON/ROVON          3  118   26 303/ 456  350  7644
12200   E04553.4        .... .... 02:07  118  951  23  479    0  7320
                                                          10793/_____
M317    N3605.5 PAREX/PAREX         11  142   85 326/ 456  350  7172
14500   E04651.9        .... .... 01:56  142  866  23  479    0  6834
                                                          11265/_____
M317    N3504.9 KEBEP/KEBEP          9  142   73 327/ 456  350  6769
13500   E04740.2        .... .... 01:47  142  793  23  479    0  6419
                                                          11668/_____
M317    N3317.8 NOTSA/NOTSA         16  143  127 327/ 456  350  6069
15700   E04903.3        .... .... 01:31  143  666  23  479    0  5698
                                                          12367/_____
M317    N3024.9 RADID/RADID         26  142  211 324/ 456  350  4919
16900   E05125.7        .... .... 01:04  142  455  23  479    0  4513
                                                          13518/_____
L319    N3014.3 IMGOD/IMGOD          1  154   11 337/ 456  350  4860
16900   E05130.8        .... .... 01:03  154  444  23  479    0  4453
                                                          13577/_____
L319    N2854.0 DASDO/DASDO         11  156   86 339/ 456  350  4399
16900   E05205.9        .... .... 00:52  156  358  23  479    0  3978
                                                          14037/_____
UL223   N2833.1 LAGSA/LAGSA          3  145   25 328/ 456  350  4267
12800   E05220.9        .... .... 00:49  145  334  23  479    0  3842
                                                          14170/_____
UL223   N2722.4 LAM  /LAMERD        11  145   84 327/ 456  350  3818
12800   E05311.0 11700  .... .... 00:39  145  250  23  479    0  3379
                                                          14619/_____
G666    N2648.7 LVA  /LAVAN ISL      4  163   35 345/ 456  350  3631
9500    E05321.4 11685  .... .... 00:34  163  214  23  479    0  3187
                                                          14806/_____
G666    N2633.5 DATUT/DATUT          2  138   20 320/ 456  350  3527
5800    E05335.6        .... .... 00:32  138  195  23  479    0  3080
                                                          14910/_____
G666    N2621.1 ELIRA/ELIRA          2  142   15 323/ 456  350  3447
5800    E05345.0        .... .... 00:30  142  180  23  479    0  2998
                                                          14989/_____
G666    N2604.5 ORSAR/ORSAR          3  146   20 327/ 456  350  3341
5800    E05357.5        .... .... 00:27  146  160  23  479    0  2888
omae                                                      15096/_____
B416    N2551.9 PEBAT/PEBAT          3  116   27 298/ 456  350  3195
7300    E05424.0        .... .... 00:24  116  132  23  479    0  2738
                                                          15241/_____
B416            TOD  /               1  131    8 298/ 456  350  3151
1500                    .... .... 00:23  134  124  23  478    0  2692
                                                          15286/_____
B416    N2536.1 DESDI/DESDI          3  131   14 313/ 300  des  3121
1500    E05442.5        .... .... 00:20  131  110  23  323    0  2661
                                                          15316/_____
DESDI1C N2515.2 OMDB /DUBAI         20  arr  110 301/ 300  des  2880
        E05521.9        .... .... 00:00  arr    0  23  323    0  2413
                                                          15556/_____
-----------------------------------------------------------------------

ADES ATIS: ..........................................................
           ..........................................................
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--------------------------------------------------------------------
FIR: LZBB0025 LHCC0036 LRBB0053 LBSR0126 LTBB0147 LTAA0155
     OIIX0317 OMAE0507/0027


## ALTN INFORMATION: ##
 ALTN AD ICAO/NAME        DIST TIME    TF   WCOMP   WDIR    ISA DEV
                          RTE / ALTN AVAILABILITY
--------------------------------------------------------------------
*OMAL/AL AIN-AL AIN INTL   140 00:28  1281     0  360/  0.0    0.0
          '->  RTE: ANVIX R401 GIDIS G783 ALN
          '--> AVAIL: H24

(* SIGN DENOTES ALTN USED FOR MIN.FUEL CALCULATION)
--------------------------------------------------------------------
3%ERA AD: OKBK/KUWAIT-KUWAIT INT
   AVAIL: H24
--------------------------------------------------------------------
## END ALTN INFORMATION ##


## COMPANY NOTAMS: ##
CNOTAM 1063A  [ISSUED 6.2.2017/MA, EFF:6.2.2017-UFN]
PRAGUE PRG/LKPR
TAKE OFF MINIMA RWY 12/30 RAISED TO RVR 800M ACCORDING TO CZECH CAA
AIP AD 1.1.4.10 - AOM. THIS CHANGE IS NOT YET INCORPORATED IN
JEPPESEN CHARTS. REVISED CHARTS WILL BE PUBLISHED AFTER CZECH CAA
PUBLISHES UPDATED REGULATION WITH CLARIFIED CONTENT.

CNOTAM 18R  [ISSUED 27.3.2015/PP, EFF:1.4.2015-UFN]
LKPR - SPECIAL NOISE ABATEMENT PROCEDURE
Please utilize the following departure procedure for B737 and A320:
 Take-off to 1500ft AAL:
  - Take-off thrust
  - Take-off flaps
  - Climb at V2 + 10kts (or as limited by max pitch attitude)
 At 1500ft AAL:
  - Reduce thrust to not less than climb thrust
  - Acceleration during climb and flaps retraction
  - Transition to normal climb speed
See also Nav. Warning 04/2015

CNOTAM 19R  [ISSUED 13.4.2015/PP, EFF:13.4.2015-UFN]
JEPPESEN E-LINK LOGIN DATA VALID UNTIL 21JUN:
  http://jeppesen.com/icharts/index.jsp
     login: PilotTVS
  password: A24Banshee


## END COMPANY NOTAMS ##

## WIND | +ISA SUMMARY ##
--------------------------------------------------------------------
WPT   |   FL180    |   FL240   |   FL300   |   FL340   |    FL390  |
--------------------------------------------------------------------
VOZ   |325/  23|  0|325/ 23|  0|325/ 23|  0|325/ 23|  0|325/ 23|  0|
```

LIKSA	296/ 23	0	296/ 23	0	296/ 23	0	296/ 23	0	296/ 23	0
IVOLI	297/ 23	0	297/ 23	0	297/ 23	0	297/ 23	0	297/ 23	0
PEPIK	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
BERVA	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ERGOM	315/ 23	0	315/ 23	0	315/ 23	0	315/ 23	0	315/ 23	0
TEGRI	313/ 23	0	313/ 23	0	313/ 23	0	313/ 23	0	313/ 23	0
GESBA	305/ 23	0	305/ 23	0	305/ 23	0	305/ 23	0	305/ 23	0
NEKUL	305/ 23	0	305/ 23	0	305/ 23	0	305/ 23	0	305/ 23	0
UBOGU	297/ 23	0	297/ 23	0	297/ 23	0	297/ 23	0	297/ 23	0
RONBU	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ARTAT	306/ 23	0	306/ 23	0	306/ 23	0	306/ 23	0	306/ 23	0
ERMUP	288/ 23	0	288/ 23	0	288/ 23	0	288/ 23	0	288/ 23	0
ROKVA	291/ 23	0	291/ 23	0	291/ 23	0	291/ 23	0	291/ 23	0
UNVUS	290/ 23	0	290/ 23	0	290/ 23	0	290/ 23	0	290/ 23	0
ASMOB	283/ 23	0	283/ 23	0	283/ 23	0	283/ 23	0	283/ 23	0
RELTU	297/ 23	0	297/ 23	0	297/ 23	0	297/ 23	0	297/ 23	0
APTOX	290/ 23	0	290/ 23	0	290/ 23	0	290/ 23	0	290/ 23	0
TEPKI	290/ 23	0	290/ 23	0	290/ 23	0	290/ 23	0	290/ 23	0
PIPUR	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ORMAN	300/ 23	0	300/ 23	0	300/ 23	0	300/ 23	0	300/ 23	0
ERGUN	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ASVOD	286/ 23	0	286/ 23	0	286/ 23	0	286/ 23	0	286/ 23	0
KONUK	291/ 23	0	291/ 23	0	291/ 23	0	291/ 23	0	291/ 23	0
EVSAS	288/ 23	0	288/ 23	0	288/ 23	0	288/ 23	0	288/ 23	0
VAN	288/ 23	0	288/ 23	0	288/ 23	0	288/ 23	0	288/ 23	0
ZELSU	300/ 23	0	300/ 23	0	300/ 23	0	300/ 23	0	300/ 23	0
BONAM	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
TUDNU	294/ 23	0	294/ 23	0	294/ 23	0	294/ 23	0	294/ 23	0
UMH	306/ 23	0	306/ 23	0	306/ 23	0	306/ 23	0	306/ 23	0
TUBAR	303/ 23	0	303/ 23	0	303/ 23	0	303/ 23	0	303/ 23	0
ROVON	303/ 23	0	303/ 23	0	303/ 23	0	303/ 23	0	303/ 23	0
PAREX	326/ 23	0	326/ 23	0	326/ 23	0	326/ 23	0	326/ 23	0
KEBEP	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
NOTSA	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
RADID	324/ 23	0	324/ 23	0	324/ 23	0	324/ 23	0	324/ 23	0
IMGOD	337/ 23	0	337/ 23	0	337/ 23	0	337/ 23	0	337/ 23	0
DASDO	339/ 23	0	339/ 23	0	339/ 23	0	339/ 23	0	339/ 23	0
LAGSA	328/ 23	0	328/ 23	0	328/ 23	0	328/ 23	0	328/ 23	0
LAM	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
LVA	345/ 23	0	345/ 23	0	345/ 23	0	345/ 23	0	345/ 23	0
DATUT	320/ 23	0	320/ 23	0	320/ 23	0	320/ 23	0	320/ 23	0
ELIRA	323/ 23	0	323/ 23	0	323/ 23	0	323/ 23	0	323/ 23	0
ORSAR	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
PEBAT	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
DESDI	313/ 23	0	313/ 23	0	313/ 23	0	313/ 23	0	313/ 23	0
OMDB	301/ 23	0	301/ 23	0	301/ 23	0	301/ 23	0	301/ 23	0

END WIND | +ISA SUMMARY

Annex 8 - Scheduled - B737 - Research data

```
FLT    : TVS          PLN PAX  :  180   PLN CARGO: *PT-CARGO  Kg      DATE: 07.05.2018
AC/REG : B738 /OKTVS  PERF COEF:  4.3        CREW: *PT-CCPL    WX VALIDITY: 05071900
AC CONF: *PT-ACC      PANTRY   :  *PT-PTRY

CAPT : ............. F/O: ............. CTOT INFO: ........     TOTAL PERS: ........

ADEP : PRAGUE/RUZYNE     LKPR/PRG 19:00Z          RW30.VOZ2B.VOZ
ADES : DUBAI INTL        OMDB/DXB 00:33Z
ALTN1: AL AIN INTL       OMAL/AAN
ALTN2:                       /
ERA  : KUWAIT INTL       OKBK/KWI

ADEP ALTN:                       /               ADEP STAND: ............

VERT.PROF: LKPR/FL350/ROKVA/FL370/

           TIME    FUEL  GND DIST     AIR DIST    WCOMP     WDIR     ISA DEV   DOW/DOI
TRIP       5:33 / 14636      2514         2392      +23     264/036     -1     *PT-DOW
ALTN OMAL  0:27 /  1250      122                                               *PT-DOI
FIN.RES.   0:30 /  1132  FMS RES  2382
CONT.3%    0:10 /   439                              WEIGHTS PLN/ACT ZFW  60924 .......
ADD.FUEL   0:00 /     0  CRUISE  30
TAXI            /   200                                          FOB  17457 .......
MIN.FUEL   6:40 / 17657
COMP EXT   0:00 /     0 <<<<                                     TOW  78381 .......
---------------------
FUEL SUM   6:40 / 17657                                          TF   14636 .......
CAPT EXT         ......
TOT.FUEL         ......                                          LAW  63745 .......

ADEP  OFF BLOCK  ...... TAKEOFF  .......
ADES  IN BLOCK   ...... LANDING  .......
      BLOCK TIME ...... FLT TIME .......                         FUEL REM   .......
-------------------------------------------------------------------------------------
FL.PLANNING NOTICE:


TANKERING RECOMMENDATIONS:    LOSS 178$/TON

TRIP FUEL MODIFICATIONS:              STATISTICAL EXTRA FUEL:       FUEL PRICE ADEP:
ZFW +/- 1000KG          167 Kg        NO. OF FLTS    : 55              *PT-FPRICEDEP
TRIP FUEL FOR +2000FT 14701 Kg       95% STAT       : -96          FUEL PRICE ADES:
TRIP FUEL FOR -2000FT 14630 Kg       99% STAT       : 33              *PT-FPRICEDES
                                     REMARK         :

ADEP ATIS: ..........................................................................

           ..........................................................................

RTE: LKPR VOZ L993 IVOLI Z650 PEPIK DCT BERVA DCT ERGOM DCT TEGRI
     L605 NEKUL P975 ARTAT UP975 ROKVA/N0449F370 UP975 ERGUN
     G781 ROVON M317 RADID L319 DASDO UL223 LAM G666 ORSAR DCT
     DESDI


ATC CLRN:  ..........................................................................

           ..........................................................................


RWY: .....  F: ....  DER: ....  ASS.TMP= ....  N1= ....  V1= ....  VR= ....  V2= ....

RWY: .....  F: ....  DER: ....  ASS.TMP= ....  N1= ....  V1= ....  VR= ....  V2= ....

ENG-OUT PROC.: ......................................................................

               ......................................................................

ALTIMETERS: ALTITUDE         CAPT ..........     STBY ..........     F/O ..........
            FL .........     CAPT ..........     STBY ..........     F/O ..........
```

ETOPS CROSSFEED CHECK: PRE-DEPARTURE: TIME ..... STATUS .....
(ETOPS FLIGHTS ONLY) LAST HOUR OF CRUISE FLIGHT: TIME ..... STATUS .....

AWY	COORD	WPT	/NAME	TM	MT	DIST	W/	TAS	FL	FU	FOB
G.MORA	N50:06.0	LKPR	PRAGUE/RUZYNE	TGO	MH	DTGO	V	GS	+ISA		17457
FIR	E014:15.6	1234ft		5:33		2514				aFU	aFOB
VOZ2B	N49:31.9	VOZ	VOZICE	10	141	68	277/	364	CLB	1131	16527
47	E014:52.5	116.95	....	5:22	144	2446	030	390	0		16087
LKAA										_____	_____
L993	N49:09.2	LIKSA	LIKSA	8	113	50	277/	364	CLB	1815	15842
43	E016:00.9		....	5:14	114	2396	030	390	0		15403
LKAA										_____	_____
L993	N49:00.0	IVOLI	IVOLI	3	114	19	277/	364	CLB	2075	15582
42	E016:27.5		....	5:11	115	2377	030	390	0		15143
LKAA										_____	_____
Z650	N48:53.5	-TOC-		2	114	14	277/	451	350	2266	15391
42	E016:46.3		....	5:09	115	2363	030	477	0		14952
										_____	_____
Z650	N48:47.0	PEPIK	FIR PEPIK	2	114	14	277/	451	350	2348	15309
46	E017:04.8		....	5:07	115	2349	030	477	0		14870
LKAA										_____	_____
DCT	N48:37.1	BERVA	BERVA	3	114	21	277/	451	350	2470	15187
46	E017:32.5		....	5:04	115	2328	030	477	0		14748
LZBB										_____	_____
DCT	N47:48.5	ERGOM	FIR ERGOM	9	130	68	278/	451	350	2867	14790
71	E018:44.0		....	4:55	132	2260	030	473	0		14351
LZBB										_____	_____
DCT	N46:15.8	TEGRI	FIR TEGRI	17	128	134	278/	451	350	3644	14013
42	E021:06.3		....	4:38	130	2126	029	472	0		13574
LHCC										_____	_____
L605	N45:55.4	GESBA	GESBA	4	120	35	278/	451	350	3845	13812
50	E021:47.4		....	4:34	121	2091	029	475	0		13373
LRBB										_____	_____
L605	N45:31.0	NEKUL	NEKUL	5	121	42	278/	451	350	4086	13571
103	E022:35.2		....	4:29	122	2049	029	474	0		13132
LRBB										_____	_____
P975	N44:45.8	UBOGU	UBOGU	12	111	99	277/	451	350	4649	13008
103	E024:40.1		....	4:17	112	1950	029	476	0		12569
LRBB										_____	_____
P975	N44:03.1	RONBU	FIR RONBU	11	112	89	275/	451	350	5152	12505
28	E026:29.9		....	4:06	113	1861	030	476	0		12066
LRBB										_____	_____
P975	N42:21.8	ARTAT	FIR ARTAT	22	119	170	274/	451	350	6106	11552
45	E029:37.5		....	3:44	121	1691	030	474	0		11112
LBSR										_____	_____
UP975	N42:00.0	ERMUP	ERMUP	8	103	66	269/	451	350	6470	11187
11	E031:01.4		....	3:36	104	1625	032	479	0		10748
LTBB										_____	_____

AWY G.MORA FIR	COORD	WPT FREQ	/NAME CT	AT	TM TTGO	MT MH	DIST DTGO	W/ V	TAS GS	FL +ISA	FU aFU	FOB mFOB aFOB
UP975	N41:49.8	ROKVA	ROKVA		4	104	30	269/	451	350	6636	11021
79	E031:39.4		....	....	3:32	105	1595	032	479	0		10582
LTAA												
UP975	N41:41.7	UNVUS	UNVUS		3	104	23	267/	449	370	6855	10802
86	E032:08.5		....	....	3:29	105	1572	032	476	0		10363
LTAA												
UP975	N41:40.2	ASMOB	ASMOB		1	105	4	267/	449	370	6877	10780
86	E032:14.0		....	....	3:28	106	1568	032	476	0		10341
LTAA												
UP975	N41:38.7	RELTU	RELTU		1	104	5	267/	449	370	6905	10753
86	E032:19.4		....	....	3:27	105	1563	032	476	0		10313
LTAA												
UP975	N41:35.6	APTOX	APTOX		1	105	8	267/	449	370	6949	10708
86	E032:30.3		....	....	3:26	106	1555	032	476	0		10269
LTAA												
UP975	N41:27.2	TEPKI	TEPKI		3	105	24	264/	449	370	7081	10576
86	E032:59.6		....	....	3:23	106	1531	033	476	0		10137
LTAA												
UP975	N41:21.1	PIPUR	PIPUR		2	113	13	264/	449	370	7153	10504
105	E033:14.3		....	....	3:21	115	1518	033	474	0		10065
LTAA												
UP975	N41:17.5	ORMAN	ORMAN		1	112	7	264/	449	370	7192	10465
105	E033:23.1		....	....	3:20	114	1511	033	474	0		10026
LTAA												
UP975	N40:44.8	ERGUN	ERGUN		9	112	70	264/	449	370	7578	10080
105	E034:44.3		....	....	3:11	114	1441	033	474	0		9640
LTAA												
G781	N39:20.4	-FC1-	Fuel Check 1		32	101	257	259/	449	370	8957	8700
136	E040:02.0	113.50	....	....	2:39	103	1184	036	478	0		8261
LTAA												
G781	N37:41.2	UMH	UROMIYEH		32	106	257	254/	450	370	10313	7345
156	E045:05.1	113.50	....	....	2:07	108	927	038	478	0		6905
LTAA												
G781	N37:30.3	TUBAR	TUBAR		3	118	20	254/	450	370	10419	7238
118	E045:26.1		....	....	2:04	121	907	040	473	0		6799
OIIX												
G781	N37:16.0	ROVON	ROVON		3	117	26	256/	450	370	10556	7101
118	E045:53.4		....	....	2:01	120	881	042	476	0		6662
OIIX												
M317	N36:05.4	PAREX	PAREX		11	140	85	256/	450	370	11017	6640
141	E046:51.9		....	....	1:50	145	796	042	461	0		6201
OIIX												
M317	N35:04.9	KEBEP	KEBEP		9	142	72	256/	450	370	11406	6251
128	E047:40.2		....	....	1:41	147	724	042	460	0		5812
OIIX												

AWY G.MORA FIR	COORD	WPT FREQ	/NAME CT	AT	TM TTGO	MT MH	DIST DTGO	W/ V	TAS GS	FL +ISA	FU aFU	FOB mFOB aFOB
M317 156 OIIX	N33:17.7 E049:03.3	NOTSA	NOTSA	....	16 1:25	142 147	127 597	258/ 043	450 462	370 0	12084	5573 5134
M317 165 OIIX	N30:24.7 E051:26.2	RADID	RADID	....	27 0:58	140 145	212 385	260/ 044	450 466	370 0	13188	4469 4030
L319 165 OIIX	N30:14.3 E051:30.8	IMGOD	IMGOD	....	1 0:57	155 160	11 374	260/ 044	450 454	370 0	13247	4410 3971
L319 165 OIIX	N28:54.0 E052:05.9	DASDO	DASDO	....	11 0:46	156 161	86 288	262/ 044	450 456	370 0	13702	3955 3516
UL223 124 OIIX	N28:33.1 E052:20.9	LAGSA	LAGSA	....	3 0:43	145 150	24 264	262/ 044	450 464	370 0	13827	3830 3391
UL223 124 OIIX	N27:22.4 E053:11.0	LAM 117.00	LAMERD	....	11 0:32	145 150	84 180	263/ 044	450 465	370 0	14259	3398 2959
G666 91 OIIX	N26:48.7 E053:21.4	LVA 116.85	LAVAN ISLAND	....	5 0:27	163 168	35 145	263/ 043	450 452	370 0	14444	3213 2774
G666 51	N26:41.8 E053:27.8	-TOD-		....	2 0:25	138 142	9 136	263/ 043	450 470	370 0	14497	3160 2721
G666 51 OIIX	N26:33.5 E053:35.6	DATUT	DATUT	....	1 0:24	138 142	11 125	263/ 042	202 199	DSC 0	14517	3140 2701
G666 51 OIIX	N26:21.1 E053:45.0	ELIRA	ELIRA	....	3 0:21	144 151	15 110	263/ 042	202 199	DSC 0	14555	3102 2663
G666 51 OIIX	N26:04.5 E053:57.5	ORSAR	FIR ORSAR	....	4 0:17	144 151	19 91	263/ 042	202 199	DSC 0	14604	3053 2614
DCT 60 OMAE	N25:36.0 E054:42.5	DESDI	DESDI	....	9 0:08	123 128	50 41	263/ 042	202 199	DSC 0	14731	2926 2487
 38	N25:15.2 E055:21.9	OMDB 62ft		....	8 0:00	118 122	41 0	263/ 042	202 199	 0	14836	2821 2382

ADES ATIS: .....

.....

ROUTE TO ALTERNATE:

AWY G.MORA FIR	COORD	WPT FREQ	/NAME CT	AT	TM MT TTGO MH	DIST W/ DTGO V	TAS GS	FL +ISA	FU aFU	FOB mFOB aFOB
Alternate OMAL ANVIX R401 GIDIS G783 ALN										
SID 38 OMAE	N25:14.9 E055:22.3	C460F	SID WAYPOINT	....	0 123	1 261/ 039	337 362	CLB 0	14846	2811 2372
SID 38 OMAE	N25:17.8 E055:17.7	DB570	SID WAYPOINT	....	1 303	5 261/ 039	337 306	CLB 0	14897	2760 2321
SID 38 OMAE	N25:13.7 E055:10.9	DB575	SID WAYPOINT	....	2 235	7 261/ 039	337 299	90 0	14969	2688 2249
SID 38 OMAE	N25:08.5 E055:16.2	DB581	SID WAYPOINT	....	1 135	7 261/ 039	337 355	90 0	15041	2616 2177
SID 38 OMAE	N25:06.5 E055:19.9	DB571	SID WAYPOINT	....	1 118	4 261/ 039	337 364	90 0	15082	2575 2136
SID 38 OMAE	N25:04.4 E055:25.0	DB572	SID WAYPOINT	....	1 113	5 261/ 039	337 367	90 0	15133	2524 2085
SID 38 OMAE	N25:01.2 E055:33.2	ULADO	SID WAYPOINT	....	2 111	8 261/ 039	337 367	90 0	15215	2442 2003
SID 49 OMAE	N24:56.5 E055:41.9	RAPMO	SID WAYPOINT	....	2 119	9 261/ 039	337 364	90 0	15307	2350 1911
SID 49 OMAE	N24:50.5 E055:50.9	LOPUV	SID WAYPOINT	....	2 124	10 261/ 039	337 361	90 0	15410	2247 1808
SID 49 OMAE	N24:46.9 E055:56.3	ANVIX	SID WAYPOINT	....	2 125	6 261/ 039	337 361	90 0	15471	2186 1747
R401 49 OMAE	N24:36.0 E055:56.0	GIDIS	GIDIS	....	2 179	11 261/ 039	337 326	90 0	15584	2073 1634
G783 49 OMAE	N24:22.4 E055:42.9	DESVU	DESVU	....	4 219	18 261/ 039	337 304	DSC 0	15769	1888 1449
G783 49 OMAE	N24:15.6 E055:36.4	ALN 112.60	AL AIN	....	2 219	9 261/ 039	337 304	DSC 0	15861	1796 1357
STAR 49 OMAE	N24:26.4 E055:38.5	KEDAD	STAR WAYPOINT	....	3 008	11 261/ 039	337 346	DSC 0	15974	1684 1244
DCT 49	N24:15.7 E055:36.6	OMAL	AL AIN INTL	....	2 187	11 261/ 039	337 321	DSC 0	16086	1571 1132

AWY	COORD	WPT	/NAME		TM	MT	DIST	W/	TAS	FL	FU	FOB
G.MORA		FREQ	CT	AT	TTGO	MH	DTGO	V	GS	+ISA		mFOB
FIR											aFU	aFOB

ICAO	NAME	WIND	FL	NM	MT	TIME	FUEL	---BLOCK---	
OMRK RKT	RAS AL KHAIMAH	263/ 42	110	63	053	0:17	757	6:20	17164
OMDW DWC	DUBAI/AL MAKTOU	263/ 42	80	48	205	0:13	583	6:16	16990
OMAA AUH	ABU DHABI INTL	261/ 39	140	88	216	0:22	1014	6:25	17421

FIR: EET/LZBB0026 LHCC0038 LRBB0055 LBSR0127 LTBB0149 LTAA0157 OIIX0321
OMAE0517

ENROUTE WINDS

IDENT	FL 260		FL 300		FL 340		FL 380		FL 410	
	W/V	TMP	W/V	TMP	W/V	TMP	W/V	TMP	W/V	TMP
VOZ	282/032	-37	275/029	-45	277/030	-53	277/031	-56	277/031	-56
LIKSA	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
IVOLI	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
-TOC-	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
PEPIK	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
BERVA	280/032	-37	276/029	-45	278/030	-53	277/030	-56	277/030	-56
ERGOM	280/032	-37	276/029	-45	278/030	-53	277/030	-56	277/030	-56
TEGRI	280/030	-37	276/027	-45	278/029	-53	277/030	-56	277/030	-56
GESBA	280/030	-37	276/027	-45	278/029	-53	277/030	-56	277/030	-56
NEKUL	278/030	-37	276/027	-45	277/029	-53	276/030	-56	276/030	-56
UBOGU	278/030	-37	275/027	-45	276/029	-53	274/030	-56	274/031	-56
RONBU	276/030	-37	275/027	-45	275/029	-53	273/030	-56	273/031	-56
ARTAT	272/032	-37	273/028	-45	271/030	-53	269/032	-56	269/033	-56
ERMUP	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
ROKVA	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
UNVUS	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
ASMOB	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
RELTU	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
APTOX	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
TEPKI	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
PIPUR	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
ORMAN	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
ERGUN	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
-FC1-	260/037	-37	253/034	-45	254/037	-53	255/038	-56	255/039	-56
UMH	259/038	-37	253/035	-45	254/038	-53	255/040	-56	255/041	-56
TUBAR	259/038	-37	253/035	-45	254/038	-53	255/040	-56	255/041	-56
ROVON	259/042	-37	254/037	-45	255/040	-53	256/042	-56	256/043	-56
PAREX	259/042	-37	254/037	-45	255/040	-53	256/042	-56	256/043	-56
KEBEP	260/042	-37	255/038	-45	256/041	-53	257/042	-56	257/043	-56
NOTSA	260/046	-37	257/039	-45	257/042	-53	258/043	-56	258/044	-56
RADID	263/049	-37	260/040	-45	260/043	-53	261/044	-56	261/045	-56
IMGOD	263/049	-37	260/040	-45	260/043	-53	261/044	-56	261/045	-56
DASDO	264/051	-37	261/040	-45	261/043	-53	262/045	-56	262/046	-56
LAGSA	264/051	-37	261/040	-45	261/043	-53	262/045	-56	262/046	-56
LAM	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
LVA	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
-TOD-	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
DATUT	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
ELIRA	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
ORSAR	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
DESDI	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56

ATC FPL:
(FPL-TVS-IS
-B738/M-SDFGHILORVWXYZ/LB1
-LKPR1900
-N0451F350 VOZ L993 IVOLI Z650 PEPIK DCT BERVA DCT ERGOM DCT
TEGRI L605 NEKUL P975 ARTAT UP975 ROKVA/N0449F370 UP975
ERGUN G781 ROVON M317 RADID L319 DASDO UL223 LAM G666 ORSAR
DCT DESDI
-OMDB0533 OMAL
-PBN/A1B1D1O1S2 COM/TCAS DOF/180507 REG/OKTVS EET/LZBB0026
LHCC0038 LRBB0055 LBSR0127 LTBB0149 LTAA0157 OIIX0321
OMAE0517 SEL/LRKP CODE/49D1CD RVR/200 OPR/TVS
ORGN/LKPRTVSX RALT/OKBK RMK/
-E/0647 P/180 R/UVE J/L
A/WHITE
C/)

Annex 9 - Low-cost - A320 - Research data

```
FLT: TVS        PLN PAX: 180   PLN CARGO: 0 KGS      DATE: 7.5.2018
NON-ETOPS   AC/ REG: A320 /OKHCA   PERF COEF: 1.034  CRTE: PRG-DXB1T
COMP.BY+TIME: MF D.M.YYYY/HH:MM          WX VALIDITY:  AVG. WIND

CAPT: ............. F/O:  .................   CTOT INFO: ..........
ADEP :RWY24 /PRAGUE-RUZYNE       LKPR/PRG 0000 Z/ FUEL PRICE=  OLD
ADES :RWY30 /DUBAI-DUBAI INTL    OMDB/DXB 0000 Z/ FUEL PRICE=  OLD
ALTN1:       AL AIN-AL AIN INTL  OMAL/AAN       / FUEL PRICE=  OLD
ALTN2:
3%ERA:       KUWAIT-KUWAIT INTL  OKBK/KWI       / FUEL PRICE=  OLD

ADEP ALTN:  ...................

VERT.PROF: FL330 ASVOD/FL350 ELIRA/FL370

          TIME    FUEL DIST WCOMP  WDIR    ISA DEV      PLN     ACT
TRIP      05:35/ 15150 2578   23 308/ 22.1   0.0
ALTN1     00:28/  1281  140    0 360/  0.0   0.0
FIN.RES.  00:30/  1104  FMS RES  2385
CONT. 3%  00:10/   454                            ZFW  59616 ........
ADD.FUEL  00:00/     0  C30 CRUISE
TAXI     (00:10)   200                            FOB  17989 ........
MIN.FUEL  06:43/ 18189
COMP EXT  00:00/     0                            TOW  77605 ........
----------------------
FUEL SUM  06:43/ 18189                            TF   15150 ........
CAPT EXT        ......
TOT.FUEL        ......  DOW: ........ DOI: .....  LAW  62455 ........

ADEP   OFF BLOCK  ......    TAKEOFF  ......
ADES   IN BLOCK   ......    LANDING  ......
       BLOCK TIME ......    FLT TIME ......      FUEL REM   ........
-------------------------------------------------------------------
FL.PLANNING NOTICE:

ADEP ATIS: ..........................................................
           ..........................................................

RTE: LKPR VOZ2A VOZ L993 IVOLI Z650 PEPIK DCT BERVA DCT ERGOM DCT
     TEGRI L605 NEKUL P975 ARTAT UP975 ERGUN UL124 UMH G781 ROVON
     M317 RADID L319 DASDO UL223 LAM G666 ORSAR B416 DESDI DESDI1C
OMDB

ATC CLRN:  ..........................................................

           ..........................................................
-------------------------------------------------------------------
PERF     CURRENT LPCNG FILE:
----
RWY:.... F:... DER:.... FLX.TMP=.... N1=...  V1=.... VR=.... V2=....

RWY:.... F:... DER:.... FLX.TMP=.... N1=...  V1=.... VR=.... V2=....
```

ENG-OUT PROC.: .....

.....

RVSM:
ALTITUDE CAPT ..... STBY ..... F/O .....
FL ..... CAPT ..... STBY ..... F/O .....

AWY	COORD	WPT /NAME	TM	MT	DIST	W/	TAS	FL	FOB
G.MORA		FREQ CT AT	TTGO	MH	DTGO	V	GS	+ISA	mFOB
FIR								BURN/	act.
ADEP	N5006.1	LKPR /PRAHA/RUZYNE							17989
	E01415.6	....	05:35		2578				17989
								0/	_____
VOZ2A	N4931.9	VOZ /VOZICE	9	dep	60	325/	366	clb	17247
	E01452.5	11695	05:25	dep	2518	23	389	0	17225
								742/	_____
L993	N4909.2	LIKSA/LIKSA	8	112	50	296/	366	clb	16634
4100	E01600.9	....	05:18	112	2469	23	389	0	16594
								1355/	_____
L993	N4900.0	IVOLI/IVOLI	3	113	20	297/	366	clb	16389
4100	E01627.5	....	05:15	113	2449	23	388	0	16341
								1600/	_____
Z650	N4847.0	PEPIK/PEPIK	4	114	28	298/	366	clb	16047
4500	E01704.8	....	05:10	114	2421	23	389	0	15989
lzbb								1942/	_____
DCT		TOC /	1	114	9	298/	366	clb	15939
4500		....	05:09	118	2413	23	389	0	15877
								2050/	_____
DCT	N4837.1	BERVA/BERVA	2	114	12	298/	460	330	15865
4500	E01732.5	....	05:08	114	2400	23	483	0	15801
								2124/	_____
DCT	N4748.5	ERGOM/ERGOM	9	131	69	315/	460	330	15452
7100	E01844.0	....	04:59	131	2332	23	483	0	15376
lhcc								2537/	_____
DCT	N4615.8	TEGRI/TEGRI	17	128	134	313/	460	330	14647
4500	E02106.3	....	04:42	128	2197	23	483	0	14547
lrbb								3342/	_____
L605	N4555.4	GESBA/GESBA	4	120	35	305/	460	330	14441
5000	E02147.4	....	04:38	120	2163	23	483	0	14334
								3548/	_____
L605	N4531.0	NEKUL/NEKUL	5	121	41	305/	460	330	14196
10600	E02235.2	....	04:33	121	2121	23	483	0	14082
								3793/	_____
P975	N4445.8	UBOGU/UBOGU	12	112	99	297/	460	330	13608
10600	E02440.1	....	04:21	112	2022	23	483	0	13477
								4381/	_____
P975	N4403.1	RONBU/RONBU	11	113	89	298/	460	330	13088
3800	E02629.9	....	04:10	113	1933	23	483	0	12940
lbsr								4902/	_____
P975	N4221.8	ARTAT/ARTAT	21	120	171	306/	460	330	12088
4700	E02937.5	....	03:48	120	1762	23	483	0	11911
ltbb								5901/	_____
UP975	N4200.0	ERMUP/ERMUP	8	103	66	288/	460	330	11707

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1000   E03101.4          .... .... 03:40  103 1697  23  483    0 11519
ltaa                                                          6282/_____
UP975   N4149.8 ROKVA/ROKVA          4  106   30 291/ 461  330 11532
7800   E03139.4          .... .... 03:36  106 1666  23  484    0 11338
                                                              6457/_____
UP975   N4141.7 UNVUS/UNVUS          3  105   23 290/ 461  330 11399
8900   E03208.5          .... .... 03:33  105 1643  23  484    0 11202
                                                              6590/_____
UP975   N4140.2 ASMOB/ASMOB          1  098    5 283/ 461  330 11373
8900   E03214.0          .... .... 03:33  098 1639  23  484    0 11174
                                                              6616/_____
UP975   N4138.7 RELTU/RELTU          1  112    4 297/ 461  330 11348
8900   E03219.4          .... .... 03:32  112 1634  23  484    0 11149
                                                              6641/_____
UP975   N4135.6 APTOX/APTOX          1  105    9 290/ 461  330 11298
8900   E03230.3          .... .... 03:31  105 1626  23  484    0 11097
                                                              6691/_____
UP975   N4127.2 TEPKI/TEPKI          3  105   23 290/ 461  330 11165
8900   E03259.6          .... .... 03:28  105 1602  23  484    0 10960
                                                              6824/_____
UP975   N4121.1 PIPUR/PIPUR          2  113   13 298/ 461  330 11092
10900  E03314.3          .... .... 03:27  113 1590  23  484    0 10885
                                                              6897/_____
UP975   N4117.5 ORMAN/ORMAN          1  115    8 300/ 461  330 11047
10900  E03323.2          .... .... 03:26  115 1582  23  484    0 10839
                                                              6942/_____
UP975   N4044.8 ERGUN/ERGUN          9  113   70 298/ 461  330 10649
10900  E03444.3          .... .... 03:17  113 1512  23  484    0 10428
                                                              7340/_____
UL124   N4004.9 ASVOD/ASVOD         17  101  136 286/ 460  330  9874
11700  E03734.4          .... .... 03:00  101 1377  23  483    0  9630
                                                              8115/_____
UL124   N3930.7 KONUK/KONUK         12  105   94 291/ 456  350  9324
14100  E03928.1          .... .... 02:49  105 1283  23  479    0  9064
                                                              8665/_____
UL124   N3919.5 EVSAS/EVSAS          4  103   35 288/ 456  350  9130
14100  E04011.3          .... .... 02:44  103 1248  23  479    0  8864
                                                              8859/_____
UL124   N3828.0 VAN  /VAN           19  103  155 288/ 456  350  8272
15800  E04319.5 11520    .... .... 02:25  103 1093  23  479    0  7981
                                                              9717/_____
UL124   N3815.9 ZELSU/ZELSU          3  115   25 300/ 456  350  8133
14500  E04347.0          .... .... 02:22  115 1067  23  479    0  7837
                                                              9856/_____
UL124   N3802.9 BONAM/BONAM          3  113   28 298/ 456  350  7982
14500  E04418.0          .... .... 02:18  113 1040  23  479    0  7682
oiix                                                         10007/_____
UL124   N3753.0 TUDNU/TUDNU          3  109   23 294/ 456  350  7859
16000  E04444.8          .... .... 02:15  109 1017  23  479    0  7555
                                                             10130/_____
UL124   N3741.2 UMH  /UROMIYEH       3  121   20 306/ 456  350  7748
16000  E04505.1 11350    .... .... 02:13  121  997  23  479    0  7441
                                                             10241/_____
G781    N3730.3 TUBAR/TUBAR          2  118   20 303/ 456  350  7640
12200  E04526.2          .... .... 02:10  118  977  23  479    0  7329
                                                             10349/_____
```

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G781    N3716.0 ROVON/ROVON          3  118   26 303/ 456  350  7500
12200   E04553.4        .... .... 02:07  118  951  23  479    0  7186
                                                          10489/_____
M317    N3605.5 PAREX/PAREX         11  142   85 326/ 456  350  7040
14500   E04651.9        .... .... 01:56  142  866  23  479    0  6712
                                                          10949/_____
M317    N3504.9 KEBEP/KEBEP          9  142   73 327/ 456  350  6647
13500   E04740.2        .... .... 01:47  142  793  23  479    0  6307
                                                          11342/_____
M317    N3317.8 NOTSA/NOTSA         16  143  127 327/ 456  350  5964
15700   E04903.3        .... .... 01:31  143  666  23  479    0  5603
                                                          12025/_____
M317    N3024.9 RADID/RADID         26  142  211 324/ 456  350  4839
16900   E05125.7        .... .... 01:05  142  455  23  479    0  4445
                                                          13150/_____
L319    N3014.3 IMGOD/IMGOD          1  154   11 337/ 456  350  4782
16900   E05130.8        .... .... 01:04  154  444  23  479    0  4386
                                                          13207/_____
L319    N2854.0 DASDO/DASDO         11  156   86 339/ 456  350  4331
16900   E05205.9        .... .... 00:53  156  358  23  479    0  3921
                                                          13658/_____
UL223   N2833.1 LAGSA/LAGSA          3  145   25 328/ 456  350  4201
12800   E05220.9        .... .... 00:50  145  334  23  479    0  3787
                                                          13788/_____
UL223   N2722.4 LAM  /LAMERD        11  145   84 327/ 456  350  3760
12800   E05311.0 11700  .... .... 00:39  145  250  23  479    0  3334
                                                          14229/_____
G666    N2648.7 LVA  /LAVAN ISL      4  163   35 345/ 456  350  3577
9500    E05321.4 11685  .... .... 00:35  163  214  23  479    0  3145
                                                          14412/_____
G666    N2633.5 DATUT/DATUT          2  138   20 320/ 456  350  3475
5800    E05335.6        .... .... 00:32  138  195  23  479    0  3040
                                                          14514/_____
G666    N2621.1 ELIRA/ELIRA          2  142   15 323/ 456  350  3397
5800    E05345.0        .... .... 00:30  142  180  23  479    0  2960
                                                          14592/_____
G666    N2604.5 ORSAR/ORSAR          3  146   20 327/ 454  370  3274
5800    E05357.5        .... .... 00:28  146  160  23  477    0  2833
omae                                                      14715/_____
B416    N2551.9 PEBAT/PEBAT          3  116   27 298/ 454  370  3134
7300    E05424.0        .... .... 00:25  116  132  23  477    0  2688
                                                          14855/_____
B416            TOD  /               1  131    4 298/ 454  370  3113
1500                    .... .... 00:24  134  128  23  476    0  2667
                                                          14876/_____
B416    N2536.1 DESDI/DESDI          3  131   18 313/ 298  des  3075
1500    E05442.5        .... .... 00:21  131  110  23  320    0  2627
                                                          14915/_____
DESDI1C N2515.2 OMDB /DUBAI         21  arr  110 301/ 298  des  2839
        E05521.9        .... .... 00:00  arr    0  23  320    0  2385
                                                          15150/_____
-------------------------------------------------------------------

ADES ATIS: ..........................................................
           ..........................................................
```

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--------------------------------------------------------------------
FIR: LZBB0024 LHCC0036 LRBB0052 LBSR0125 LTBB0146 LTAA0155
     OIIX0316 OMAE0507/0028


## ALTN INFORMATION: ##
 ALTN AD ICAO/NAME        DIST TIME    TF   WCOMP   WDIR    ISA DEV
                          RTE / ALTN AVAILABILITY
--------------------------------------------------------------------
*OMAL/AL AIN-AL AIN INTL   140 00:28  1281     0  360/  0.0    0.0
          '->  RTE: ANVIX R401 GIDIS G783 ALN
          '--> AVAIL: H24

(* SIGN DENOTES ALTN USED FOR MIN.FUEL CALCULATION)
--------------------------------------------------------------------
3%ERA AD: OKBK/KUWAIT-KUWAIT INT
   AVAIL: H24
--------------------------------------------------------------------
## END ALTN INFORMATION ##


## COMPANY NOTAMS: ##
CNOTAM 1063A  [ISSUED 6.2.2017/MA, EFF:6.2.2017-UFN]
PRAGUE PRG/LKPR
TAKE OFF MINIMA RWY 12/30 RAISED TO RVR 800M ACCORDING TO CZECH CAA
AIP AD 1.1.4.10 - AOM. THIS CHANGE IS NOT YET INCORPORATED IN
JEPPESEN CHARTS. REVISED CHARTS WILL BE PUBLISHED AFTER CZECH CAA
PUBLISHES UPDATED REGULATION WITH CLARIFIED CONTENT.

CNOTAM 18R  [ISSUED 27.3.2015/PP, EFF:1.4.2015-UFN]
LKPR - SPECIAL NOISE ABATEMENT PROCEDURE
Please utilize the following departure procedure for B737 and A320:
 Take-off to 1500ft AAL:
  - Take-off thrust
  - Take-off flaps
  - Climb at V2 + 10kts (or as limited by max pitch attitude)
 At 1500ft AAL:
  - Reduce thrust to not less than climb thrust
  - Acceleration during climb and flaps retraction
  - Transition to normal climb speed
See also Nav. Warning 04/2015

CNOTAM 19R  [ISSUED 13.4.2015/PP, EFF:13.4.2015-UFN]
JEPPESEN E-LINK LOGIN DATA VALID UNTIL 21JUN:
  http://jeppesen.com/icharts/index.jsp
     login: PilotTVS
  password: A24Banshee


## END COMPANY NOTAMS ##

## WIND | +ISA SUMMARY ##
--------------------------------------------------------------------
WPT   |   FL180    |   FL240   |   FL300   |   FL340   |    FL390  |
--------------------------------------------------------------------
VOZ   |325/  23|  0|325/ 23|  0|325/ 23|  0|325/ 23|  0|325/ 23|  0|
```

LIKSA	296/	23	0	296/ 23	0	296/ 23	0	296/ 23	0	296/ 23	0
IVOLI	297/	23	0	297/ 23	0	297/ 23	0	297/ 23	0	297/ 23	0
PEPIK	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
BERVA	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ERGOM	315/	23	0	315/ 23	0	315/ 23	0	315/ 23	0	315/ 23	0
TEGRI	313/	23	0	313/ 23	0	313/ 23	0	313/ 23	0	313/ 23	0
GESBA	305/	23	0	305/ 23	0	305/ 23	0	305/ 23	0	305/ 23	0
NEKUL	305/	23	0	305/ 23	0	305/ 23	0	305/ 23	0	305/ 23	0
UBOGU	297/	23	0	297/ 23	0	297/ 23	0	297/ 23	0	297/ 23	0
RONBU	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ARTAT	306/	23	0	306/ 23	0	306/ 23	0	306/ 23	0	306/ 23	0
ERMUP	288/	23	0	288/ 23	0	288/ 23	0	288/ 23	0	288/ 23	0
ROKVA	291/	23	0	291/ 23	0	291/ 23	0	291/ 23	0	291/ 23	0
UNVUS	290/	23	0	290/ 23	0	290/ 23	0	290/ 23	0	290/ 23	0
ASMOB	283/	23	0	283/ 23	0	283/ 23	0	283/ 23	0	283/ 23	0
RELTU	297/	23	0	297/ 23	0	297/ 23	0	297/ 23	0	297/ 23	0
APTOX	290/	23	0	290/ 23	0	290/ 23	0	290/ 23	0	290/ 23	0
TEPKI	290/	23	0	290/ 23	0	290/ 23	0	290/ 23	0	290/ 23	0
PIPUR	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ORMAN	300/	23	0	300/ 23	0	300/ 23	0	300/ 23	0	300/ 23	0
ERGUN	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
ASVOD	286/	23	0	286/ 23	0	286/ 23	0	286/ 23	0	286/ 23	0
KONUK	291/	23	0	291/ 23	0	291/ 23	0	291/ 23	0	291/ 23	0
EVSAS	288/	23	0	288/ 23	0	288/ 23	0	288/ 23	0	288/ 23	0
VAN	288/	23	0	288/ 23	0	288/ 23	0	288/ 23	0	288/ 23	0
ZELSU	300/	23	0	300/ 23	0	300/ 23	0	300/ 23	0	300/ 23	0
BONAM	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
TUDNU	294/	23	0	294/ 23	0	294/ 23	0	294/ 23	0	294/ 23	0
UMH	306/	23	0	306/ 23	0	306/ 23	0	306/ 23	0	306/ 23	0
TUBAR	303/	23	0	303/ 23	0	303/ 23	0	303/ 23	0	303/ 23	0
ROVON	303/	23	0	303/ 23	0	303/ 23	0	303/ 23	0	303/ 23	0
PAREX	326/	23	0	326/ 23	0	326/ 23	0	326/ 23	0	326/ 23	0
KEBEP	327/	23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
NOTSA	327/	23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
RADID	324/	23	0	324/ 23	0	324/ 23	0	324/ 23	0	324/ 23	0
IMGOD	337/	23	0	337/ 23	0	337/ 23	0	337/ 23	0	337/ 23	0
DASDO	339/	23	0	339/ 23	0	339/ 23	0	339/ 23	0	339/ 23	0
LAGSA	328/	23	0	328/ 23	0	328/ 23	0	328/ 23	0	328/ 23	0
LAM	327/	23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
LVA	345/	23	0	345/ 23	0	345/ 23	0	345/ 23	0	345/ 23	0
DATUT	320/	23	0	320/ 23	0	320/ 23	0	320/ 23	0	320/ 23	0
ELIRA	323/	23	0	323/ 23	0	323/ 23	0	323/ 23	0	323/ 23	0
ORSAR	327/	23	0	327/ 23	0	327/ 23	0	327/ 23	0	327/ 23	0
PEBAT	298/	23	0	298/ 23	0	298/ 23	0	298/ 23	0	298/ 23	0
DESDI	313/	23	0	313/ 23	0	313/ 23	0	313/ 23	0	313/ 23	0
OMDB	301/	23	0	301/ 23	0	301/ 23	0	301/ 23	0	301/ 23	0

END WIND | +ISA SUMMARY

Annex 10 - Low-cost - B737 - Research data

```
FLT    : TVS          PLN PAX  :  180   PLN CARGO: *PT-CARGO  Kg      DATE: 07.05.2018
AC/REG : B738 /OKTVS  PERF COEF:  4.3        CREW: *PT-CCPL    WX VALIDITY: 05071900
AC CONF: *PT-ACC      PANTRY   :  *PT-PTRY

CAPT : ............ F/O: ............ CTOT INFO: ........     TOTAL PERS: ........

ADEP : PRAGUE/RUZYNE     LKPR/PRG 19:00Z          RW30.VOZ2B.VOZ
ADES : DUBAI INTL        OMDB/DXB 00:32Z
ALTN1: AL AIN INTL       OMAL/AAN
ALTN2:                       /
ERA  : KUWAIT INTL       OKBK/KWI

ADEP ALTN:                       /                ADEP STAND: ............

VERT.PROF: LKPR/FL350/UBOGU/FL370/

           TIME    FUEL  GND DIST     AIR DIST    WCOMP     WDIR     ISA DEV   DOW/DOI
TRIP       5:32 / 14274      2514         2392      +22     264/036     -1     *PT-DOW
ALTN OMAL  0:27 /  1226       122                                              *PT-DOI
FIN.RES.   0:30 /  1108  FMS RES  2334
CONT.3%    0:10 /   428                          WEIGHTS PLN/ACT ZFW  58998 .......
ADD.FUEL   0:00 /     0  CRUISE  30
TAXI            /   200                                          FOB  17036 .......
MIN.FUEL   6:39 / 17236
COMP EXT   0:00 /     0 <<<<                                     TOW  76034 .......
---------------------
FUEL SUM   6:39 / 17236                                          TF   14274 .......
CAPT EXT         ......
TOT.FUEL         ......                                          LAW  61760 .......

ADEP  OFF BLOCK  ...... TAKEOFF  .......
ADES  IN BLOCK   ...... LANDING  .......
      BLOCK TIME ...... FLT TIME .......                         FUEL REM   .......
--------------------------------------------------------------------------------
FL.PLANNING NOTICE:


TANKERING RECOMMENDATIONS:    LOSS 175$/TON

TRIP FUEL MODIFICATIONS:              STATISTICAL EXTRA FUEL:       FUEL PRICE ADEP:
ZFW +/- 1000KG          156 Kg        NO. OF FLTS    : 55              *PT-FPRICEDEP
TRIP FUEL FOR +2000FT 14317 Kg       95% STAT       : -96          FUEL PRICE ADES:
TRIP FUEL FOR -2000FT 14309 Kg       99% STAT       : 33              *PT-FPRICEDES
                                     REMARK         :

ADEP ATIS: ....................................................................

           ....................................................................

RTE: LKPR VOZ L993 IVOLI Z650 PEPIK DCT BERVA DCT ERGOM DCT TEGRI
     L605 NEKUL P975 UBOGU/N0449F370 P975 ARTAT UP975 ERGUN G781
     ROVON M317 RADID L319 DASDO UL223 LAM G666 ORSAR DCT DESDI


ATC CLRN:  ....................................................................

           ....................................................................


RWY: .....  F: ....  DER: ....  ASS.TMP= ....  N1= ....  V1= ....  VR= ....  V2= ....

RWY: .....  F: ....  DER: ....  ASS.TMP= ....  N1= ....  V1= ....  VR= ....  V2= ....

ENG-OUT PROC.: ................................................................

               ................................................................

ALTIMETERS: ALTITUDE         CAPT ..........     STBY ..........     F/O ..........
            FL .........     CAPT ..........     STBY ..........     F/O ..........
```

ETOPS CROSSFEED CHECK: PRE-DEPARTURE: TIME ..... STATUS .....
(ETOPS FLIGHTS ONLY) LAST HOUR OF CRUISE FLIGHT: TIME ..... STATUS .....

AWY	COORD	WPT	/NAME	TM	MT	DIST	W/	TAS	FL	FU	FOB
G.MORA	N50:06.0	LKPR	PRAGUE/RUZYNE	TGO	MH	DTGO	V	GS	+ISA		17036
FIR	E014:15.6	1234ft		5:32		2514				aFU	aFOB
VOZ2B	N49:31.9	VOZ	VOZICE	10	141	68	277/	363	CLB	1132	16104
47	E014:52.5	116.95	....	5:22	144	2446	030	389	0		15676
LKAA										_____	_____
L993	N49:09.2	LIKSA	LIKSA	8	113	50	277/	363	CLB	1818	15419
43	E016:00.9		....	5:14	114	2396	030	389	0		14991
LKAA										_____	_____
L993	N49:00.0	IVOLI	IVOLI	3	114	19	277/	363	CLB	2078	15158
42	E016:27.5		....	5:11	115	2377	030	389	0		14730
LKAA										_____	_____
Z650	N48:56.3	-TOC-		1	114	8	277/	451	350	2188	15049
42	E016:38.3		....	5:10	115	2369	030	477	0		14621
										_____	_____
Z650	N48:47.0	PEPIK	FIR PEPIK	3	114	20	277/	451	350	2301	14935
46	E017:04.8		....	5:07	115	2349	030	477	0		14507
LKAA										_____	_____
DCT	N48:37.1	BERVA	BERVA	3	114	21	277/	451	350	2420	14816
46	E017:32.5		....	5:04	115	2328	030	477	0		14388
LZBB										_____	_____
DCT	N47:48.5	ERGOM	FIR ERGOM	9	130	68	278/	451	350	2807	14430
71	E018:44.0		....	4:55	132	2260	030	473	0		14001
LZBB										_____	_____
DCT	N46:15.8	TEGRI	FIR TEGRI	17	128	134	278/	451	350	3563	13673
42	E021:06.3		....	4:38	130	2126	029	472	0		13245
LHCC										_____	_____
L605	N45:55.4	GESBA	GESBA	4	120	35	278/	451	350	3759	13477
50	E021:47.4		....	4:34	121	2091	029	475	0		13049
LRBB										_____	_____
L605	N45:31.0	NEKUL	NEKUL	5	121	42	278/	451	350	3994	13242
103	E022:35.2		....	4:29	122	2049	029	474	0		12814
LRBB										_____	_____
P975	N44:45.8	UBOGU	UBOGU	12	111	99	277/	451	350	4542	12694
103	E024:40.1		....	4:17	112	1950	029	476	0		12266
LRBB										_____	_____
P975	N44:03.1	RONBU	FIR RONBU	11	112	89	274/	449	370	5123	12113
28	E026:29.9		....	4:06	113	1861	030	474	0		11685
LRBB										_____	_____
P975	N42:21.8	ARTAT	FIR ARTAT	22	119	170	272/	449	370	6054	11182
45	E029:37.5		....	3:44	121	1691	030	472	0		10754
LBSR										_____	_____
UP975	N42:00.0	ERMUP	ERMUP	8	103	66	267/	449	370	6410	10826
11	E031:01.4		....	3:36	104	1625	032	477	0		10398
LTBB										_____	_____

AWY G.MORA FIR	COORD	WPT FREQ	/NAME CT	AT	TM TTGO	MT MH	DIST DTGO	W/ V	TAS GS	FL +ISA	FU aFU	FOB mFOB aFOB
UP975	N41:49.8	ROKVA	ROKVA		4	104	30	267/	450	370	6571	10665
79	E031:39.4		....	....	3:32	105	1595	032	477	0		10237
LTAA												
UP975	N41:41.7	UNVUS	UNVUS		3	104	23	267/	450	370	6695	10541
86	E032:08.5		....	....	3:29	105	1572	032	477	0		10113
LTAA												
UP975	N41:40.2	ASMOB	ASMOB		1	105	4	267/	450	370	6717	10520
86	E032:14.0		....	....	3:28	106	1568	032	477	0		10092
LTAA												
UP975	N41:38.7	RELTU	RELTU		1	104	5	267/	450	370	6743	10493
86	E032:19.4		....	....	3:27	105	1563	032	477	0		10065
LTAA												
UP975	N41:35.6	APTOX	APTOX		1	105	8	267/	450	370	6786	10450
86	E032:30.3		....	....	3:26	106	1555	032	477	0		10022
LTAA												
UP975	N41:27.2	TEPKI	TEPKI		3	105	24	264/	450	370	6915	10321
86	E032:59.6		....	....	3:23	106	1531	033	477	0		9893
LTAA												
UP975	N41:21.1	PIPUR	PIPUR		2	113	13	264/	450	370	6985	10252
105	E033:14.3		....	....	3:21	115	1518	033	475	0		9823
LTAA												
UP975	N41:17.5	ORMAN	ORMAN		1	112	7	264/	450	370	7022	10214
105	E033:23.1		....	....	3:20	114	1511	033	475	0		9786
LTAA												
UP975	N40:44.8	ERGUN	ERGUN		9	112	70	264/	450	370	7397	9840
105	E034:44.3		....	....	3:11	114	1441	033	475	0		9411
LTAA												
G781	N39:20.4	-FC1-	Fuel Check 1		32	101	257	259/	450	370	8736	8500
136	E040:02.0	113.50	....	....	2:39	103	1184	036	479	0		8072
LTAA												
G781	N37:41.2	UMH	UROMIYEH		32	106	257	254/	450	370	10055	7181
156	E045:05.1	113.50	....	....	2:07	108	927	038	478	0		6753
LTAA												
G781	N37:30.3	TUBAR	TUBAR		3	118	20	254/	450	370	10159	7077
118	E045:26.1		....	....	2:04	121	907	040	473	0		6649
OIIX												
G781	N37:16.0	ROVON	ROVON		3	117	26	256/	450	370	10293	6944
118	E045:53.4		....	....	2:01	120	881	042	476	0		6516
OIIX												
M317	N36:05.4	PAREX	PAREX		11	140	85	256/	450	370	10741	6495
141	E046:51.9		....	....	1:50	145	796	042	461	0		6067
OIIX												
M317	N35:04.9	KEBEP	KEBEP		9	142	72	256/	450	370	11120	6117
128	E047:40.2		....	....	1:41	147	724	042	460	0		5689
OIIX												

AWY G.MORA FIR	COORD	WPT FREQ	/NAME CT	AT	TM TTGO	MT MH	DIST DTGO	W/ V	TAS GS	FL +ISA	FU aFU	FOB mFOB aFOB
M317 156 OIIX	N33:17.7 E049:03.3	NOTSA	NOTSA	....	16 1:25	142 147	127 597	258/ 043	450 462	370 0	11779	5458 5029
M317 165 OIIX	N30:24.7 E051:26.2	RADID	RADID	....	27 0:58	140 145	212 385	260/ 044	450 466	370 0	12856	4381 3952
L319 165 OIIX	N30:14.3 E051:30.8	IMGOD	IMGOD	....	1 0:57	155 160	11 374	260/ 044	450 454	370 0	12913	4323 3895
L319 165 OIIX	N28:54.0 E052:05.9	DASDO	DASDO	....	11 0:46	156 161	86 288	262/ 044	450 456	370 0	13357	3879 3451
UL223 124 OIIX	N28:33.1 E052:20.9	LAGSA	LAGSA	....	3 0:43	145 150	24 264	262/ 044	450 464	370 0	13479	3758 3329
UL223 124 OIIX	N27:22.4 E053:11.0	LAM 117.00	LAMERD	....	11 0:32	145 150	84 180	263/ 044	450 465	370 0	13902	3335 2907
G666 91 OIIX	N26:48.7 E053:21.4	LVA 116.85	LAVAN ISLAND	....	5 0:27	163 168	35 145	263/ 043	449 451	370 0	14083	3154 2725
G666 51	N26:41.8 E053:27.8	-TOD-		....	2 0:25	138 142	9 136	263/ 043	449 469	370 0	14135	3101 2673
G666 51 OIIX	N26:33.5 E053:35.6	DATUT	DATUT	....	1 0:24	138 142	11 125	263/ 042	202 199	DSC 0	14155	3081 2653
G666 51 OIIX	N26:21.1 E053:45.0	ELIRA	ELIRA	....	3 0:21	144 151	15 110	263/ 042	202 199	DSC 0	14193	3043 2615
G666 51 OIIX	N26:04.5 E053:57.5	ORSAR	FIR ORSAR	....	4 0:17	144 151	19 91	263/ 042	202 199	DSC 0	14242	2995 2566
DCT 60 OMAE	N25:36.0 E054:42.5	DESDI	DESDI	....	9 0:08	123 128	50 41	263/ 042	202 199	DSC 0	14369	2867 2439
 38	N25:15.2 E055:21.9	OMDB 62ft		....	8 0:00	118 122	41 0	263/ 042	202 199	 0	14474	2762 2334

ADES ATIS: .....

.....

ROUTE TO ALTERNATE:

AWY	COORD	WPT	/NAME		TM	MT	DIST	W/	TAS	FL	FU	FOB
G.MORA		FREQ	CT	AT	TTGO	MH	DTGO	V	GS	+ISA		mFOB
FIR											aFU	aFOB
Alternate OMAL ANVIX R401 GIDIS G783 ALN												
SID	N25:14.9	C460F	SID WAYPOINT		0	123	1	261/	334	CLB	14484	2752
38	E055:22.3		....	....				039	359	0		2324
OMAE												
SID	N25:17.8	DB570	SID WAYPOINT		1	303	5	261/	334	CLB	14534	2702
38	E055:17.7		....	....				039	303	0		2274
OMAE												
SID	N25:13.7	DB575	SID WAYPOINT		2	235	7	261/	334	90	14605	2632
38	E055:10.9		....	....				039	296	0		2203
OMAE												
SID	N25:08.5	DB581	SID WAYPOINT		1	135	7	261/	334	90	14675	2561
38	E055:16.2		....	....				039	352	0		2133
OMAE												
SID	N25:06.5	DB571	SID WAYPOINT		1	118	4	261/	334	90	14715	2521
38	E055:19.9		....	....				039	361	0		2093
OMAE												
SID	N25:04.4	DB572	SID WAYPOINT		1	113	5	261/	334	90	14766	2471
38	E055:25.0		....	....				039	364	0		2043
OMAE												
SID	N25:01.2	ULADO	SID WAYPOINT		2	111	8	261/	334	90	14846	2390
38	E055:33.2		....	....				039	364	0		1962
OMAE												
SID	N24:56.5	RAPMO	SID WAYPOINT		2	119	9	261/	334	90	14937	2300
49	E055:41.9		....	....				039	361	0		1872
OMAE												
SID	N24:50.5	LOPUV	SID WAYPOINT		2	124	10	261/	334	90	15037	2199
49	E055:50.9		....	....				039	358	0		1771
OMAE												
SID	N24:46.9	ANVIX	SID WAYPOINT		2	125	6	261/	334	90	15097	2139
49	E055:56.3		....	....				039	358	0		1711
OMAE												
R401	N24:36.0	GIDIS	GIDIS		2	179	11	261/	334	90	15208	2028
49	E055:56.0		....	....				039	323	0		1600
OMAE												
G783	N24:22.4	DESVU	DESVU		4	219	18	261/	334	DSC	15389	1848
49	E055:42.9		....	....				039	301	0		1419
OMAE												
G783	N24:15.6	ALN	AL AIN		2	219	9	261/	334	DSC	15479	1757
49	E055:36.4	112.60	....	....				039	301	0		1329
OMAE												
STAR	N24:26.4	KEDAD	STAR WAYPOINT		3	008	11	261/	334	DSC	15590	1646
49	E055:38.5		....	....				039	343	0		1218
OMAE												
DCT	N24:15.7	OMAL	AL AIN INTL		2	187	11	261/	334	DSC	15701	1536
49	E055:36.6		....	....				039	318	0		1108

AWY	COORD	WPT	/NAME		TM	MT	DIST	W/	TAS	FL	FU	FOB
G.MORA		FREQ	CT	AT	TTGO	MH	DTGO	V	GS	+ISA		mFOB
FIR											aFU	aFOB

ICAO	NAME	WIND	FL	NM	MT	TIME	FUEL	---BLOCK---	
OMRK RKT	RAS AL KHAIMAH	263/ 42	110	63	053	0:17	734	6:19	16745
OMDW DWC	DUBAI/AL MAKTOU	263/ 42	80	48	205	0:14	576	6:16	16586
OMAA AUH	ABU DHABI INTL	261/ 39	140	88	216	0:23	1008	6:25	17018

FIR: EET/LZBB0024 LHCC0037 LRBB0054 LBSR0126 LTBB0148 LTAA0156 OIIX0320
OMAE0516

ENROUTE WINDS

IDENT	FL 260		FL 300		FL 340		FL 380		FL 410	
	W/V	TMP	W/V	TMP	W/V	TMP	W/V	TMP	W/V	TMP
VOZ	282/032	-37	275/029	-45	277/030	-53	277/031	-56	277/031	-56
LIKSA	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
IVOLI	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
-TOC-	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
PEPIK	280/032	-37	276/029	-45	277/030	-53	277/031	-56	277/031	-56
BERVA	280/032	-37	276/029	-45	278/030	-53	277/030	-56	277/030	-56
ERGOM	280/032	-37	276/029	-45	278/030	-53	277/030	-56	277/030	-56
TEGRI	280/030	-37	276/027	-45	278/029	-53	277/030	-56	277/030	-56
GESBA	280/030	-37	276/027	-45	278/029	-53	277/030	-56	277/030	-56
NEKUL	278/030	-37	276/027	-45	277/029	-53	276/030	-56	276/030	-56
UBOGU	278/030	-37	275/027	-45	276/029	-53	274/030	-56	274/031	-56
RONBU	276/030	-37	275/027	-45	275/029	-53	273/030	-56	273/031	-56
ARTAT	272/032	-37	273/028	-45	271/030	-53	269/032	-56	269/033	-56
ERMUP	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
ROKVA	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
UNVUS	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
ASMOB	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
RELTU	270/032	-37	270/029	-45	269/031	-53	265/033	-56	265/034	-56
APTOX	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
TEPKI	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
PIPUR	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
ORMAN	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
ERGUN	268/032	-37	266/029	-45	265/032	-53	263/033	-56	263/034	-56
-FC1-	260/037	-37	253/034	-45	254/037	-53	255/038	-56	255/039	-56
UMH	259/038	-37	253/035	-45	254/038	-53	255/040	-56	255/041	-56
TUBAR	259/038	-37	253/035	-45	254/038	-53	255/040	-56	255/041	-56
ROVON	259/042	-37	254/037	-45	255/040	-53	256/042	-56	256/043	-56
PAREX	259/042	-37	254/037	-45	255/040	-53	256/042	-56	256/043	-56
KEBEP	260/042	-37	255/038	-45	256/041	-53	257/042	-56	257/043	-56
NOTSA	260/046	-37	257/039	-45	257/042	-53	258/043	-56	258/044	-56
RADID	263/049	-37	260/040	-45	260/043	-53	261/044	-56	261/045	-56
IMGOD	263/049	-37	260/040	-45	260/043	-53	261/044	-56	261/045	-56
DASDO	264/051	-37	261/040	-45	261/043	-53	262/045	-56	262/046	-56
LAGSA	264/051	-37	261/040	-45	261/043	-53	262/045	-56	262/046	-56
LAM	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
LVA	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
-TOD-	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
DATUT	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
ELIRA	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
ORSAR	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56
DESDI	265/051	-37	263/039	-45	263/042	-53	263/043	-56	263/044	-56

ATC FPL:
(FPL-TVS-IS
-B738/M-SDFGHILORVWXYZ/LB1
-LKPR1900
-N0451F350 VOZ L993 IVOLI Z650 PEPIK DCT BERVA DCT ERGOM DCT
TEGRI L605 NEKUL P975 UBOGU/N0449F370 P975 ARTAT UP975
ERGUN G781 ROVON M317 RADID L319 DASDO UL223 LAM G666 ORSAR
DCT DESDI
-OMDB0532 OMAL
-PBN/A1B1D1O1S2 COM/TCAS DOF/180507 REG/OKTVS EET/LZBB0024
LHCC0037 LRBB0054 LBSR0126 LTBB0148 LTAA0156 OIIX0320
OMAE0516 SEL/LRKP CODE/49D1CD RVR/200 OPR/TVS
ORGN/LKPRTVSX RALT/OKBK RMK/
-E/0646 P/180 R/UVE J/L
A/WHITE
C/)