

Unit I. Airport Structure

Terms

Airside - landside concept	Terminal concept that emphasizes a physical separation of facilities that handle passengers and ground vehicles and those that deal primarily with aircraft handling.
Centralized passenger processing	Facilities for ticketing, baggage check-in, security, customs and immigration - all done in one building.
Commercial service airport	Public-use commercial airports receiving scheduled passenger service and enplaning at least 2,500 passengers annually.
Decentralized passenger processing	The passenger handling facilities are provided in smaller units and repeated in one or more buildings.
Gate arrival	A centralized terminal building layout that is aimed at reducing the walking distance by bringing the automobile as close as possible to the aircraft.
General aviation (GA) airports	Those airports with fewer than 2,500 annual enplaned passengers and those used by private and business aircraft and providing common carrier passenger service.
Hub	A city or a metropolitan statistical area requiring aviation services and classified by each community's percentage of the total enplaned passengers in scheduled service of certain domestic certified route air carriers.
Linear or curvilinear terminal	A type of simple terminal layout that is repeated in a linear extension to provide additional apron frontage, more gates and more room for passenger processing.
Mobile lounge or transporter	Used to transport passengers to and from the terminal building to aircraft parked on the apron.
Pier finger terminal	A type of terminal layout when gate concourses (fingers) were added to simple terminal buildings.
Pier satellite terminal	Terminals with concourses extending as piers ending in a round atrium or satellite area.

Primary commercial service airports	A public use airport with 10,000 enplaned passengers annually.
Reliever airports	A subset of general aviation airports that has the function of relieving congestion of primary commercial airports.
Simple unit terminal	A type of gate arrival terminal layout that consists of a common waiting and ticketing area with several exits onto a small aircraft parking apron.

Vocabulary

abandon	покидать, оставлять
aircraft parking	стоянка ВС
amenities	комфорт, обслуживание
ancillary	вспомогательный, подсобный
apron	перрон
atrium	главное помещение
baggage claim area	зона получения багажа
bridge	телетрап
capital expenditure	кап. затраты
competitive climate	условия конкуренции
concern	забота, касаться кого-либо
concourse	скопление народа; стечение (обстоятельств) ам. главный вестибюль вокзала
convoluted	запутанный, извилистый
county	графство в Великобритании, округ в США
deliberation	обдумывание, обсуждение
enplane	садиться, грузиться на самолет
enplanement	посадка или погрузка в самолет
extended curb frontage	расширенный участок тротуара перед зданием
facility	служба, средство
fare	тариф
fees and charges	взносы и сборы
flat fees	фиксированные сборы
ground handling	наземное обслуживание
hold room	помещение, где находятся пассажиры перед посадкой в самолет
international / domestic split	соотношение международных и внутренних перевозок
loading	погрузка
moving walkway	движущаяся пешеходная дорожка

obsolete	устаревший, вышедший из употребления
on short notice	быстро; уведомление за очень короткое время
pier	пирс; столб; простенок
route	маршрут
runway	ВПП
scheduled carrier	регулярный перевозчик
skewed	асимметричный
subset	подмножество
taxiway	РД
ticket counter	зд. стойка регистрации
traffic demand	спрос на перевозки
unloading	разгрузка
volume	объем
wingspan	размах крыла

Airport System

Modern airports, with their long runways and taxiways, extensive apron and passenger terminal areas, and expensive ground handling and flight navigation equipment, constitute substantial infrastructure investments. All over the world, they are now seen as facilities requiring public investment. As such, they are frequently part of a national airport system designed and financed to produce maximum benefit from public investment. Each country with its own particular geography, economic structure, and political philosophy will develop a national airport system peculiar to its own needs. This system determines the nature of current and future traffic handled at the facility in terms of such parameters as volume, aircraft type, international/domestic split, number of airlines served, and growth rates.

The National Plan of Integrated Airport System

Since 1970, the Federal Aviation Administration has recognized a subset of the 5,400 public-use airports in the United States as being vital to serving the public needs for air transportation, either directly or indirectly, and may be made eligible for federal funding to maintain their facilities. The **National Airport System Plan (NASP)** was the first such plan, which recognized approximately 3,200 such airports. In addition, the NASP categorized these airports on the basis of each airport's number of annual enplanements and the type of service provided. The NASP categorized airports as being "commercial service airports" if the airport enplaned at least 2,500 passengers annually on commercial air carriers or charter aircraft. Commercial service airports were sub-categorized as "air carrier" airports and "commuter" airports, depending on the type of service dominant at a given airport. Airports that enplaned less than 2,500 passengers annually were classified as "general aviation airports." In 1983, the final year of the NASP, a total of 780 commercial service airports (635 air carrier airports and 145 commuter airports) and 2,423 general aviation airports were recognized under the NASP.

With the passage of the Airport and Airway Act of 1982, the FAA was charged with preparing a new version of the NASP, to be called the **National Plan of Integrated Airport Systems (NPIAS)**. The NPIAS revised the method of classifying airports, primarily to reflect the extreme growth in annual enplanements that a relative few of the largest airports were experiencing at the time. As of 2002, a total of 3,364 airports in the United States were included in the NPIAS.

The categories of airports listed in the NPIAS are:

1. Primary commercial service airports.
2. Commercial service airports.
3. General aviation airports.
4. Reliever airports.

Commercial service airports

Commercial service airports are those airports that accommodate scheduled air carrier service, provided by the world's certificated air carriers. Virtually all of the 650 million passengers that boarded commercial aircraft in 2001 began, transferred through, and ended their trips at commercial service airports. The goal of commercial service airports, of course, is to provide for the safe and efficient movement of passengers and cargo between population centers through the nation's aviation system. In 2002, there were a total of 546 commercial service airports throughout the United States striving to fulfill this mission.

Primary commercial service airports are categorized in the NPIAS as those public-use airports enplaning at least 10,000 passengers annually in the United States. In 2002, there were 422 airports (less than 3 percent of the nation's total airports) categorized as primary commercial service airports.

Within this exclusive group of airports, the range of airport size and activity level is very wide, and the distribution of passenger enplanements is highly skewed. This phenomenon is a direct result of the airline routing strategy, known as the "hub and spoke" system that was adopted by several of the nation's largest carriers. In fact, the top five airports in the United States, in terms of annual enplanements, boarded nearly 25 percent of all the passengers in the United States. The top two airports, Chicago O'Hare Field and the Harts-field Atlanta International Airport, enplaned nearly 70 million (over 10 percent) of the nation's commercial air travelers in 2002.

Because of this wide range of size within the primary commercial service airport category, the NPIAS subcategorizes these airports into "hub" classifications. It should be noted that the term "hub" used by the FAA in the NPIAS is very different than the term used by the airline industry. Whereas the airline industry uses the term "hub" as an airport where the majority of an airline's passengers will transfer between flights to reach their ultimate destinations, the FAA defines hub strictly by the number of annual enplaned passengers to use the airport.

The hub classifications used by the FAA in the NPIAS are:

1. Large hubs

2. Medium hubs
3. Small hubs
4. Nonhubs

Large hubs are those airports that account for at least 1 percent of the total annual passenger enplanements in the United States. In 2002, there were 31 large hub airports in the NPIAS. These 31 large hub airports accounted for 70 percent of all passenger enplanements in the United States. **Medium hubs** are those airports that account for at least 0.25 percent but less than 1 percent of the total annual passenger enplanements. In 2002, there were 37 airports classified as medium hubs. **Small hubs** are defined as those airports accommodating greater than 0.05 percent but less than 0.25 percent of annual U.S. enplanements. Seventy-four NPIAS airports were categorized as small hubs. **Nonhubs** are those airports that enplane at least 10,000 annual enplanements but less than 0.05 percent of the annual total U.S. enplanements. In 2002, 280 primary commercial service airports fell into the nonhub category.

General aviation airports

Those airports with fewer than 2,500 annual enplaned passengers and those used exclusively by private business aircraft not providing commercial air carrier passenger service are categorized as general aviation (GA) airports. Although there are over 13,000 airports that fit this category, only a subset is included in the NPIAS. There is typically at least one general aviation airport in the NPIAS for every county in the United States. In addition, any general aviation airport that has at least 10 aircraft based at the airport and is located at least 20 miles away from the next nearest NPIAS airport is usually included in the NPIAS. In 2002, a total of 2,558 general aviation airports were included in the NPIAS.

The Function of the Airport

The airport terminal area, comprised of passenger and cargo terminal buildings, aircraft parking, loading, unloading, and service areas such as passenger service facilities, automobile parking, and public transit stations, is a vital component to the airport system. The primary goal of an airport is to provide passengers and cargo access to air transportation, and thus the terminal area achieves the goal of the airport by providing the vital link between the airside of the airport and the landside. The terminal area provides the facilities, procedures, and processes to efficiently move crew, passengers, and cargo onto, and off commercial and general aviation aircraft.

First terminals were the earliest **centralized facilities**, centralized meaning that all passenger processing facilities at the airport are housed in one building. These first centralized facilities became known as the earliest **simple-unit terminals**, because they contained all required passenger processing facilities for a given air carrier in a single-unit building. In addition to passenger processing facilities, the airport's administrative offices, and even air traffic control facilities, were located within the unit terminal building.

In larger metropolitan areas, separate buildings were constructed for each airline, each building behaving as its own unit terminal. This terminal area configuration became known as the **multiple-unit terminal** concept. Even though the multiple-unit terminal area consisted of separate facilities for each airline, it is still considered an individual centralized facility because all passenger and cargo processing required for any given passenger or piece of cargo to board any given flight still exists in one facility.

The early centralized terminals, including the simple-unit, combined-unit, and multiple-unit terminals, employed the **gate arrival concept**. The gate arrival concept is a centralized layout that is aimed at reducing the overall size of terminal areas by bringing automobile parking as close as possible to aircraft parking.

Linear terminal concepts

As airports expanded to meet the growing needs of the public, as well as the growing wingspans of aircraft, simple-unit terminals expanded outward in a rectangular or linear manner, with the goal of maintaining short distances between the vehicle curb and aircraft parking that existed with unit terminals. Within linear terminals, ticket counters serving individual airlines were introduced and loading bridges were deployed at aircraft gates to allow passengers to board aircraft without having to be outside on the apron, thereby improving convenience and safety for passengers.

In some instances airports were extended in a curvilinear fashion, allowing even more aircraft to park "nose-in" to the terminal building while maintaining short walking distances from the airport entrance to the aircraft gate.

More sophisticated linear terminals, particularly those that serve high volumes of passengers, often feature two-level structures where enplaning passengers are processed on one level and deplaning passengers on the other level. Passenger walking distances from the "curb to the gate" are typically short, on the order of 100 feet. The linear configuration also lends itself to the development of automobile parking that is close to the terminal building, and provides extended curb frontage for loading and unloading of ground transportation vehicles.

One of the main disadvantages of linear terminals becomes evident as the length of the terminal building increases. Walking distances between facilities, particularly distantly separated gates, become excessive for the passenger whose itinerary requires a change in aircraft at the airport. Prior to airline deregulation the percentage of these transfer passengers was insignificant. After 1978, however, this percentage increased dramatically and the issue of long walking distances between gates became a major issue, particularly at the hub airports.

Pier finger terminals

The **pier finger terminal** concept evolved in the 1950s when gate concourses were added to simple unit terminal buildings. Concourses, known as piers or fingers, offered the opportunity to maximize the number of aircraft parking spaces with less

infrastructure. Aircraft parking was assigned to both sides of a pier extending from the original unit terminal structure. The pier finger terminal is the first of what are known as **decentralized facilities**, with some of the required processing performed in common-use main terminal areas, and other processes performed in and around individual concourses.

Many airports today have pier finger terminals in use. Since earliest pier finger designs, very sophisticated and often convoluted forms of the concept have been developed with the addition of hold rooms at gates, loading bridges, and vertical separation of enplaning and deplaning passengers in the main-unit terminal area.

As pier finger terminals expanded, concourse lengths at many terminal buildings became excessive, averaging 400 feet or more from the main terminal to the concourse end. In addition, as terminals expanded by adding additional piers, distances between gates and other facilities became not only excessive in distance, but also confusing in direction.

Pier satellite and remote satellite terminals

Similar to **pier finger terminals**, pier satellite terminals formed as concourses extended from main-unit terminal buildings with aircraft parked at the end of the concourse around a round atrium or satellite area. Satellite gates are usually served by a common passenger holding area.

Satellite terminal concepts, developed in the 1960s and 1970s, took advantage of the ability to create either underground corridors or **Automated Passenger Movement Systems (APMs)** to connect main terminal buildings with concourses. Such terminals are said to be built on the **remote satellite concept**.

The main advantage of the remote satellite concept is that one or more satellite facilities may be constructed and expanded when necessary while providing, sufficient space for aircraft taxi operations between the main terminal building and satellites. In addition, although distances from the main terminal to a satellite may be quite large, APMs or other people-mover systems such as moving walkways or shuttle buses are provided to reduce walking distances.

Another of the advantages of the satellite concept is that it lends itself to a relatively compact central terminal with common areas for processing passengers, because aircraft with large wingspans, which for all intents and purposes dictate the size of terminal gate areas and thus concourses and satellite, are parked at remote satellites rather than at the central facility. As with the pier finger concept, the expansion of pier satellite and remote satellite concept terminals tend to result in terminal facilities that not only have large distances between key points within the terminal, but also often become confusing for passengers in their attempts to find their way to their respective gates, baggage claim areas, or other desired facilities.

The mobile lounge or transporter concept.

In 1962 the opening of Dulles International Airport west of Washington, D. C., designed as the first airport specifically for the new jet aircraft of the day, introduced the **mobile lounge** or transporter concept of airport terminals.

In this concept, aircraft are parked at remote parking locations away from the main-unit terminal building. To travel between aircraft and the terminal building, passengers would board transporters, known as mobile lounges, that would roam the airfield among ground vehicles and taxiing aircraft.

Despite its theoretical advantages, the mobile lounge concept did not win approval from passengers. Mobile lounge boarding areas in the main terminal often became excessively congested as passengers with carry-on baggage would crowd the area, often arriving early so as not to miss their assigned mobile lounge boarding time.

In addition, mobile lounges require constant maintenance, which over time becomes an excessive cost element of operations.

In the mid-1990s Dulles in effect abandoned the mobile lounge concept by constructing satellite or midfield concourses on the airfield. Today, the remaining mobile lounges at Dulles still in service act as transporters merely between the main terminal building and the satellite concourses rather than directly to aircraft. Current plans at Dulles call for construction of an underground transporter between the main terminal and the remote concourses and removing the mobile lounges from the terminal area entirely. In the United States, no other airports have relied entirely on the mobile lounge concept for their terminal areas, with the exception of providing shuttle bus services to aircraft that must be parked in remote parking spots because of lack of available gate space at the terminal building or concourses. In other countries, particularly in the Middle East, the mobile lounge concept has been met with higher levels of success.

Hybrid terminal geometries

With the volatile changes in the amount and behavior of civil aviation activity in the 1970s, with increasing numbers of large aircraft (with high seating capacities and large wingspans), volumes of passengers, and changes in route structures, particularly after airline deregulation in 1978, airport management has had to expand and modify terminal areas to accommodate almost constantly changing environments. As a result, many airport terminal geometries expanded in an ad hoc manner, leading to hybrid terminal geometries incorporating features of two or more of the basic configurations.

The airside-landside concept

The most significant terminal area concept to emerge involved a more physical separation between facilities that handle passengers and ground vehicles and those that deal primarily with aircraft handling. The **airside-landside concept** emerged with the opening of the Tampa International Airport in 1972, and has proliferated throughout the United States at airports such as Pittsburgh International Airport and Orlando International Airport.

The airside-landside concept relies heavily on automated pedestrian movement systems to quickly and efficiently shuttle passengers to and from two separate facilities. In the landside facility, all passenger and baggage processing can be

performed without being physically close to an aircraft. In addition, sufficient ancillary facilities, such as concessions, atriums, and the like, are located in landside facilities to provide amenities to facilitate a pleasurable experience for the passenger. Airside facilities, which have been built in various shapes and sizes, from X shapes to long concourses, focus on the efficient servicing of aircraft, including fueling, loading, and unloading. Separating each of the two processes allows greater flexibility in adapting to changes in either environment, whether it be new aircraft or changes in passenger processing policies.

Off-airport terminals.

In the 1980s the airside-landside concept formed the basis for a series of experimental concepts known as **off-airport terminals**. With the notion that certain passenger processes, such as ticketing and baggage check-in, and certainly automobile parking, did not need to be within any proximity of aircraft, such processes weren't necessarily required to be performed on airport property. As a result, facilities located miles away from the airport itself were introduced whereby passengers could park their personal vehicles, check themselves and their baggage in for their flights, and then take a shuttle bus to the airport. With the use of these off-airport terminals, passengers would avoid the often significantly more crowded passenger processing facilities at the main terminal. Also the passenger would not be required to find parking at the often more crowded and expensive parking facilities at the main terminal.

It is clear that no single airport terminal configuration is best for all airports. The airfield, schedules of airlines, types of aircraft, volumes of passengers, and local considerations, such as local architecture aesthetics, and civic pride dictate different choices from airport to airport and from one time to another. The airport terminal planner has the dubious task of anticipating conditions up to 10 years in the future in an environment that seems to change by the day.

For airport management, airport terminal areas, when properly planned and managed, have provided significant sources of revenue from airline leases to retail concessions. Airport terminals have also become a sense of pride for communities in general, as they are typically the first impression that visitors get of their destination city and the last experience they get before leaving. Several airport terminals today appear more to be shopping malls than passenger processing facilities, and other airport terminals are fully equipped with hotels and conference centers. These facilities have actually encouraged visitors to use the facilities at the airport without ever intending to board an aircraft.

The size and shape of airport terminal configurations has both an uncertain yet exciting future. New security regulations imposed by the Transportation Security Administration have established the need to expand airport security facilities, whereas advances in information technologies have suggested the ability to reduce the size of other passenger processing facilities such as staffed ticket counters. No matter how policies, regulations, technologies, and behaviors change, however, the basic function of the airport terminal area, that of efficiently linking passengers and

cargo to the airside and landside components of the civil aviation system, should always be understood by airport managers and planners alike.

Airport-airline relations

From the airlines perspective, each airport is a point in a route system for the loading and transfer of passengers and freight. In order to operate efficiently, air carriers need certain facilities at each airport. These requirements, however, are not static; they change with traffic demand, economic conditions, and the competitive climate. Before airline deregulation in 1978, response to changes of this sort was slow and mediated by the regulatory process. Carriers had to apply to the Civil Aeronautics Board (CAB) for permission to add or to drop routes or to change fares. CAB deliberations involved published notices, comments from opposing parties, and sometimes hearings.

Deliberations could take months, even years, and all members of the airline-airport community were aware of a carrier's intention to make a change long before the CAB gave permission. Since the Airline Deregulation Act of 1978, air carriers can change their routes without permission and on very short notice. With these route changes, airline requirements at airports can change with equal rapidity.

In contrast to air carriers, which operate over a route system connecting many cities, airport operators must focus on accommodating the interests of a number of users at a single location. Changes in the way individual airlines operate might put pressures on the airport's resources, requiring major capital expenditures or making obsolete a facility already constructed. Because airports accommodate many users and tenants other than the airlines, airport operators must be concerned with the efficient use of landside facilities that are of little concern to the carriers, even though carriers' activities can severely affect (or be affected) by them.

Despite their different perspectives, air carriers and airport management have a common interest in making the airport a stable and successful economic enterprise. Traditionally, airports and carriers have formalized their relationship through airport use agreements. These agreements establish the conditions and methods for setting fees and charges associated with use of the airport by air carriers. Most agreements also include formulas for adjusting those fees from year to year. The terms of a use agreement can vary widely, from short-term monthly or yearly arrangements to long-term leases of 25 years or more. Within the context of these use agreements, carriers negotiate with the airport to get the specific airport resources they need for day-to-day operations. For example, under the basic use agreement, the carrier may conduct subsidiary negotiations for the lease of terminal space for offices, passenger lounges, ticket counters, and other necessities.

As with major airport planning decisions, negotiations related to the day-to-day needs of the carriers have traditionally been carried out between airport management and a negotiating committee made up of representatives of the scheduled airlines that are signatories to use agreements with the airport. In the past, negotiating committees have been an effective means of bringing the collective influence of the airlines to

bear on airport management.

Since deregulation, the commercial air carrier environment has been characterized by competition rather than cooperation. Carriers might radically alter their routes, service levels, or prices on very short notice. They are reluctant to share information about their plans for fear of giving an advantage to a competitor. These factors make group negotiations more difficult. Some airport proprietors have complained that in this competitive atmosphere, carriers no longer give adequate advance warning of changes that might directly affect the operation of the airport.

The days when most major airports are dominated by a few large airlines with long-term agreements might be passing away. One reason is the proliferation of air carriers since deregulation. The wide variation in aircraft size and performance, number of passengers, and markets served means that different classes of carriers require somewhat different facilities. Commuter carriers, with their smaller aircraft, usually do not need the same gate and apron facilities as major carriers. Although there were commuters before deregulation, today's regional carriers are coming to constitute a larger portion of users at many airports, including low-costs carriers.

Airport-concessionaire relations

Services such as restaurants, bookstores, gift shops, parking facilities, car rental companies, and hotels are often operated under concession agreements or management contracts with the airport. These agreements vary greatly, but in the typical concession agreement, the airport extends to a firm the privilege of conducting business on airport property in exchange for payment of a minimum annual fee or a percentage of the revenues, whichever is greater. Some airports prefer to retain a larger share of revenues for themselves and employ an alternative arrangement called a management contract, under which a firm is hired to operate a particular service on behalf of the airport. The gross revenues are collected by the airport management, which pays the firm for operating expenses plus either a flat management fee or a percentage of revenues.

EXERCISES

Exercise 1. Give the Russian equivalents to the following words and word combinations:

Passenger terminal areas; ground handling equipment; flight navigation equipment; public investment; national airport system; to produce maximum benefit; international/domestic split; to serve the public needs; air transportation; federal funding; commercial service airport; commercial air carries; general aviation airports; safe and efficient movement of passengers and cargo; the range of airport size and activity level; ultimate destinations; private business aircraft; simple-unit terminal; air traffic control facilities; more sophisticated linear terminal; enplaning passengers; deplaning passengers; hub airport; pier finger terminals; people mover-systems; moving walkways; baggage claim areas; mobile lounges; high seating capacity; an ad hoc manner; automated pedestrian movement system; landside facilities; to allow

greater flexibility; off-airport terminals; dubious task; exciting future; security regulations; staffed ticket countries; competitive climate; to change fares; on very short notice; major capital expenditures; to be of little concern to the carries; a stable and successful economic enterprise; to set fees and charges; airport use agreement; to give an advantage to a competitor; adequate advance waiting; long-term agreement; a flat management fee; a percentage of returns; concession of agreement; management contracts; passenger processing facilities; vehicle curb.

Exercise 2. Give the English equivalents to the following words and word combinations:

Темпы роста; соотношение международных и внутренних рейсов; взлётно-посадочная полоса; рулѐжная дорожка; бортовое навигационное оборудование; дорогое наземное оборудование; государственные инвестиции; существенные инвестиции в инфраструктуру; давать максимальную выгоду; государственные потребности в воздушных перевозках; интегрированная система аэропортов; ежегодное количество отлетающих пассажиров; коммерческие перевозки; регулярные рейсы; чартерные рейсы; сертифицированные перевозки; безопасное и эффективное перемещение пассажиров и груза; аэропорты, обслуживающие коммерческие рейсы; конечный пункт назначения; грузовой терминал; пассажирский терминал; зона погрузки; зона разгрузки; секции обслуживания пассажиров.

Exercise 3. Find synonyms to the following words and word combinations:

Luggage, unavoidable, prevail, to assume, in profit, consequences, irreparably, to result in, baggage restriction, low-income travelers, out of gauge baggage, baggage trolleys, dangerous queues, check-in counter, considerably, to decrease, to give up, departure baggage, arrival baggage, to make (в значении «заставлять»), to convey, congestion.

Exercise 4. Give all the derivatives to the following words. Use a dictionary if necessary.

To emphasize; to separate; ticket; security; to immigrate; to centralize; to classify; to certify; to compete; to deliberate; to enplane; to extend; to invest; to navigate; to require; to produce; to finance; to determine; to grow; to integrate; to recognize; category; to revise; to reflect; to accommodate; to distribute; to process; to locate; to introduce; to improve; to maintain; front; to behave; to adjust; necessity.

Exercise 5. Answer the following questions:

1. What factors does each country airport system depend on?
2. What basis did the NPIAS categorize US airports on?
3. Why was the NPIAS adopted and what phenomenon it reflects?
4. What are commercial service airports like?
5. What are primary commercial service airports categorized as?
6. What is airline routing strategy known as?
7. What is the difference in the term "hub" used by the NPIAS and by the airline industry?
8. What classification does the FAA use?

9. What airports fall into the category of General aviation airports?
10. What parts is the airport terminal area comprised of?
11. What does the notion "centralized" mean?
12. What is the multiple - unit terminal like?
13. What is the gate - arrival concept aimed at?
14. What advantages did linear and curvilinear concept provide and what disadvantages did they carry?
15. In what way do airports try to reduce walking distances within the remote satellite terminals?
16. What is the main advantage of the remote satellite complex?
17. What is the function of the mobile lounge concept?
18. Why did the concept fail to win approval from passengers?
19. What factors have led to hybrid terminal geometries?
20. What does airside - landside concept rely on?
21. What are the purposes of landside and airside facilities?
22. What basis did the airside - landside concept form in the 1980s?
23. Can there be an ideal terminal configuration for all airports and if not, why?
24. Why have airport terminals become a sense of pride for communities?
25. What is the main function of the airport terminal area?
26. What kind of documents formalizes the relationship between airports and carriers?
27. In what way has the deregulation affected air carrier environment?
28. What are the basic principles of dealing with concessionaries?

Exercise 6. What do the following abbreviations stand for?

NASP; FAA; NPIAS; GA; APM; FSA; CAB; ADA

Unit II. Ground Handling

Terms

Gate - usage agreement	A formal contract between an airport and an air carrier as to the lease of gates at the airport terminal. Exclusive use gate usage agreement: A gate usage agreement in which an air carrier retains sole authority to use a particular gate or set of gates at an airport terminal.
Shared - use gate usage agreement	A gate usage agreement in which air carriers schedule use of gates in coordination with airport management and other air carriers serving the airport.

Preferential - use gate usage agreement	A gate usage agreement in which one air carrier has preferential use of the gate. Should that air carrier not be using the gate during some period of the day, other air carriers subscribing to the agreement may use the gate.
Flight interface	(as used in the passenger handling system) the link between the passenger processing activities and the flight.
Access /processing interface	The link in which the passenger makes the transition from the vehicular mode of transportation to pedestrian movement into the passenger processing activities.

Vocabulary

aircraft tug / tow tractor	буксировщик
aircraft weight and balance	центровка ВС
alteration	изменение
amusement machines	игровые автоматы
armrests	подлокотники
baggage claim	получение багажа
baggage trolley	багажная тележка
become obsolete	устаревать
blankets, pillows	пледы, подушки
catering loaders	загрузчики бортпитания
concurrently	одновременно
curb	место высадки пассажиров из наземного транспорта
curbside check - in	регистрация при высадке из транспорта
deicing fluid recapture	сбор оставшегося антифриза
demineralized 12 water	техническая вода
disabled persons	инвалиды
disencumber	освободить от хлопот
doorsill height	высота дверного проема
dual - lane taxiway	двухполосная РД
ensure	обеспечивать, гарантировать
fault	отказ, поломка
freight aircraft	грузовое ВС
galley	кухня на борту
gantry	портал крана, мостик
golf club	клюшка для гольфа

handle	обслуживать, обрабатывать
headrests	подголовники
in - flight entertainment	развлечения на борту
left luggage lockers	автоматические камеры хранения
length	длина
litter	мусор
load sheet	загрузочная ведомость
moving sidewalks	движущиеся дорожки
nacelles	гондолы
passenger steps	пассажирский трап
pedestrian circulation	циркулирование пешеходов
potable water	питьевая вода
prior to	перед тем, как
process	обрабатывать
replenish	пополнять
restock	пополнять запас
routine maintenance	повседневное тех. обслуживание
single - lane taxiway	однополосная РД
sit idle	простаивать
spillage	разбрызгивание, утечка
start up	запуск
threshold	порог
throughput	пропускная способность
tire	покрышка
trim sheet	балансирующая ведомость
turnaround of the aircraft	разворот ВС
uncontaminated fuel	топливо без посторонних примесей
valet services	обслуживающий персонал
withdraw	убирать, выводить

Introduction

The movement of passengers, baggage, and cargo through the terminals and the turnaround of the aircraft on the apron are achieved with the help of those involved in the ground handling activities at the airport. These activities are carried out by some mix of the airport authority, the airlines, and special handling agencies depending on the size of the airport and the operational philosophy adopted by the airport operating authority. For convenience of discussion, ground handling procedures can be classified as either terminal or airside operations. Such a division is however only a convention, in that the staff and activities involved are not necessarily restricted to these particular functional areas. The table below lists those airport activities normally classified under ground-handling operations.

Table. The Scope of Ground Handling Operations

Terminal

Baggage check
 Baggage handling
 Baggage claim
 Ticketing and check-in
 Passenger loading/unloading
 Transit passenger handling
 Elderly and disabled persons
 Information systems
 Government controls
 Load control
 Security
 Cargo

Airside

Ramp services

Supervision
 Marshaling Start-up
 Moving/towing aircraft
 Safety measures

On-ramp aircraft servicing

Repair of faults
 Fueling
 Wheel and tire check
 Ground power supply
 Deicing
 Cooling/heating
 Toilet servicing
 Potable water
 Demineralized water
 Routine maintenance
 Non-routine maintenance
 Cleaning of cockpit windows, wings,
 nacelles and cabin
 Windows

Onboard servicing

Cleaning
 Catering
 In-flight entertainment
 Minor servicing of cabin fittings
 Alteration of seat configuration

External ramp equipment

Passenger steps

Catering loaders

Cargo loaders

Mail and equipment loading

Crew steps on all freight aircraft

Terminal Functions

Transportation planners use the term high activity centers to describe facilities such as airport terminals that have a high throughput of users. In the peak hour, the largest passenger airports process well in excess of 10,000 passengers. Departing international passengers are likely to spend on average more than 1 hour in the terminal facility, and arriving international passengers at least 30 minutes. During the period that they spend in the terminal, passengers are necessarily engaged in a number of processing activities and are likely to use a number of subsidiary facilities put in the airport for their comfort and convenience as well as for the airport's profit. Before discussing in some detail these individual activities, it is worth classifying the terminal activities into five principal component groups:

- Direct passenger services
- Airline-related passenger services
- Governmental activities
- Nonpassenger related airport authority functions
- Airline functions

Typically, at a large passenger terminal, the following noncommercial activities will be provided, usually by the airport authority:

- Porterage
- Flight and general airport information
- Baggage trolleys
- Left luggage lockers and left luggage rooms
- Directional signs
- Seating
- Toilets, nurseries, and changing rooms
- Rest rooms
- Post office and telephone areas
- Services for disabled and special passengers

Depending on the operating philosophy of the airport, commercial facilities will either be operated directly by the authority itself or leased on a concessionary basis to specialist operators. Typically, at a large airport, the following commercial activities can be expected to play an important part in the operation of the passenger terminal:

- Car parking
- Duty-free shops

- Other shops (book shops, tourist shops, boutiques, etc.)
- Car rental
- Insurance
- Banks
- Hairdressers, dry cleaners, valet services
- Hotel reservations
- Amusement machines
- Advertising
- Business center facilities

Components of the airport terminal

The airport terminal area is in the unique position of accommodating the needs of both aircraft and the passengers that board them. As such, the component systems of the airport terminal area may be thought of as falling into two primary categories: the **apron and gate system**, which is planned and managed according to the characteristics of aircraft, and the passenger and baggage handling systems, which are planned and managed to accommodate the needs of passengers and their baggage in their transition to or from the aircraft.

The apron and gate system

The apron and gates are the locations at which aircraft park to allow the loading and unloading of passengers and cargo, as well as for aircraft servicing and preflight preparation prior to entering the airfield and airspace.

The size of aircraft, particularly their lengths and wingspans, is perhaps the single greatest determinant of the area required for individual gates and apron parking spaces. In fact, the grand size of airport terminals is a direct result of large numbers of gates designed to accommodate aircraft of wingspans reaching 200 feet in length. The size of any given aircraft parking area is also determined by the orientation in which the aircraft will park, known as the aircraft parking type. Aircraft may be positioned at various angles with respect to the terminal building, may be attached to loading bridges or Jet-ways, or may be freestanding and adjoined with air stairs for passenger boarding and deplaning. Some aircraft parking types require aircraft to be maneuvered either in or out of their parking spaces by the use of aircraft tugs, whereas other parking types allow the movement of aircraft in and out under their own power. The five major **aircraft parking** types are nose-in parking, angled nose-in, angled nose-out, parallel parking, and remote parking.

Most large jet aircraft at commercial service airports park **nose-in** to gates at the terminal and connect directly to the terminal building by loading bridges. Aircraft are able to enter nose-in parking spaces under their own power, and tend to be pushed out by an aircraft tug and oriented so that they may move forward on the apron without coming into contact with any other structures. The primary advantage to nose-in parking is that it requires less physical space for aircraft than any other aircraft parking type. The majority of commercial service airports, particularly those

with large volumes of jet aircraft operations, have primarily nose-in parking. With nose-in parking, only the front-entry door on the aircraft is used for boarding, because the rear doors are typically too far from the terminal building to extend a loading bridge. This has some, but not an entirely significant, impact on the efficiency of passenger boarding and deplaning.

Angled nose-in parking brings aircraft as close to the terminal building as possible while maintaining enough maneuvering room so that aircraft may exit the parking space under its own power. Angled nose-in parking is typically used by smaller aircraft, such as turboprops or small regional jets.

Parallel parking is said to be the easiest to achieve from an aircraft maneuvering standpoint, although each space tends to require the largest amount of physical space for a given size of aircraft. In this configuration, both front and aft doors of the aircraft on a given side may be used for passenger boarding by loading bridges.

Remote parking may be employed when there is limited parking area available at the terminal building itself or when aircraft parked may be stationed there overnight or for longer durations. Remote parking areas are typically comprised of a series of rows of parking spaces, sized to accommodate varying sizes of aircraft.

Most airports have more than one aircraft parking type to accommodate the various types of aircraft that serve the different terminal geometries and air carrier or general aviation activities. Furthermore, airports with a high number of **based aircraft** or air carrier aircraft that **remain overnight (RON)** at the air-port, must take into consideration higher volumes of remote parking that is flexible to accommodate aircraft of various shapes and sizes.

Taxilanes are found on airport aprons to direct aircraft taxiing between airfield taxiways and aircraft parking areas on the apron. Taxilanes exist as single-lane taxiways, where there exists sufficient room for one aircraft, and dual-lane taxiways, with sufficient room for two aircraft taxiing in opposite directions to move simultaneously. Dual-lane taxilanes are typically found at the busiest of airports serving larger aircraft.

Aircraft gate management

One of the most important and sometimes most challenging aspects of planning and managing the apron concerns the number of aircraft parking areas, or gates, that are required for efficient operations. The number of commercial aircraft gates required at an airport, for example, over any given operating day is dependent on a series of factors, including: the number and type of aircraft scheduled to use a gate, each aircraft's scheduled turnaround time (also known as gate occupancy time), and the type of gate usage agreement that each air carrier has with the airport.

The turnaround time of each aircraft directly affects the number of aircraft that can use a gate over the course of a day. Turnaround times of aircraft vary widely, based in part on the size of aircraft, the itinerary of the aircraft, the number of

passengers, the volume of cargo to be loaded and unloaded, and the schedules of the air carrier. Turnaround times of smaller commercial service aircraft flying relatively short routes, carrying less than 50 passengers, for a regional airline, for example, may be as low as 15 minutes, whereas wide-body aircraft flying on international routes may require 3 or more hours turnaround time. As such, a gate serving small regional air carrier, aircraft gates may serve 30 or more aircraft in an operating day, and gates serving international flights may accommodate only two or three aircraft per day. The gate usage agreement that each air carrier has with airport management also plays a significant role in the total number of required gates at the airport terminal. The three most common types of gate usage agreements are exclusive-use, shared-use, and preferential-use agreements.

As the name implies, under an **exclusive-use agreement**, an air carrier retains sole authority to use a particular gate or set of gates at an airport terminal. This agreement gives the air carrier flexibility when adjusting flight schedules, assuring the carrier that gates will always be available when needed. Operationally, however, this type of agreement leads to inefficiencies in overall gate use, because when the air carrier is not currently using its gates, the gate sits idle, despite the fact that another air carrier may desire a gate parking space at that time. Air carriers signing exclusive-use agreements, usually do so for a premium, and for a relatively long contract period, and thus are identified typically as signatory carriers at the airport. Signatory carriers tend to have the majority of operations at the airport, thus warranting exclusive-use agreements.

Under **shared-use agreements**, air carriers and other aircraft schedule use of gates in coordination with airport management and other air carriers serving the airport. Thus individual gates may be shared by multiple air carriers. Shared-use agreements are usually arranged by air carriers that have relatively few operations scheduled at the airport. For example, international air carriers tend to arrange shared-use agreements with United States airports, because they each have perhaps only a few operations per day at any given airport. For air carriers that have many operations at an airport, shared-use agreements reduce the flexibility in schedule planning. From an airport management perspective, however, shared-use agreements are operationally efficient, maximizing the number of aircraft that may use gates over the course of a schedule day.

Preferential-use agreements are hybrids of the exclusive-use and shared-use agreements. Under a preferential-use agreement, one air carrier has preferential use of the gate. However, should that air carrier not be using the gate during some period of the day, other air carriers subscribing to the agreement may use the gate, as long as its use does not interfere with upcoming operations from the preferential carrier. Preferential-use agreements are typically signed by one carrier that has moderate levels of service at the airport, and one or more carriers or charter aircraft that have relatively few operations.

The passenger handling system

The commercial airport terminal's **passenger handling system** is a series of links and processes that facilitate the transfer of passengers between an aircraft and one of the modes of the local ground transportation system. These processes include the flight interface, passenger processing, and access/processing interface.

The **flight interface** provides the link between the aircraft gates and passenger processing facilities. The flight interface includes gate lounges and service counters, moving sidewalks, buses, and mobile lounges; loading facilities such as loading bridges and air stairs; and facilities for transferring between flights, including corridors, waiting areas, and mobile conveyance facilities.

Passenger processing facilities accomplish the major processing activities required to prepare departing passengers for use of air transportation and arriving passengers to leave the airport for ground transportation to their ultimate destinations. Primary activities include ticketing, baggage check, security, passport check, baggage claim, customs, and immigration. Facilities include ticketing and baggage check-in counters, baggage and passenger security stations, information kiosks, baggage claim carousels, customs facilities, and rental car and other ground transportation desks.

The **access/processing interface** makes up the facilities that coordinate the transfer of passengers between ground transportation and the terminal building, where passenger processing facilities are typically located. Activities at the access/processing interface include loading and unloading of passengers and baggage from vehicles at the curb and transit stations, and pedestrian circulation from vehicle parking facilities. The access/processing interface includes the vehicular drive and terminal curb, sidewalks, shuttle buses, automated conveyance systems to and from parking facilities, and bus stops, taxi stands, and rail stations.

In addition, the **access/egress interface** facilitates the movement of passengers and ground vehicles between origins and destinations in the community and the airport property. The access/egress interface is a component of the airport's ground access system.

Passengers and their required processing facilities

Passenger processing requirements and other needs vary widely on the basis of the **segment of itinerary** the passenger is on while at the airport. The three primary itinerary segments are *departing*, *arriving*, and *transferring*.

Passengers traveling within the United States (or within the confines of any country, for that matter) are considered domestic passengers. In the United States, even those passengers that are not United States citizens are considered domestic passengers if their itinerary is within the confines of the United States. In other countries, non-citizens may be considered international passengers, even when traveling within the confines of the country.

The trip purpose of a passenger has traditionally been an indicator of the passenger's individual needs. The two most common trip purposes identified in the industry are traveling on business, or traveling for leisure, although it is understood that many travelers' itineraries combine both business and leisure activities.

The group size of passengers plays a significant role in determining the most efficient manner for passenger processing, particularly through the access/processing interfaces and processing system. Group sizes of passengers tend to be categorized as either traveling individually (or in small groups), or traveling in large groups (typically of 20 or more passengers in the same group).

The type of baggage carried by passengers may determine not only the processing required by such passengers but also the design and planning of baggage handling facilities. Passengers are said to be carrying either no baggage, carry-on baggage, baggage to be checked in, and/or oversized or oddly shaped baggage (such as golf clubs or skis).

Most recently, the type of ticket that a passenger purchases from the air carrier has contributed to determining the type of processing required. Since the early 1990s, passengers have been able to purchase either traditional paper tickets or electronic tickets. Electronic ticketing facilitates the processing of departing passengers by removing the necessity of carrying a paper ticket for initial processing.

The true challenge of airport terminal planning and management is to accommodate the needs of all passengers, as well as their friends and families who meet them or see them off (commonly known as meeters/greeters), airport employees, airline employees, concession workers, and government staff, while minimizing the conflict between any individuals or groups.

Although every airport terminal is different in the number, type, and arrangement of passenger processing facilities, there are a series of essential processing facilities that must be present to ensure appropriate processing for passengers traveling on each itinerary segment.

For all departing passengers, these facilities include ticketing and passenger security screening. For those passengers traveling with baggage to be checked in, baggage explosive detection screening processing is required. Finally, departing passengers require some form of processing just prior to boarding at the gate.

Ticketing. The ticketing process has come a long way since the early days of passenger processing at airport terminals, although some characteristics dating back to the original ticketing policies, including the term ticketing, remain. Traditional ticket counters are facilities staffed by air carrier personnel. As with gates, ticket counters may be configured for exclusive use or common use.

Exclusive-use ticket counters are typically configured with information systems, computers, and other equipment specific to one air carrier. The number of positions at the ticket counter is typically determined by the airline on the basis of the estimated number of departing passengers over the course of the operating day, particularly at busy, or peak, times. Most scheduled air carriers with consistent

volumes of scheduled operations, tend to have exclusive-use ticketing facilities at commercial service airports.

Common-use ticket counters are typically configured for use by multiple air carriers. Many common-use ticketing facilities are equipped with **common-use terminal equipment (CUTE)**, a computer-based system that can accommodate the operating systems of any air carrier that shares the ticketing facility. A growing number of airport terminals serving air carriers that have infrequent service to the airport, charter carriers, and international carriers have implemented common-use ticketing facilities, which provide the ability to serve more air carriers and passengers with less physical ticket counter space than their exclusive-use counterparts.

The traditional processing that occurs at an airline ticket counter includes the purchasing of airline tickets for trips either on the day of purchase or for future travel, the assignment of seats, and the issuance of boarding passes. For passengers checking in baggage, the ticket counter has traditionally served as the location where bags would be checked and entered into the baggage handling system.

For the first 60 years of commercial aviation, much of the functions performed at the ticket counter were done manually. In recent years, the implementation of computer technology, information sharing, and automation have allowed much of the traditional processes to be distributed among other locations, many of which are not located at the airport terminal itself. The purchasing of airline tickets through travel agents, over the telephone, and increasingly through the Internet comprise the vast majority of airline ticketing transactions. Furthermore, the ability to acquire seating assignments, and in some cases boarding passes, through automated systems renders the airport terminal's ticketing process an unnecessary part of many departing passengers' travels through the terminal.

Most recently, the introduction of automated kiosks by many air carriers, located near traditional ticket counters, perform many of the essential services of the traditional ticket counter, at least for those passengers traveling on electronic tickets. In addition, some airports have employed **common-use self-service (CUSS)** kiosks, which offer check-in for multiple air carriers.

Despite the vast changes in technology and policies over time, the traditional ticket counter may never become obsolete. During periods of irregularity, such as when flights are delayed or canceled, or when passengers need special assistance with their itineraries, the ticket counter often becomes the first location that passengers go to in order to find an airline representative for assistance.

Ticketing has from time to time shared a portion of the passenger and baggage security screening processes at the airport. In the 1990s, in reaction to the 1988 bombing of Pan Am 103 over Lockerbie, Scotland, initial passenger screening was performed by air carrier ticket agents by asking questions of each passenger checking in baggage. Those questions were:

1. "Did you pack your own baggage?"
2. "Have your bags been with you at all times since you packed them?"

The purpose of these questions was to prevent the stowage of explosives in checked baggage, on the philosophy that no passenger would willingly board an aircraft with explosives set to destroy the aircraft in his or her baggage. In 2002, the Transportation Security Administration (TSA) discontinued this Process. In 2003, ticketing facilities began performing first phases of security screening by directing all checked-in baggage to explosive detection screening stations. In addition, experimental TSA policies at some airports, which require all passengers to be in possession of a boarding pass prior to entering the passenger security screening processing area, have put new burdens on ticketing areas to issue boarding passes to passengers who, before the policy was implemented, would not receive their boarding passes until reaching their gates, beyond security checkpoints.

Security screening

The processing of passengers and baggage for the purpose of ensuring the security of the civil aviation system has undergone a virtual overhaul following the terrorist attacks on the United States on September 11, 2001. As of 2003, passenger and baggage security screening is managed and operated by the Transportation Security Administration (TSA). Although the TSA has ultimate authority over the facilities and procedures that comprise the security screening processes, airport managers and planners should be keenly aware of the security screening process, because the process has presented the most significant impacts on airport terminal planning and operations in recent years.

At-gate processing

The remaining processing to be performed on a passenger prior to boarding an aircraft typically occurs at the gate area. Each air carrier has its own method of boarding passengers onto aircraft. Some air carriers board in order of fare class, first class first, coach class next. Others board passengers in order by the row number of their assigned aircraft seats (rear to front). Yet others board simply on a first-come, first-served basis. For all air carriers, however, regulations state that each passenger must show a boarding pass and government-issued photo identification to an air carrier gate agent prior to boarding.

At times, gate processing has also incorporated security screening policies. Early policies employed by the Transportation Security Administration called for randomly selecting boarding passengers for additional passenger and carry-on baggage screening. This policy was in the process of being phased out in the early months of 2003.

In addition to boarding, passenger processing within the gate area also includes administrative issues regarding a passenger's ticket, including seat assignment changes, requests to stand by for a flight, and any irregular issues that may arise.

Federal Inspection Services (FIS)

Passengers arriving on international flights must generally undergo customs and immigration formalities at the airport of their initial landing in the United States. **Federal Inspection Services (FIS)** conducts these formalities, which include

passport inspection, inspection of baggage, and collection of duties on certain imported items, and sometimes inspection for agricultural materials, illegal drugs, or other restricted items. FIS is operated by the United States Customs Service, which, as of March 2003, was administered under the Department of Homeland Security.

In recent years, introduction of streamlined procedures for returning U.S. citizens, the "red channel, green channel" system for passing through customs, and computerized access to records at inspection stations have substantially sped the flow of passengers at many airports. Flights from some Canadian and Caribbean airports are pre-cleared at the originating airport, so arrival formalities are substantially reduced or eliminated.

Baggage handling

Baggage handling services include a number of activities involving the collection, sorting, and distribution of baggage. An efficient flow of baggage through the terminal is an important element in the passenger handling system.

Departing passengers normally check their baggage at one of a number of sites including curbside check-in and at the ticket counter in the terminal building. The bags are then sent to a central sorting area, where they are sorted according to flights and sent to the appropriate gate to be loaded aboard the departing aircraft. Arriving baggage is unloaded from the aircraft and sent to the central sorting area. Sorted bags are sent to a transferring flight, to the baggage claim areas, or to storage for later pickup.

At most airports, baggage handling is the responsibility of the individual air carriers. Some airports operate a consolidated baggage service, either with airport personnel or on a contract basis.

One of the simplest and most widely applied methods to expedite baggage handling is curbside check-in. This separates baggage handling from other ticket counter and gate activities, thereby disencumbering those locations and allowing baggage to be consolidated and moved to aircraft more directly. Another method is replacement of the baggage claim carousel with loop conveyor belts that allow passengers greater access to their luggage without increasing the size of the claim area.

Sorting baggage, moving it to and from the apron, and aircraft loading and unloading are time-critical and labor-intensive operations. Technologies to improve this process include high-speed conveyors to transport baggage between the terminal and the flight line, often used in conjunction with pallets or containers that can be put on and taken off aircraft with labor-saving equipment. Computerized baggage-sorting equipment, capable of distributing bags with machine-readable tags, has been installed at some airports.

Aircraft Ramp Servicing

Most arriving or departing aircraft require some ramp services, a number of which are the responsibility of the airline station engineer. When extensive servicing is required, many of the activities must be carried out simultaneously.

Fault servicing.

Minor faults that have been reported in the technical log by the aircraft captain and that do not necessitate withdrawal of the aircraft from service are fixed under the supervision of the station engineer.

Fueling.

The engineer, who is responsible for the availability and provision of adequate fuel supplies, supervises the fueling of the aircraft, ensuring that the correct quantity of un-contaminated fuel is supplied in a safe manner. Supply is either by mobile truck or from the apron hydrant system. Many airports use both systems to ensure competitive pricing from suppliers and to give maximum flexibility of apron operation. Oils and other necessary equipment fluids are replenished during the fueling process.

Wheels and tires.

A visual physical check of the aircraft wheels and tires is made to ensure that no damage has been incurred during the last takeoff/landing cycle and that the tires are still serviceable.

Ground power supply.

Although many aircraft have auxiliary power units (APU) that can provide power while the aircraft is on the ground, there is a tendency for airlines to prefer to use ground electrical supply to reduce fuel costs and to cut down apron noise. At some airports the use of APUs is severely restricted on environmental grounds. Typically, ground power is supplied under the supervision of the station engineer by a mobile unit. Many airports also can supply power from central power supplies that connect to the aircraft either by apron cable or by cable in the air-bridge structure.

Deicing and washing.

Figure 2-1 shows a typical multiuse vehicle suitable for spraying the fuselage and wings with deicing fluid and for washing the aircraft, especially the cockpit windows, wings, nacelles, and cabin windows. This self-propelled tanker unit provides a stable lift platform for spraying or for various maintenance tasks on conventional and wide-bodied aircraft. At some airports, such as Munich and Lulei, aircraft are run through huge deicing gantries on specially designed deicing aprons sited close to the departure threshold. Such facilities permit the recapture and recycling of deicing fluid.

Vocabulary Practice

1. What do CAB and FAA stand for? What matters do they regulate?
2. What is a "carrier"? What are some of the two-letter codes for carriers?
3. How many coupons does an airline ticket have?
4. What does IATA stand for? What does IATA do?
5. What is a ticket?
6. What is the difference between a ticket agent's job and that of a reservations agent?
7. How is an airline ticket validated?

Cooling/heating. In many climates where an aircraft is on the apron for some time without operation of the APU, auxiliary mobile heating or cooling units are necessary to maintain a suitable internal temperature in the aircraft interior. The airline station engineer is responsible for ensuring the availability of such units.



Figure 2-1 Deicing washer vehicle

Other servicing

Toilet holding tanks are serviced externally from the apron by special mobile pumping units. Demineralized water for the engines and potable water are also replenished during servicing.

Onboard servicing

While external aircraft servicing is being carried out, there are simultaneous onboard servicing activities, principally cleaning and catering. Very high levels of cabin cleanliness are achieved by:

- Exchange of blankets, pillows, and headrests
- Vacuuming and shampooing carpets
- Clearing ashtrays and removal of all litter
- Restocking seatback pockets
- Cleaning and restocking galleys and toilets
- Washing all smooth areas, including armrests

Catering

Personnel clear the galley areas immediately after the disembarkation of the incoming passengers. After the galley has been cleaned, it is restocked and a secondary cleaning takes care of spillage during restocking. Internationally agreed standards of hygiene must be met in the handling of food and drink from their point of origin to the passenger. Where route stations are unable to meet either quality or hygiene standards, catering supplies are often brought from the main base. Figure 2-2 shows the loading operation of a catering truck. These are usually constructed from a standard truck chassis with a closed van body that can be lifted up by a hydraulic scissor lift powered by the truck engine. Two different types of catering trucks are available: low lift vehicles suitable for servicing narrow-bodied aircraft up to 11.5 feet [3.5 m] doorsill height and high lift vehicles for loading wide-bodied jets.



Figure 2-2 Catering track in loading position
Ramp Layout

During the design phase of a commercial air transport aircraft, considerable thought is given to the matter of ramp ground handling. Modern aircraft are very large, complicated, and expensive. Therefore, the apron servicing operation is also complicated and consequently time-consuming. Unless the ramp servicing procedure can be performed efficiently with many services being carried out concurrently, the aircraft will incur long apron turnaround times during which no productive revenue is earned. Inefficient ramp servicing can lead to low levels of aircraft and staff utilization and a generally low level of airline productivity. The complexity of the apron operation becomes obvious when Figure 2-3 is examined.

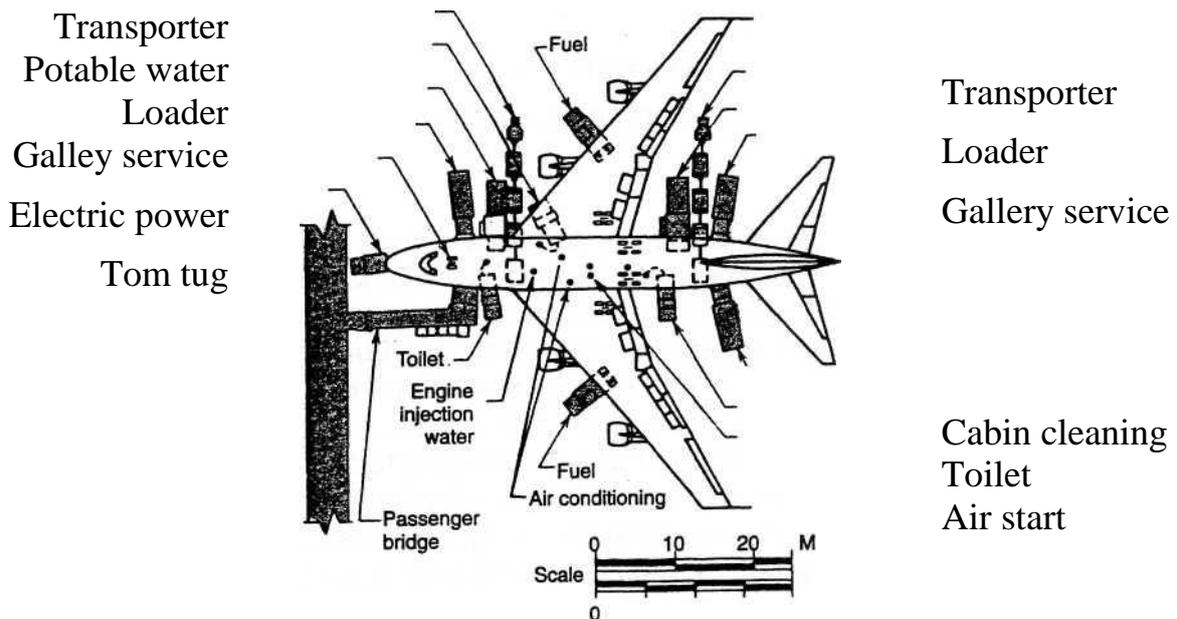


Figure 2-3 Ramp layout for servicing B747 SP. Note: Under normal conditions, external electrical power, air start, and air conditioning are not required when the auxiliary power unit is used

Airline related Operational Functions

Flight dispatch

A major preoccupation for airline management in relation to airport terminal operations is the achievement of on-time departures. Many of the activities associated with this, such as the refueling and cleaning aircraft together with the loading of food supplies, are carried out on the ramp and are familiar to most airport staff. There is, however, a less familiar procedure that covers all the necessary technical planning without which the flight could not depart. The main activities associated with this procedure of flight dispatch are:

- Flight planning
- Aircraft weight and balance
- Flight crew briefing
- Flight watch

Flight plan

DC10 Los Angeles (LAX) to Chicago-O'Hare (ORD) -1580 n.m.
Route-LAX.. AG.J146.GLD.J192.PWE.J64.BDF.V10.VAINS..ORD

Daggett via Jet Airway 146 to Goodland via Jet Airway
192 to Pawnee City via Jet Airway 64 to Bradford via
Victor Airway 10 to Vains and Chicago-O'Hare.

A	B	C	D	E	F	G	H	I	J	K	L	M
RCA	256	37	828	09	51	486	26045	044	530	36	148	588
DVC	308	37	827	07	50	483	29071	056	539	35	91	497
GUC	98	37	826	07	49	482	29086	056	538	11	28	469
OLD	257	37	825	06	45	480	31094	053	533	28	73	396
PWE	258	37	824	04	40	478	31095	058	536	29	71	325
LMN	105	37	823	04	38	477	30087	056	533	12	29	296
POD	166	37	822	03	37	475	29053	046	521	19	45	251
-	132						27030	028		23	21	230
ORD												

<input type="text" value="A"/>	?	Flight plan check point	<input type="text" value="H"/>	?	Wind direction (26 = 260°) and speed in knots 045 = 45kts
<input type="text" value="B"/>	?	Segment mileage (n. m.)	<input type="text" value="I"/>	?	Head or tail wind component (headwind" ")
<input type="text" value="C"/>	?	Flight level (thousands of feet)	<input type="text" value="J"/>	?	Ground speed
<input type="text" value="D"/>	?	Indicated Mach number	<input type="text" value="K"/>	?	Segment time (minutes)

E	?	Deviation from standard temperature(all plus values)	L	?	Segment fuel bumoff (hundreds of lbs.)
F	?	Tropopause height	M	?	Fuel remaining (hundreds of pounds)
G	?	True airspeed (Kts.)			
		Note -total flight time 3 hrs. 13 mins.	Total fuel bumoff 50,600 lbs.		

**Figure 2-4 Flight plan - United Airlines
Aircraft weight and balance**

After the fuel required for a particular flight has been determined, it is possible to proceed to a calculation of the weight available for the carriage of passengers, mail, and cargo (payload). It should be noted that these calculations may be in either pounds (lb), which is the case in the United States, or in kilograms (kg). However, before any actual load calculations can be carried out, account must be taken of the physical weight limitations, the design limits, of the aircraft structure in the various operation phases.

Flight crew briefing

The purpose is to present to flight crew appropriate advice and information to assist them in the safe conduct of a flight. The information will include a flight plan and load details together with information regarding en route and destination weather and notices regarding any unserviceabilities of navigation or landing aids. This latter information is contained in Notices to Airmen (NOTAM), an internationally agreed system whereby the civil aviation authorities of each country exchange information on the un-serviceability of any of the facilities in their country (e.g., nav aids and airports). Airline flight dispatch staff will obtain NOTAM from the appropriate governmental agency, edit them, and, where necessary, add details relating to any company facilities. Weather information will also be obtained from the meteorological department at the airport and might be augmented by in-flight reports received from other flight crews.

Philosophies of Terminal Management

Although the basic operational procedures of airports as they relate to safety are generally rather similar throughout the world, the manner in which those procedures are operated and the organization used to effect them can differ quite radically. The two extreme positions may be designated as:

- Airport dominant
- Airline dominant

Where terminal operations are airport dominant, the airport authority itself provides the staff to run terminal services. Apron, baggage, and passenger handling

are either entirely or largely carried out by airport authority staff. Services and concessions within the terminal are also mainly authority operated. Airport-dominant operations are sometimes called the European model, although similar arrangements are found throughout the world. Frankfurt is perhaps the best example of this form of operation, which involves high airport-authority staffing levels and high authority equipment costs with concomitant savings to airlines.

At the other end of the scale is the airline-dominant operation, sometimes called the U.S. model, where the airport authority acts almost as a broker, providing only the most basic facilities in the terminal. Much of the internal furnishing and all necessary operational equipment and staff are provided by airlines or concessionaires. At some U.S. airports, the airlines are integrally involved in financing and building the terminals themselves, and are legally part of the decision process that determines the policy of the airport. In contrast to the authority-dominant model, the individual airline operations are closely associated and identified with individual company images. Where an airline-dominant facility is operated, the need for airport-authority staff is significantly reduced.

EXERCISES

Exercise 1. Give the Russian equivalents to the following words and word combinations:

Ground handling; operational philosophy; terminal operations; airside operations; disabled persons; curbside check-in; aircraft weight and balance; passenger steps; pedestrian operations; load sheet; routine maintenance; in-flight entertainment; left luggage lockers; throughput; trim sheet; uncontaminated fuel; single-lane taxiway; turnaround of the aircraft; transit passenger handling; ground power supply; mail and equipment loading; noncommercial activities; on a concessionary basis; car rental; car parking; apron and gate system; apron parking spaces; aircraft parking type; aircraft tags; nose-in-parking; angled nose-in; angled nose-out; paralleled parking; remote parking; based aircraft; gate occupancy time; turnaround time; gate usage agreement; preferential use agreement; segment of itinerary; trip purpose; traveling on business; traveling for leisure; essential processing facilities; exclusive-use; ticket counters; common-use terminal equipment; to become obsolete; security screening; storage of explosives; a boarding pass; to undergo; a virtual overhaul; on a first-come, first-served basis; time-critical and labour intensive operations ; machine-readable tags; ramp service; minor faults; apron hydrant system; auxiliary power units; to cut down apron noise; air-bridge structure; deicing gantries; portable water; restocking; a hydraulic scissor lift.

Exercise 2. Give the English equivalents to the following words and word combinations:

Инвалиды; двухполосная РД; регистрация при высадке из наземного транспорта; загрузчики бортпитания; загрузочная ведомость; движущиеся дорожки; автоматические камеры хранения; пассажирский трап; повседневное техобслуживание; пропускная способность; балансировочная ведомость; наземное обслуживание; центровка ВС; циркулирование пешеходов; место

высадки пассажиров из наземного транспорта; топливо без посторонних примесей; разворот ВС; однополосная РД; обслуживание транзитных пассажиров; погрузка почты и оборудования; принцип действия; на комиссионной основе; парковка машин; наземный источник электроэнергии; некоммерческая деятельность; прокат автомобилей; вспомогательные силовые установки; посадочный талон; мелкие неисправности; по принципу: кто раньше прибыл, того раньше и обслужим; трудоёмкие операции, требующие много времени; ярлыки, считываемые машиной; дистанционная парковка; снизить шум на перроне; питьевая вода; пополнение запасов; устареть; самолёты, остающиеся в аэропорту на ночь; время оборота самолёта; регистрационная стойка эксклюзивного использования; соглашение о привилегированном использовании; цель поездки; деловая поездка; использование выхода на перрон; конструкция воздушного моста; портал крана антифриза.

Exercise 3. Find synonyms to the following words and word combinations:

Official (adj.), agreement; air company; privileged; low tractor; baggage cart; simultaneously; handicapped persons; cargo plane; failure; to process; garbage; to remote; to replenish; baggage; to conduct; to confine; usually; purified water; daily; maintenance; outgoing passengers; incoming passengers; to be involved; ancillary; lavatory; needed; to be located; the most important advantage; to board; influence on; from... point of view; to use; to play an important role; when required; carriers signing the agreement; to carry out; passengers handling facilities; within the boards; to buy a ticket; introduction; computer technology; to make smth unnecessary; to guarantee; to rule out; to go through the customs; critical; to be in order; unlawful; integrated; to lower apron noise; to decrease fuel costs.

Exercise 4. Give all the derivatives to the following words. Use a dictionary if necessary.

Management; preferential; activities; amusement; contaminate; operate; supervise; process; convenience; govern; commerce; accommodate; load; prepare; plane; advantage; consider; challenge; depend; flexible; depart; immigrate; require; transfer; travel; determine; equip; figure; assign; issue; increase; introduce; regular; represent; remain; singly; incorporate; inspect; collect; legal; restrict; formal; involve; distribute; responsible; encumber; install; available; propel; cycle; deice; produce; complex; mineral; clean; stock; embark; calculate; carry; assist; service; arrange; occupy; achieve; fuel; deviate.

Exercise 5. Answer the following questions

1. What components are involved in ground handling activities?
2. In what way are ground handling operations subdivided?
3. What component groups are the terminal activities worth classifying into?
4. What typical noncommercial and commercial activities will be provided by the airport authority or leased on a concessionary basis to specialist operators?
5. What two categories may the airport terminal area fall into in terms of the needs of both aircraft and passengers?

6. What main parameters determine individual gate and apron system?
7. What are the five major aircraft parking types?
8. What are the advantages and disadvantages of nose - in parking / parallel parking /remote parking?
9. What is the function of a taxiway and what configurations do they exist in?
10. What does the turnaround time depend on?
11. What are the three most common types of gate usage agreements and their main purposes?
12. What does the flight interface include?
13. How does the notion " domestic " passenger vary from country to country?
14. How do trip purposes differ?
15. In what way do group sizes of passengers tend to be categorized?
16. How are passengers categorized in terms of their baggage?
17. In what way has the type of ticket contributed to determining the type of processing required?
18. What are exclusive - use ticket counters and CUTE like?
19. What operations does traditional processing at an airline ticket counter include?
20. What innovations have the implementation of computer technology and automation allowed in recent years?
21. What is the history of sharing security screening processes of ticketing?
22. In what way do methods of boarding passengers differ?
23. What are Federal Inspection Services responsible for?
24. What operations do baggage handling services include?
25. How has the baggage handling procedure changed recently?
26. What are ramp services activities?
27. What are the two ways of fuel supply?
28. Why is there a tendency for airlines to use ground electrical supply?
29. In what way are high levels of cabin cleanliness achieved by?
30. What can happen unless the ramp servicing procedure is not performed efficiently with many services being carried out concurrently?
31. What are the main activities associated with flight dispatch and why is it so important to carry out all operations on time?
32. What information does flight crew briefing include?
33. In what way can the manner in which airports operate differ?

Unit III. Airport Security

Terms

Air operations area (AOA)	The area on the airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft.
Air Piracy	The act of hijacking an aircraft.
Aircraft tie downs	Positions on the ground surface that are available for securing aircraft.
Airport Security Plan (OASP)	A required set of procedures for adhering to federal airport security regulations.
AOPA Airport Watch	A security program, developed by Aircraft Owners and Pilots Association, that advocates self-reporting of observed activity by users of general aviation.
Aviation and Transportation Security act of 2001(ATSA)	Legislation passed to address immediate needs of aviation security in the wake of the events of September 11, 2001.
Biometrics	Term used to describe technologies that measure and analyze human body characteristics for identification and authentication purposes.
Computer-Assisted Passenger Pre-screening System (CAPPSII)	A passenger profiling system that uses passenger information to verify activity and then determine the security risk of a ticketed air carrier passenger.
Controlled Access	Measures used around airports to prevent or control the movement of persons and vehicles to and from security-sensitive areas of the airport property.
Exclusive Area	Any position of a secured area AOA, or SIDA, for which an aircraft operator has assumed responsibility for the security of its area.
Explosive Detection Systems (EDS)	Equipment using computed tomography technology, to detect and identify metal and trace explosives that may be hidden in checked or carry-on baggage.
Explosive Trace Detection (ETD)	Equipment that uses molecular spectrometry to detect and identify trace explosives that may be hidden in checked or carry-on baggage.
Federal Security Director (FSD)	Representative of the Transportation Security Administration charged with overseeing airport security at one or more commercial service airports.
Magnetometer	A device used at passenger screening checkpoints to detect the presence of metal objects on, or carried by, the person being screened.
Passenger screening	The inspection of passengers for prohibited items at security checkpoint in airport terminals.

Perimeter fencing	Physical method of creating a barrier in otherwise easily accessible areas of an airport's secured area boundary.
Positive Passenger Baggage Matching (PPBM)	The Act of reconciling boarded passengers with their checked-in baggage on a given aircraft.
Private Charter Program	A program that mandates all aircraft used for private charter operations with a maximum certified takeoff weight of 45000 kilograms, or with passengers seating configuration of 61 or more must ensure that all passengers and their carry-on baggage are screened prior to aircraft boarding.
Prohibited Areas	Areas or airspace over security-sensitive ground facilities. All aircraft are prohibited from flight operations within a prohibited area unless specific prior approval is obtained.
Secure Area	The area at the airport where commercial air carriers conduct the loading and unloading of passengers and baggage between their aircraft and the terminal building.
Security Chief	Enforces interior security, traffic, and safety rules and regulations and participates in law enforcement activities at the airport.
Security Identification Display Area (SIDA)	The portion of the airport in which only person displaying proper identification may have access.
Security Lighting	Lighting systems that provide a means of continuing, during the hours of darkness, a degree of protection, approaching that which is maintained during daylight hours.
Sterile Area	The part of the airport to which passenger access must be gained through TSA passenger screening checkpoints.
Terrorism	The systematic use of terror or unpredictable violence against governments, publics, or individuals to attain a political objective.
Twelve-five program	A program that mandates all aircraft with a maximum certified takeoff weight of 12,500 pounds or more must be thoroughly searched before departure and all passengers, crew members, and other persons and their property must be screened before boarding the aircraft.

Vocabulary

a credential a deadline	рекомендация, удостоверение личности ... крайний срок, предельный срок (окончания какой-либо работы)
a manual search	ручной досмотр пассажиров
a pass	разрешение на перемещение (пропуск, паспорт ...)
a search of smth.	таможенный досмотр, обыск, поиск, розыск
a secure travel environment	безопасная среда перемещения, перемещение в зоне обеспеченной безопасности
a shutdown	закрытие предприятия
a suicide	самоубийство, суицид
a suicide hijacker	угонщик-смертник
a suspicion of	подозрение в чем-либо
a target, to target	цель, мишень, целить(ся)
a tenet	принцип, догмат, доктрина
a fundamental tenet	основное правило, закон
a threat	угроза, опасность
an access to smth.	доступ, подход к чему-либо
an emergency	чрезвычайное (военное) положение, авария
to implement emergency directives	использовать инструкции чрезвычайного положения
an investigation	расследование, следствие
an issue	проблема
available (adj.)	доступный, пригодный
breach of civil aviation	брешь (в ГА)
canine units	кинологические отделения
curbside check-in facilities	оборудование для регистрации пассажиров, размещенное на входе в терминал (на привокзальной площади)
emplacement	расположение
explosive detection system	система обнаружения взрывчатых веществ
fatality	смерть (от несчастного случая и т. п.)
fortification of cockpit doors	укрепление дверей кабины пилота
from a security standpoint	с точки зрения безопасности
hijack smth.	угонять, угнать что-либо
hostile (adj.)	вражеский, враждебный
Identification verification	проверка удостоверения личности
inbound (adj.)	прибывающий, возвращающийся
ant. outbound	(антоним - вылетающий) проникновение

infiltration	проникновение
passenger bag matching (syn. reconcile)	приведение в соответствие пассажирского багажа (кол-во мест багажа должно быть равным кол-ву пассажиров)
planting of weapons	размещение оружия
security screening checkpoints	контрольные пункты просмотра багажа на предмет наличия запрещенных к провозу предметов

The Aviation and Transportation Security Act of 2001

Even though issues concerning the security of the civil aviation system in general, and airports in particular, have been recognized and addressed with various levels of intensity since the early days of civil aviation, no single event in history did more to affect how the civil aviation system operates with respect to ensuring a secure travel environment than the terrorists attacks on the United States on September 11, 2001.



Between the hours of 8:00 and 9:00 on the Tuesday morning of September 11, 2001, four commercial airliners, departing from three major U.S. airports, were hijacked and subsequently used in suicide attack missions to destroy major landmarks in New York City and Washington D.C. The hijacking of American Airlines Flight 11 and United Airlines Flight 175, both Boeing 767 aircraft that departed Boston's Logan International Airport, were flown by suicide hijackers into the two 110-story towers of New York's World Trade Center, causing the eventual collapse of the two towers and surrounding buildings, resulting in the deaths of nearly 3,000 people and causing billions of dollars of structural damage to New York's financial district. Hijacked American Airlines Flight 77, a Boeing 757 that departed Washington D.C.'s Dulles International Airport, was flown into the side of the Pentagon, headquarters of the U.S. Department of Defense, killing nearly 300 people. The final aircraft to be hijacked, United Airlines Flight 93, a Boeing 757 that departed Newark International Airport, apparently targeted to attack a landmark in Washington, D.C, perhaps the White House or the U.S. Capitol Building, crashed in an open field in Shankesville, Pennsylvania, after passengers on board the aircraft, receiving news of the attacks on the World Trade Center while talking on their cellular phones, attempted to combat the hijackers and recover the aircraft. The September 11, 2001, suicide hijackings marked the single largest attack and resulting number of fatalities involving

commercial airlines in the history of aviation, and in fact marked one of the deadliest days on United States soil in history.

As governmental administrations became aware of the events that were unfolding on September 11, the Federal Aviation Administration ordered a complete shutdown of the civil aviation system, including both commercial and general aviation activity, directing all aircraft currently in flight to land at the nearest available airport, and all aircraft on the ground to cancel all activity until further notice. All aircraft outside U.S. airspace were prohibited from entering the United States, forcing hundreds of aircraft inbound for U.S. cities from overseas to land in Canada or Mexico, or return to their originating locations. By noon on September 11, there were zero civilian aircraft in the air over the United States, marking the first time in history that the FAA had completely shut down civil aviation.

Initial investigations attempting to identify the methods that were employed by the suicide hijackers to carry out their mission identified the following:

1. Nineteen hijackers later found to be associated with the Al-Qaeda terrorist organization, boarded aircraft as ticketed passengers at Boston Logan International Airport, Newark International Airport, and Washington Dulles International Airport. It was also determined that at least two of the hijackers initially boarded a flight to Boston Logan Airport as ticketed passengers at the Portland, Maine, International Airport, to transfer onto American Airlines Flight 11.
2. Hijackers used knives and box cutters to attack passengers and flight crew, with the intention of overtaking control of the aircraft.
3. Several of the hijackers received flight training in preparation for their attack mission. In addition, geographic identification of landmarks was performed prior to the attack to aid in direct navigation to their intended targets.
4. An automobile owned by one of the hijackers was found in the parking lot of Boston Logan International Airport. Inside the automobile was a pass allowing access to the aircraft apron at the airport.
5. A search of other commercial aircraft immediately after the attack revealed knives and box cutters found in the seat backs of at least two other aircraft at Boston Logan Airport as well as at the Hartsfield Atlanta International Airport.
6. Suspects thought to be accessories to the September 11 attacks were detained in New York's LaGuardia and John F. Kennedy Airports with uniforms and credentials belonging to American Airlines crew members.

The initial investigations revealed suspicion of:

- Hostile sabotage of aircraft in flight via unlawful entrance to the cockpit using non firearm weapons.
- Planting of weapons on aircraft prior to hijacker boarding.
- Significant/worldwide plans of attacks.

- Further attacks using knowledge of commercial and general aviation operations.

From a security standpoint, the attacks of September 11, 2001, were the largest infiltration of the United States Civil Aviation Systems through multiple breaches of aviation security.

Immediately following the initial investigations a series of emergency security directives were imposed by the federal government, some affecting aircraft operations, and others specifically targeting airport operations.

Mandatory aircraft operations directives included modifications to aircraft, including the fortification of cockpit doors to deny access from the cabin during flight, mandatory pre- and postflight security inspection procedures, and absolute strict adherence to identification verification of all crew and other employees boarding the aircraft. In addition, the federal air marshal program, a program which was initiated in the 1970s to protect against hijackings but had over time been significantly reduced, was expanded in total force to include use of federal air marshals on domestic flights.

At airports the following emergency directives were implemented:

- Passengers were banned from carrying knives, box cutters, and any other potential non firearm weapons onto aircraft.
- Only ticketed passengers were allowed to proceed through airport security screening checkpoints within airport terminals.
- All curbside check-in facilities were closed.
- All automobile parking facilities located within 300 feet of the airport terminal were ordered closed.
- National Guard troops were deployed at each of the airports serving commercial carriers upon reopening of civil aviation activity to provide a presence of enhanced security for passengers.

While these emergency directives were implemented, the U.S. Congress directed itself to develop formal legislation to address the issue of aviation security. Drawing upon the knowledge and experiences of previous security threats and incidents, and the resulting legislation, recommendations, and policies that had been implemented with varying levels of effectiveness, and the new threats of suicide hijackings, Congress drafted the **Aviation and Transportation Security Act (ATSA) of 2001**. Stating that the legislation offers "permanent and aggressive steps to improve the security of our airways," President George W. Bush signed the ATSA into law on November 19, 2001.

The fundamental tenet of the law was the establishment of a federal agency tasked with the goal of ensuring the security of the nation's transportation systems. As such, the **Transportation Security Administration (TSA)** was established upon the signing of the ATSA. In addition, the ATSA prescribed a series of deadlines for security enhancements to be met by the newly established agency. These deadlines

included:

November 19, 2001 All airport and airline employees with access to security-sensitive areas must undergo new federal background checks before receiving access clearance.

January 18, 2002 All checked baggage in U.S. airports must be screened by either explosive detection systems, passenger bag matching, manual searches, canine units, or other approved means.

February 17, 2002 The TSA is to officially assume all civil aviation functions from FAA.

November 21, 2002 All passengers and carry-on baggage must be screened by TSA-employed screening staff at the nation's 429 largest commercial air carrier airports (in terms of passenger enplanements).

December 31, 2002 All checked-in baggage must be screened by use of certified explosive detection equipment by TSA-employed screening staff at the nation's 429 largest commercial air carrier airports (in terms of passenger enplanements).

To meet these deadlines, the TSA invested over \$5 billion toward the hiring of more than 50,000 federally employed airport passenger- and baggage-screening staff, administrative staff, and equipment necessary to accomplish the required goals of the ATSA while maintaining a system that can still provide the efficient travel of passengers through the national aviation system.

Over time, several of the emergency directives implemented since September 11, 2001, were lifted. The National Guard ceased their airport presence in May 2002. Curb-side check-in facilities were reopened, and prohibition against automobile parking in designated spaces within 300 feet of airline terminals were lifted. As of January 2003, only ticketed passengers were allowed through airport terminal passenger security screening checkpoints, and although the specific list of prohibited items continued to change, many sharp and heavy items such as knives, box cutters, baseball bats, and bricks remained prohibited from being transported in passenger carry-on baggage.

To fund the Transportation Security Administration, the ATSA authorized a surcharge on air carrier passenger tickets of \$2.50 per flight segment, with a maximum charge of \$10 per round-trip itinerary.

EXERCISES

Exercise1. Give the Russian equivalents to the following words and word combinations:

To be intended; surface maneuvering of aircraft; hijacking an aircraft; to develop a program; users of general aviation; needs of aviation security; to analyze human bodies characteristics; for identification purposes; to verify activity; to determine the security risk; a ticketed air carrier passenger; to be hidden in; checked baggage; carry-on baggage; to detect and identify trace explosives; prohibited items;

security check points; reconciling; boarded passengers with their checked-in baggage; private charter operations; prior to aircraft boarding; to conduct the loading and unloading of passengers; to particulate in law enforcement activities; unpredictable violence; to attain a political objective; a maximum certified takeoff weight; to search; to screen; all passengers; crew members and their property; to assume responsibility; to be charged with.

Exercise 2. Give the English equivalents to the following words and word combinations:

Угонщик-смертник; таможенный досмотр; безопасная среда перемещения; строгое соблюдение правил с точки зрения безопасности; проникновение; расположение; ручной досмотр пассажиров; система обнаружения взрывчатых веществ; доступ; контрольные пункты досмотра багажа на предмет наличия запрещённых к вывозу предметов; вызвать сильное разрушение; доступный; пригодный; использовать инструкции чрезвычайного положения; подозрение в чём-либо; выполнять задачу; бороться; нападение террористов; размещение оружия; проблема; крайний срок; закрытие предприятия; приведение в соответствие пассажирского багажа; кинологические отделения; проверка удостоверения личности; вражеский; главный орган управления; отменить расследование; укрепление дверей кабины пилота; мишень; основное правило; прибывающий; вылетающий.

Exercise 3. Find synonyms to the following words and word combinations:

Penetration; a problem; from the point of view of security; arriving aircraft; departing aircraft; to deploy weapons; danger; to implement; to struggle; an enquiry; to implement; to ban; to create an obstacle; consequently; to distrust major landmarks; to call off a doctrine; passenger baggage matching; to result in the collapse; to use; to be aimed at; aircraft arriving from; to try; to find; to be linked with; firstly; important; to decrease; to be situated; to create a federal agency; the purpose of ensuring the security; to create; formal registration; to understand; to work.

Exercise 4. Give all the derivatives to the following words. Use a dictionary if necessary.

To prohibit; to implement; to know; to establish; to improve; task; to recommend; to fortify; target; designate; to equip; to provide; to carry; to deploy; to locate; to intend; to suspect; to board; ticket; to control; to add; to adhere to; to detect.

Exercise 5. Answer the following questions:

1. What are some of the biggest problems faced by the airport system during the early part of the twenty-first century?
2. What was the primary purpose of the ATSA, and how did ATSA affect the airport system?
3. How has airport security legislation changed since the event of September 11, 2001?

History of aviation security

Vocabulary

a bill	закон
a fingerprint	отпечаток пальца
a focus	(зд.) особое внимание, особая озабоченность
a gap	разрыв, пробел (зд.)
a locker	отдельное закрывающееся помещение для хранения чего-либо
a panel of judges a vegetation	группа присяжных заседателей
an assault	атака, нападение, штурм
an increase	увеличение
to increase	увеличивать
an issue	проблема
appropriation	постановление, распоряжение, директива, инструкция
because of lack of adequate fencing	из-за недостаточно отвечающего требованиям ограждения
circuitous	обходной, окольный
comprehensive	всеобъемлющий
hazardous cargo	опасные грузы
lull	затишье (временное)
mandatory	принудительный, обязательный
misdemeanor	преступление, судебнаказуемый поступок
options	(зд.) параметры
ordeal	суровое испытание, суд божий
stringent	строгий
to ban smth.	запретить что-либо
to be found guilty of doing smth.	быть признанным виновным в чем-либо
to be sentenced to death	быть приговоренным к смертной казни
to be subjected to	зависеть, подвергаться влиянию
to call for	призвать к чему-либо
to cash in	получить наличные
to commander airliner	захватить силой лайнер
to deter	отпугивать, мешать, останавливать
to divert	отклонить (от курса), направить в другую сторону
to drop leaflets	разбрасывать листовки
to escape	убежать, покинуть
to fault smb. for smth.	придираться, обвинять кого-либо в чем-либо

to formalize	действовать в формально-официальных рамках; формализовать
to incorporate	включить (соединить с)
to issue	издать (закон, газету ...), выписать билет
to match	сопоставлять
to monitor	наблюдать, контролировать
to occur	происходить, случаться
to pay off	возыметь действие; откупиться
to reconcile	приводить в соответствие, согласовывать
to seek political asylum	просить политическое убежище
to seize	захватить
to shoot (shot) out a tire	прострелить покрышку (колес)
to smuggle	тайно проносить, переправлять; заниматься контрабандой
to stow	наполнить, складывать
to submit smth. to smb.	представить кому-либо что-либо на рассмотрение
to surface	(зд.) обнаружить, выявить
to thwart	нарушать (планы), мешать
to trigger	инсценировать, давать начало, приводить в действие
to wound	ранить
unauthorized access	несанкционированный доступ
unpredictable	непредсказуемый
upsurge	подъем, рост
vehicular	перевозимый на транспорте
vehicle	транспортное средство
vehicles	подвижной состав
with the rise of smb.	с приходом к власти

Introduction

One of the most significant issues facing airports in the early twenty-first century is that of airport security. Most users of commercial service airports are subjected to security infrastructure, policies, and procedures within the airport terminal area. Airport security is not limited to the terminal area, however. Airport security concerns all areas and all users of the airport.

Airport security procedures are designed to deter, prevent, and respond to criminal acts that may affect the safety and security of the traveling public. Criminal activity includes the hijacking of aircraft, known as air piracy, damaging or destroying aircraft with explosives, and other acts of terrorism, defined as the systematic use of terror or unpredictable violence against governments, publics, or individuals to attain a political objective. Criminal activity also includes acts of assault, theft, and vandalism against passengers and their property, aircraft, and all airport facilities.

History of airport security

In the earliest days of civil aviation, when the greatest concerns were simply the safety of flight, there was little concern over airport security, or aviation security in general. Aviation security first became an issue in 1930, when Peruvian revolutionaries seized a Pan American mail plane with the aim of dropping propaganda leaflets over Lima. Between 1930 and 1958, a total of 23 hijackings were reported, mostly committed by eastern Europeans seeking political asylum. The world's first fatal aircraft hijacking took place in July 1947 when three Romanians killed an aircrew member.

The first major act of criminal violence against a U.S. air carrier occurred on November 1, 1955, when a civilian by the name of Jack Graham placed a bomb in luggage belonging to his mother. The bomb exploded in flight, killing all 33 people on board. Graham had hoped to cash in on his mother's life insurance policy, but instead was found guilty of sabotaging an aircraft and sentenced to death. A second such act occurred in January 1960, when a heavily insured suicide bomber killed all aboard a National Airlines aircraft. As a result of these two incidents, demands for luggage inspection at airports serving air carrier aircraft surfaced.

With the rise of Fidel Castro in Cuba in 1959 came a significant increase in the number of aircraft hijackings, at first by those wishing to escape from Cuba, then by those hijacking U.S. aircraft to Cuba. In May 1961 the federal government began using armed guards on select air carrier aircraft to prevent hijackings.

In August 1969, Arab terrorists carried out the first hijacking of a U.S. aircraft flying outside the Western Hemisphere when they diverted an Israel-bound TWA aircraft to Syria. Another incident that October involved a U.S. Marine who sent a TWA plane on a 17-hour circuitous journey to Rome. This was the first time that FBI agents attempted to thwart a hijacking in progress and that shots were fired by the hijacker of a U.S. plane. In March 1970, a copilot was killed and the pilot and hijacker seriously hurt during a hijacking. The first passenger death in a U.S. hijacking occurred in June 1971.

Following the hijacking of eight airliners to Cuba in January 1969, the Federal Aviation Administration created the Task Force on the Deterrence of Air Piracy. The task force developed a hijacker "profile" that could be used along with metal detectors (magnetometers) in screening passengers. In October, Eastern Air Lines began using the system, and four more airlines followed in 1970. Although the system seemed effective, a hijacking by Arab terrorists in September 1970, during which four airliners were blown up, convinced the White House that stronger steps were needed. On September 11, 1970, President Richard Nixon announced a comprehensive antihijacking program that included a federal air marshal program.

Between 1968 and 1972, hijacking of U.S. and international aircraft was at its peak. During the 5-year period, the U.S. Department of Transportation recorded 364 hijackings worldwide. As a result, security issues had become a significant concern for the traveling public, and created the need for congressional action.

On March 18, 1972, the first airport security regulations were made effective, later formalized within the FAA as Federal Aviation Regulations Part 107 - Airport Security, in 1978. Under this regulation, airport operators were required to prepare and submit to the FAA a security program, in writing, containing the following elements:

- A listing of each **air operations area (AOA)**, that is, those areas used or intended to be used for landing, takeoff, or surface maneuvering of aircraft
- Identification of those areas with little or no protection against unauthorized access because of a lack of adequate fencing, gates, doors with locking means, or vehicular pedestrian controls
- A plan to upgrade the security of air operations with a time schedule for each improvement project

Under FAR Part 107, airport operators were required to implement an airport security plan (ASP) in the time frame approved by the FAA. In addition, airports were required to have all persons and vehicles allowed in the AOA suitably identified. Airport employees allowed in the AOA were subject to background checks prior to receiving proper identification and permission to enter into air operations areas. Background checks included an FBI fingerprint check if the employee had a 10-year gap in employment records or had a prior record of certain misdemeanor criminal activities.

FAR Part 107 was limited to security "as it affects or could affect safety in flight," reflecting the focus of the FAA to protect air carrier aircraft, and not other areas of the airport environment. FAR Part 107 did not extend to security in automobile parking lots or terminal areas distant from the air operations area.

In October 1972, four hijackers bound for Cuba killed a ticket agent. The next month, three criminals seriously wounded the copilot of a Southern Airways flight and forced the plane to take off even after an FBI agent shot out its tires. These violent hijackings triggered a landmark change in aviation security. In December, the FAA issued an emergency rule making inspection of carry-on baggage and scanning of all passengers by airlines mandatory at the start of 1973. An antihijacking bill signed in August 1974 sanctioned the universal screening. The FAA incorporated these regulations as FAR Part 108 -Airplane Operator Security, in 1981.

These stringent measures paid off, and the number of U.S. hijackings never returned to the worst levels before 1973. No scheduled airliners were hijacked in the United States until September 1976, when Croatian nationalists commandeered a jetliner. Two fatal bombings did occur, though: a bomb exploded in September 1974 on a U.S. plane bound from Tel Aviv to New York, killing all 88 persons aboard, and a bomb exploded in a locker at New York's LaGuardia Airport in December 1975, killing 11. That bombing caused airports to locate lockers where they could be monitored.

In June 1985, Lebanese terrorists diverted a TWA plane leaving Athens for

Beirut. One passenger was murdered during the 2-week ordeal; the remaining 155 were released. This hijacking, as well as an upsurge in Middle East terrorism, resulted in several U.S. actions, among them the International Security and Development Cooperation Act of 1985 that made federal air marshals a permanent part of the FAA workforce.

On December 21, 1988, a bomb destroyed Pan American flight 103 over Lockerbie, Scotland. All 259 people aboard the London-to-New York flight, as well as 11 on the ground were killed. Investigators found that a bomb concealed in a radio-cassette player had been loaded on the plane in Frankfurt, Germany. This tragedy followed an FAA bulletin issued in mid-November that warned of such a device and one on December 7 of a possible bomb to be placed on a Pan Am plane in Frankfurt. Early in 2001, a panel of Scottish judges convicted a Libyan intelligence officer for his role in the crime. Security measures that went into effect for U.S. carriers at European and Middle Eastern airports after the Lockerbie bombing included requirements to x-ray or search all checked baggage and to reconcile boarded passengers with their checked-in baggage, known as **positive passenger baggage matching (PPBM)**.

In response to the Lockerbie bombing, President George Bush established the President's Commission on Aviation Security and Terrorism to review and evaluate policy options in connection with aviation security. As a result of the workings of the commission, President Bush signed the Aviation Security Improvement Act, which, in part, called for increased focus on developing technology and procedures for detecting explosives and weapons intended to be stowed on commercial air carrier aircraft.

Throughout the 1990s and into the twenty-first century, the FAA sponsored research on new equipment to detect bombs and weapons and made incremental improvements to aviation security that included efforts to upgrade the effectiveness of screening personnel at airports. In 1996, two accidental airline crashes resulting from inflight explosions, TWA flight 800 and ValuJet flight 592, focused attention on the danger of explosives aboard aircraft, including those caused by hazardous cargo. The FAA's response, based on results of a commission led by Vice President Al Gore, included banning certain hazardous materials from passenger airplanes. The 1997 federal appropriation to the FAA provided funds for more airport security personnel and for new security equipment.

In the late 1990s and into 2000, airport security procedures were sometimes faulted by the media and by the Department of Transportation's Office of the Inspector General (OIG), an independent government office that assesses federal programs and operations and makes recommendations. In 1999, for example, a report issued by the OIG criticized the FAA for being slow to limit unauthorized access to secure areas in airports, stating that its investigators were able to penetrate these areas repeatedly. In 2000, it also faulted the agency for issuing airport identification used to access security-sensitive airport areas without sufficient checks. But for the

10 years following February 1991, there were no airline hijackings in the United States.

During this period of time, airport security issues began to focus on other acts of criminal activity. Efforts to reduce the amount of theft of passenger property and efforts to reduce smuggling of contraband on commercial aircraft were increased. Also, increases in acts of minor passenger violence, known as air rage, thought to be a result of the increases in congestion and delays and decreases in the customer service quality of commercial air carriers, were addressed.

The 10-year lull from airline security tragedies ended with the historical events of September 11, 2001. The worst international terrorist attack in history, involving four separate but coordinated aircraft hijackings, occurred in the | United States on September 11, 2001, by a total of 19 alleged operatives of the Al-Qaida terrorist network.

EXERCISES

Exercise 1. Give the Russian equivalents to the following words and word combinations:

To be limited; to be designed; respond to; acts of assault; theft; airport facilities; to prevent; unpredictable violence; to attain a political objective; little concern over airport security; to seek political asylum; people on board; to be sentenced of death; to occur; with the rise of; a significant increase; to fire shots; to screen passengers; to blow up; a comprehensive program; security issues; to become a significant concern of smth; to prepare and submit a program; unauthorized access; to implement an airport security plan; the time frame; to be subject to background checks; a gap in employment records; misdemeanor; to force the plane to take off; to incorporate stringent measures; to divert a plane; to be loaded on the plane; a panel of judges; to convict; an intelligence officer; to go into effect; positive passenger baggage matching; in response to; focus on developing technology; to detect explosives and weapons; to be showed; to make incremental improvements; to result from; hazardous cargo; to provide funds for more airport security personnel; to access federal programs; efforts to reduce the amount of theft; the customer service quality, to be at peak.

Exercise. 2. Give the English equivalents to the following words and word combinations:

Сопоставлять; опасные грузы; принудительный; быть признанным виновным; подвергаться влиянию; захватывать силой лайнер; покинуть; происходить; запрещать; временное затишье; атака; пробел; ассигнование; быть признанным виновным в чём-либо; призвать к чему-либо; быть приговорённым; ранить; прострелить покрышку; с приходом к власти; складывать; согласовывать; подъём; транспортное средство; приводить в действие; суровое испытание; строгий; преступление; параметры; разбрасывать листовки; наблюдать; группа присяжных заседателей; действовать в формально-официальных рамках; всеобъемлющая проблема; непредсказуемый; возыметь действие; сполна; захватить; нарушать планы; несанкционированный

доступ; просить политическое убежище; отпугивать; придираться; включить.

Exercise 3. Find synonyms to the following words and word combinations:

Important; to influence; referred to as; to achieve; a political objective; equipment; to take place; people aboard the plane; a significant rise in; requirements; to implement; a plane; to persuade; take over; to allow; an office worker; to make the plane to take off; instructions; to set free; to lead to; to put into operation; to access; to decrease; to be over; to include.

Exercise 4. Give all the derivatives to the following words. Use a dictionary if necessary:

To operate; history; to depend; to define; policy; to explode; to inspect; to prevent; to occur; to detect; to announce; to require; vehicle; to improve; to employ; to reflect; to regulate; to destroy; intelligent; to develop; to equip; attention; hazard; provide; to identify.

Exercise 5. Answer the following questions:

1. What are airport security procedures designed to? What does criminal activity include?
2. How have threats to aviation security evolved since the beginning of civil aviation?
3. Under what document were airport operators required to implement an airport security plan?
4. What other security measures were required in the frame of security program approved by FAA?
5. What does the procedure known as positive passenger baggage matching involve?
6. What did the aviation security improvement act call for?
7. What did OIG criticize the FAA for? (1999) What did OIG fault it for in 2000?
8. What was the worst international terrorist attack in history?
9. How has airport security traditionally adopted to civil aviation threats?
10. What are some of the most significant changers in airport security as a result of the events of September 11, 2001 ?

The Transportation Security Administration

Vocabulary

adjacent	прилегающий, смежный
curb frontage	привокзальная площадь
inception	начало
set forth in	... представленный, изложенный, предусмотренный
to assume responsibility for	взять на себя ответственность за ...
to carry out	выполнять
to fall within	относиться к ..., подпадать, быть частью чего-либо

to gain access
undersecretary

ПОЛУЧИТЬ ДОСТУП
ПОМОЩНИК МИНИСТРА, ЗАМЕСТИТЕЛЬ СЕКРЕТАРЯ

The Transportation Security Administration

As a result of the events of September 11, 2001, and the subsequent signing of the **Aviation and Transportation Security Act (ATSA)**, the practice of airport security began to undergo radical changes, beginning with the creation of the Transportation Security Administration.

With the signing of the ATSA, the **Transportation Security Administration (TSA)** was incorporated into the organizational structure of the U.S. Department of Transportation, to be operated in close coordination with all other transportation administrations, including the FAA, and headed by an undersecretary of transportation security.

The mission of the TSA is to protect all of the nation's transportation systems to ensure freedom of movement for people and commerce. Since its inception in 2001, the TSA has concentrated the vast majority of its efforts on securing the transportation of passengers on commercial air carriers traveling through the nation's airports through the implementation of passenger and baggage screening requirements set forth in the ATSA.

The Transportation Security Regulations define specific areas of the airport that are subject to various security measures. These areas are defined as air operations areas, secure areas, sterile areas, SIDA areas, and exclusive areas. Under the Transportation Security Regulations, each airport operating under Federal Aviation Regulations Part 139 - Airports Serving Certain Air Carrier Operations must have an **airport security plan (ASP)** which, in part, defines the following areas on its property.

The air **operations area (AOA)** is defined as a portion of an airport, specified in the airport security program, in which security measures are carried out. This area includes aircraft movement areas, aircraft parking areas, loading ramps safety areas for use by aircraft, and any adjacent areas (such as general aviation areas) that are not separated by adequate security systems, measures, or procedures. This area does not include the secure area.

The **secure area** is defined as a portion of an airport, specified in the airport security program, in which certain security measures specified in 49CFR Part 1542 - Airport Security are carried out. This area is where aircraft operators and foreign air carriers that have a security program under 49CFR Part 1544 - Aircraft Operator Security: Air Carriers and Commercial Operators or 49CFR Part 1546 - Foreign Air Carrier Security enplane and deplane passengers and sort and load baggage and any adjacent areas that are separated by adequate security measures. Specifically, the secured area is the area at the airport where commercial air carriers conduct the loading and unloading of passengers and baggage between their **aircraft and the**

terminal building.

The **sterile area** is defined as a portion of an airport defined in the airport security program that provides passengers access to boarding aircraft and to which the access generally is controlled by TSA, or by an aircraft operator under 49CFR Part 1544 or a foreign air carrier under 49CFR Part 1546 through the screening of persons and property. Specifically, the sterile area is that part of the airport to which passenger access must be gained through TSA passenger screening checkpoints.

The **security identification display area (SIDA)** is defined as a portion of an airport, specified in the airport security program, in which security measures specified in the TSRs are carried out. This area includes the secured area and may include other areas of the airport. Within the SIDA, all persons must display proper identification or be accompanied by an authorized escort.

An **exclusive area** is defined as any portion of a secured area, AOA, or SIDA, including individual access points, for which an aircraft operator or foreign air carrier that has a security program under 49 CFR Part 1544 or 49 CFR Part 1546 has assumed responsibility for the security of its area. Examples of exclusive areas include aircraft storage and maintenance hangars, air cargo facilities, and fixed-base operators (FBOs) serving general aviation and charter aircraft.

Areas that do not fall within the above definitions are considered public areas, and are not directly subject to TSA security regulations concerning restricted access. These areas include portions of airport terminal lobbies, parking lots, curbside frontage.

EXERCISES

Exercise 1. Give the Russian equivalents to the following words and word combinations:

Undergo radical changes; to be incorporated into; close coordination; to be headed; to ensure freedom of movement; implementation of requirements; set forth (in); exclusive areas; loading ramps; safety areas; enplane and deplane passengers; adjacent areas; adequate security measures; the secure area; the sterile area; to gain passengers access; to accomplish; assume responsibility for; restricted access; curbside frontage.

Exercise 2. Give the English equivalents to the following words and word combinations:

Прилегающий; подпадать; получить доступ; представлен в дальнейшем; начало; привокзальная площадь; выполнять; взять на себя ответственность; помощник министра.

Exercise 3. Find synonyms to the following words and word combinations:

Important changes; to carry out; trade; appropriate; deplane passengers; enplane passengers; to regulate.

Exercise 4. Give all the derivatives to the following words. Use a dictionary if necessary:

To create; to coordinate; to require; to concentrate; to define; to move; to operate; to separate; to regulate.

Exercise 5. Answer the following questions:

1. What is the organizational structure of the transportation security administration?
2. What radical changes did the practice of airport security begin to undergo in the frame of aviation and transportation security act?
3. What specific areas of the airport (that are subject to various security measures) do the Transportation Security Regulations define?
4. How is the sterile area defined?
5. How is the security identification display area (SIDA) defined?
6. How is an exclusive area defined?

Security of commercial service airports

Vocabulary

a badge	эмблема, значок, символ, метка
a bar code	штрих-код
a database	база данных
a deterrent	сдерживающее средство
a digital form	цифровой формат
a facial pattern	тип лица
a felony	уголовное преступление
a flux	поток, движение
a forgery	подлог, подделка, фальсификация
a gate	гейт, выход (в аэропорту)
a handheld wand	(ручное) устройство, считывающее информацию (штрих-коды, наличие металла, взрывчатки и т. д.)
a hinge	петля (дверная)
a keypad entry system	система входа с использованием цифровой клавиатуры
a magnetic strip	магнитная полоса, лента
a manual pat down	ощупывание (похлопывание) с ног до головы (обыскиваемого)
a murder	убийство
a pass code	пароль
a perimeter	граница аэродрома, аэропорта
a rape	насилие
a revolving turnstile	вращающийся турникет
a sedition	подстрекательство
a term of imprisonment	срок заключения
aggravated sexual abuse	сексуальное преступление при отягчающих обстоятельствах
an emergency power source	аварийный генератор

an extortion	вымогательство: назначение завышенных цен
an eye retina	сетчатка глаза
an intruder	нарушитель, незванный гость
an overhang	навес
assault with the intent murder	нападение, покушение на убийство
authentication	опознание, идентификация
authenticity	достоверность, подлинность, аутентичность
barbed wire	колючая проволока
behavior	поведение
bribery	взяточничество
cellular phone	сотовый телефон
challenge program	зд. программа «кто идет?», например: обязательное предъявление пропуска или пароля проходящими через КП
color coded	с применением кодирования определенной зоны при помощи определенного цвета
commission of certain crimes	совершение (ряда) определенных преступлений
concessionaires	концессионеры (предприятия, расположенные на территории терминала на условиях аренды помещения)
conspiracy	тайный сговор
espionage	разведка, шпионаж
expiration date	срок действия (срок истечения годности)
fencing	огораживание, ограждение
garment	предмет одежды
hassle factor	«фактор затруднения» (преграда, барьер)
hazardous	опасный, рискованный
hostage taking	взятие заложников
interference	вмешательство, помехи
irises	радужная оболочка глаза
kidnapping	похищение (человека)
magnitude	величина
to be manned	быть управляемым человеком
misrepresentation	искажение (неправильное представление фактов)
offence	тщательный осмотр, пересмотр, ревизия
on a random basis	на основе случайного выбора
overhaul	тщательный осмотр, пересмотр, ревизия
piggybacking	«на чужой шее», «на закорках» (зд. проход шаг в шаг за впереди идущим)
processing ranging from...to	зд. меры наказания от ... до

scrutiny	внимательный осмотр, исследование, наблюдение
smart-access technologies	технологии, при которых для доступа в зону используются электронные чипы с информацией о владельце (смарт карты)
to adhere to smth.	придерживаться чего-либо, соответствовать (требованиям)
to be unique	единственный в своем роде, странный, необычный
to calibrate	выверять, инспектировать
to complete an application	написать заявление по форме
to contribute	вносить вклад, способствовать, содействовать
to convey some information	передавать информацию
to display	предъявить, показать
to meet the specifications for.	соответствовать техническим условиям
to obtain	получать, приобретать
to preclude	препятствовать
to spot	обнаружить
treason	государственная измена, изменнические действия
ultimate	конечный, окончательный
ultimately	в конечном счете
violation	нарушение
virtual	фактический, действительный
voice pattern	тембр голоса
willful	преднамеренный, умышленный
x-ray machine	рентгеновская установка

Security at commercial service airports

The events of September 11, 2001, the associated legislative action of the ATSA, and the formation of the TSA have all contributed to the changing rules, regulations, policies, and procedures associated with airport security. In addition, state and local governments, along with organizations representing members of the aviation industry, from the Air Line Pilots Association, to the American Association of Airport Executives, to the Aircraft Owners and Pilots Association, have made major contributions to the potential future security for the users of the nation's commercial service and general aviation airports.

At commercial service airports, areas of airport security are commonly categorized as passenger screening, baggage screening, employee identification, and controlled access and perimeter security.

Passenger screening

The processing of passengers and baggage for the purpose of ensuring the

security of the civil aviation system has undergone a virtual overhaul following the terrorist attacks on the United States on September 11, 2001. As of 2003, passenger and baggage security screening is managed and operated by the Transportation Security Administration (TSA). Even though the TSA has ultimate authority of the facilities and procedures that comprise the security screening processes, airport managers and planners should be keenly aware of the security screening process, because the process has presented the most significant impacts on airport terminal planning and operations in recent years. As of 2003, policies surrounding passenger and baggage security screening remained in a high state of flux. Despite this, certain fundamentals of the passenger and baggage screening process remain.

Passenger screening facilities include an automated screening process, conducted by a **magnetometer** that attempts to screen for weapons potentially carried on by a passenger that are metallic in content. As a passenger walks through a magnetometer, the presence of metal on the passenger is detected. If a sufficient amount of metal is detected, based on the sensitivity setting on the magnetometer, an alarm is triggered. Passengers who trigger the magnetometer are then subject to a manual search by a TSA screener. Manual searches range from a further check of metal on the passenger's person with the use of a handheld wand, to a manual pat down, to the inspection of the passenger's shoes.

Carry-on baggage screening facilities are located at security screening stations to examine the contents of passengers' carry-on baggage for prohibited items such as firearms, sharp objects that may be used as weapons, or plastic or chemical-based *trace explosives*. All carry-on baggage is first inspected through the use of an x-ray machine. Bags selected because of suspicions as a result of the x-ray examination, or selected on a random basis, are further inspected through the use of **explosive trace detection (ETD) equipment** and/or by manual search. In addition, personal electronic items such as laptop computers or cellular phones are frequently inspected by being turned on and briefly operated to check for authenticity.

Prior to September 11, 2001, passenger and carry-on baggage screening fell under the responsibility of the commercial air carriers whose aircraft provided passenger service at any given airport, as dictated by FAR Part 108 - Aircraft Operator Security, Air Carriers and Commercial Operators. Under this regulation, air carriers typically subcontracted security responsibilities to private firms. Studies of these firms conducted through 2001 revealed a work environment characterized by low, almost minimum, wages, high turnover rates of 100 to 400 percent annually, low levels of training, and low performance quality, illustrated by independent audits which illustrated the ability to bring prohibited items, such as firearms and other weapons, through checkpoints.

Since November 2002, passenger screening at all commercial service airports has been performed by the TSA-employed screener workforce. The TSA workforce is provided higher wages than their pre-September 11 private force counterparts, receives higher levels of training, including 44 hours of classroom and 60 hours of on-the-job training, and by some measures, exhibits higher performance quality. TSA

passenger screening procedures have called for more scrutiny, including a wider range of prohibited items, more thorough hand searches, removal of passenger shoes for inspection, and identification checks.

The initial months following the implementation of TSA passenger screening were also characterized by significantly higher levels of passenger delay at screening checkpoints. In addition, those critical of security processing at airports noted an increase in a newly defined "hassle factor." These negative impacts were a result of the increased amount of time and the increased amount of physical interaction required to process passengers. Over time, the negative impact issues decreased and because the TSA added screening stations and staff, processes were made more efficient, and the traveling public became accustomed to the new environment.

With the implementation of TSA passenger and carry-on screening policies came a mandate of "no tolerance." This mandate effectively gave the TSA the authority to fully evacuate all or part of an airport upon the occurrence of a security breach of any magnitude. As a result, dozens of airport evacuations, affecting hundreds of air carrier operations, and tens of thousands of passengers, have occurred. These situations are declining, as the TSA becomes more efficient in preventing security breaches and employs more focused reactionary policies.

Checked-baggage screening

Facilities to conduct screening of checked baggage for explosives have been placed at airports to adhere to the requirement implemented by the TSA on January 1, 2003, to have every piece of checked baggage screened by certified explosive detection equipment prior to being loaded onto air carrier aircraft (known as the 100 percent EDS rule). As of 2003, the primary piece of equipment used to perform checked-baggage screening, the explosive detection system (EDS), uses computed tomography technology, similar to the technology found in medical CT scan machines, to detect and identify metal and trace explosives that may be hidden in baggage.

Because of the size, expense, and production rates of this system, a number of airports have too few of the EDS equipment to handle the volume of checked luggage. In addition, some oversized or unusually shaped baggage cannot fit inside the EDS. In these instances, checked baggage is screened by the use of electronic trace detection (ETD) systems, or manually by TSA baggage screeners.

Because the configuration of each airport terminal and the volume and behavior of each terminal's passengers are unique, and because the very short time line between the mandate of 100 percent checked-baggage screening in November 2001 and its implementation in January 2003, the location of checked-baggage screening varies significantly from airport to airport. Checked-baggage screening locations range from terminal lobbies, to facilities next to ticket counters, to curbside locations, to back rooms where baggage sorting is performed prior to being loaded on aircraft.

Employee identification

TSA regulations require any person who wishes to access any portion of an airport's security identification display area (SIDA) must display appropriate

identification. This identification, known typically as a *SIDA badge*, is usually in the form of a laminated credit card-sized identification badge with a photograph and name of the badge holder. Persons typically requiring a SIDA badge include airport employees, air carrier employees, concessionaires, contractors, and government employees such as air traffic controllers and airport security staff.

In many instances the SIDA badge is color coded or otherwise marked to identify the areas within the airport the badge holder may access. In addition, many identification badges are equipped with magnetic strips, bar codes, or other formats readable by electronic means which carry detailed data regarding access authority of the badge holder, including any associated personal identification numbers needed to enter through certain access points, areas of authorization, as well as an electronic badge expiration date.

Prior to obtaining an identification badge, persons must complete an application and undergo a fingerprint-based criminal history records check. Any of the following criminal histories within a 10-year period prior to the date of application will result in the disqualification for obtaining an SIDA badge:

1. Forgery of certificates, false marking of aircraft, and other aircraft registration violation
2. Interference with air navigation
3. Improper transportation of a hazardous material
4. Aircraft piracy
5. Interference with flight crew members or flight attendants
6. Commission of certain crimes aboard aircraft in flight
7. Carrying a weapon or explosive aboard aircraft
8. Conveying false information and threats
9. Aircraft piracy outside the special aircraft jurisdiction of the United States
10. Lighting violations involving transporting controlled substances
11. Unlawful entry into an aircraft or airport area that serves air carriers or foreign air carriers contrary to established security requirements
12. Destruction of an aircraft or aircraft facility
13. Murder
14. Assault with intent to murder
15. Espionage
16. Sedition
17. Kidnapping or hostage taking
18. Treason
19. Rape or aggravated sexual abuse
20. Unlawful possession, use, sale, distribution, or manufacture of an explosive or weapon
21. Extortion
22. Armed or felony unarmed robbery
23. Distribution of, or intent to distribute, a controlled substance

24. Felony arson
25. Felony involving a threat
26. Felony involving:
 - i. Willful destruction of property
 - ii. Importation or manufacture of a controlled substance
 - iii. Burglary
 - iv. Theft
 - v. Dishonesty, fraud, or misrepresentation
 - vi. Possession or distribution of stolen property
 - vii. Aggravated assault
 - viii. Bribery
 - ix. Illegal possession of a controlled substance punishable by a maximum term of imprisonment of more than 1 year.
27. Violence at international airports
28. Conspiracy or attempt to commit any of the criminal acts listed above

Upon approval, a SIDA badge is issued to the applicant. Upon issuance of the badge, the person must display the SIDA badge at all times while in any portion of the SIDA. Typical policies within an airport security program require the badge to be displayed right side up, above the waist, on the outermost garment, in clear view, by the badge holder.

To enforce the use of proper identification, many airports employ *challenge programs* designed to encourage persons within the SIDA to ask to see proper identification of those persons whose SIDA badges are not clearly displayed. In addition, airports often impose penalties to those not displaying proper identification, ranging from temporary confiscation of the person's SIDA badge, to termination of employment. Lack of proper identification within a SIDA area may also be considered a federal criminal offense.

Controlled access

A variety of measures are used around airports to prevent, or more appropriately, control the movement of persons and vehicles to and from security-sensitive areas of the airport property.

At most commercial service airports, **controlled access** through doors that provide access to the AOA, secure areas, sterile areas, and other areas within the SIDA, as well as many employee-only restricted areas, is enforced by the use of control systems. These systems range from simple key locks to smart-access technologies, such as keypad entry systems requiring proper pass code. In many cases, pass codes are calibrated with a person's SIDA badge, requiring both a presentation of the person's badge and proper pass code entry to gain access.

One weakness associated with door entry to security-sensitive areas, regardless of their access control measures, is the ability to allow unauthorized persons to enter through the door after an authorized person has opened the door. This situation is

known as *piggybacking*, and is almost always a violation of security policies. In some instances, revolving turnstiles with a one-rotation limit per access, rather than typical door systems, have been used to restrict the number of persons achieving access through these areas.

Biometrics

Advanced identification verification technologies, including those that employ biometrics, are continuously being developed to enhance access control at airports. **Biometrics** refers to technologies that measure and analyze human body characteristics such as fingerprints, eye retinas and irises, voice patterns, facial patterns, and hand measurements, especially for identification authentication purposes.

Biometric devices typically consist of a reader or scanning device, software that converts the scanned information into digital form, and a database that stores the biometric data for comparison.

For the most part, biometric technologies have initially been found to be most applicable when controlling the access of those with SIDA badges at the airport. Controlling the access of the general public using biometrics proves more difficult, because previously recorded data are required to authenticate the identification of the person. If anything, however, biometrics provides another technology to prevent unauthorized access to security-sensitive areas.

Perimeter security

An important part of an airport's security plan is its strategy for protecting the areas that serve as the border between secured and unsecured areas of the airport known as the airport perimeter. Four of the most common methods for securing the airport's perimeter are perimeter fencing, controlled access gates, area lighting, and patrolling of the secured area.

Perimeter fencing is one of the most common methods of creating a barrier in otherwise easily accessible areas of an airport's secured area boundary. Fencing can vary in design, height, and type, depending on local security needs.

- Fencing may be alarmed in areas considered high-risk areas in order to provide early warning of an attempt by an intruder to enter the area.
- Perimeter fencing should be inspected on a daily basis by the facility guard force or operational personnel at manned facilities.

Controlled access gates provide a way for persons and especially vehicles to enter the secured area of the airport through the airport perimeter. Similar to controlled access doors, controlled access gates typically use some form of controlled access mechanism, ranging from simple key entry or combination locks, to advanced identification authentication machines, involving either the entry of a personal access code or verification through biometric technology. In addition, some controlled access gates are manned by guard personnel, further enhancing the security of the perimeter.

It is recommended that the number of access gates surrounding an airport's perimeter be limited to the minimum required for the safe and efficient operation of

the airport. Active perimeter entrances of manned sites should be designated in order to enable guard force personnel the opportunity to maintain full control without unnecessary delay in traffic or reduction of operational efficiency. This largely is a matter of having sufficient entrances to accommodate the peak flow of both pedestrian and vehicular traffic and adequate lighting for rapid inspection. Unmanned gates should be secured, illuminated during the hours of darkness, and periodically inspected by a guard or assigned operational personnel. Gates should be constructed of materials of equal strength and durability to the fence and should open to at least a 90-degree angle. Hinges of gates should be installed to preclude unauthorized removal. Gates should be topped with a barbed wire overhang, meeting the specifications for the fence.

At most airports, **security lighting** is located in and around heavy traffic areas, aircraft service areas, as well as well as other operations and maintenance areas. Protective lighting provides a means of continuing, during the hours of darkness, a degree of protection approaching that which is maintained during daylight hours. This safeguard is also a considerable deterrent to thieves, vandals, and potential terrorists. These security lighting systems should be connected to an emergency power source, if available. Requirements for protective lighting at airports will depend upon the local situation and the areas to be protected. A careful analysis of security lighting of airports will depend upon the local situation and the areas to be protected. Protective lighting is generally inexpensive to maintain and, when properly employed, may provide guard force personnel with added protection from surprise by the determined intruder. Good protective lighting is achieved by adequate, even light on bordering areas, glaring lights oriented toward the avenue of approach of the potential intruder, and relatively little light on the guard personnel.

Lighting units for perimeter fences should be located a sufficient distance within the protected area and above the fence so that the light pattern on the ground will include an area on both the inside and the outside of the fence. Generally, the light band should illuminate the fence perimeter barrier and extend as deeply as possible into the approach area.

Various lighting systems include:

- *Continuous lighting.* This is the most common protective lighting system. It consists of a series of fixed lights arranged to flood a given area with overlap ping cores on a continuous basis during the hours of darkness.
- *Standby lighting.* Lights in this system are either automatically or manually turned on when an interruption of power occurs or when suspicious activity is detected.
- *Movable lighting.* This type of lighting consists of manually operated movable floodlights.
- *Emergency lighting.* This system may duplicate any one of the aforementioned systems. Its use is limited to periods of power failure or other emergencies and is dependent upon an alternate power source.

Patrolling by airport operations staff, as well as local law enforcement, often contributes to enhancing airport perimeter security. Patrols of the airport perimeter

for the most part, are performed on a routine basis. In addition, air traffic control towers, responsible for the movement of aircraft and vehicles on the movement areas of an airport's airfield, are able to keep a consistent watch over activities within the airport perimeter. Because of the nature of the task, most air traffic control towers are situated so that they have an optimal view of the entire airfield. This facilitates the ability for air traffic controllers to spot potential security threats. Coordination between air traffic controllers, airport operations staff and local law enforcement further enriches the security of the airport perimeter.

EXERCISES

Exercise 1. Give the Russian equivalents to the following words and word combinations:

A forgery; a hinge; a handled wand; a felony; a database; a badge; a keypad entry; a manual pat down; a term of imprisonment; an eye retina; bribery; expiration gate; garment; hostage taking; authentication; challenge program; hassle factor; conspiracy; an intruder; aggravated sexual abuse; an emergency power source; barbed wire; a facial pattern; treason; the assessment; to comb; intent murder; commission of certain crimes; smart access technologies; biometrics; passenger screening; a digital form; a bar code; air piracy; ultimate; virtual; voice pattern; a deterrent; overhaul; to preclude; to calibrate.

Exercise. 2. Give the English equivalents to the following words and word combinations:

Магнитная лента; внимательный осмотр; неправильное представление фактов; быть управляемым человеком; тембр голоса; единственный в своём роде; передавать информацию; придерживаться чего-либо; в конечном счёте; государственная измена; соответствовать техническим условиям; рентгеновская установка; написать заявление по форме; величина; препятствовать; преднамеренный; обнаруживать; способствовать; финансирование; ответственная твёрдая позиция; риск представлен в баллах; сдерживать; происшествие; неразрешённые к провозу предметы.

Exercise 3. Find synonyms to the following words and word combinations:

To detect; often; to notice; to reduce; negative impact; quantity; performance; enough; to examine; equipment; to receive; careful.

Exercise 4. Give all the derivatives to the following words. Use a dictionary if necessary:

Top; inspect; to examine; responsible; to explode; authentic; to expect; to contribute; to equip; to prohibit; to process; to recommend; to combine; to behave; to locate.

Exercise 5. Answer the following questions:

1. What do passenger screening facilities include? Give the details.
2. What do you know about security screening stations? What equipment is used for carry-on baggage screening?
3. Under whose responsibility did passenger and carry-on baggage screening fall prior to September 11, 2001 and what has changed since November 2002?

4. What significant disadvantages did passenger come across after the implementation of TSA passenger screening? Comment on the "hassle factor" and "no tolerance" definitions.
5. What technologies are used to perform the screening of checked baggage, carry-on baggage?
6. What is required for an applicant to receive an SI DA badge?
7. What is piggybacking?
8. What are some of the technologies that are used to control access to sensitive security areas at airports?
9. What is biometrics? What are some of the technologies that are considered to apply biometrics to the airport security environment?
10. What is the airport perimeter? What common methods of creating a barrier to protect the airport perimeters are used?
11. What special requirements for security lighting and airport gates must be met?
12. How must patrolling of the airport be performed, why is it necessary?
13. How does airport security differ between commercial service airports and general aviation airports?

The future of airport security

Vocabulary

a missile	ракета
a paradigm	принцип, система взглядов и понятий
adverse	противоречивый
an assessment	оценка
expedited	быстрый, срочный, досылаемый (багаж)
funding	финансирование, субсидирование
imperfect	несовершенный, дефектный, с изъяном
occurrence	инцидент, происшествие, случай, эпизод
petty	мелкие
prioritizing	определение первостепенных по важности задач и направлений
privacy	частная жизнь
proactive	упреждающий, профилактический
racial bias	расовые предубеждения
reactive policies	ответная твердая позиция
shoulder-fired missile	«базука», гранатомет
the risk is presented in a score	риск представлен в баллах
to comb	прочесывать, тщательно искать
to mitigate	сдерживать, умерить
to site issue of...	поднимать проблему

to streamline	упростить, рационализировать
to submit an application	представить заявление на рассмотрение
unauthorized possessions	неразрешенные к провозу предметы
unfair positive benefits to frequent travelers	нечестно приписанные очки участника программы часто летающих пассажиров
unknown entity	неизвестное (явление)
voluntarily	добровольно

The future of airport security

Since the first criminal threats to civil aviation, reactive policies to prevent further occurrences of current threats have been implemented. This reactive paradigm has resulted in two consequences: (1) the reduction in the number of attacks from a current type of threat and (2) the creation of new threats against civil aviation that the system has not been prepared to mitigate. This has been evidenced by the historical development of different threats, from nonviolent hijackings, to violent hijackings using firearms, the placing of unattended explosives on aircraft, suicide hijackings, attempted suicide bombings, and most recently, attempts to down aircraft using shoulder-fired missiles near airports where aircraft are at relatively low altitudes and speeds.

As a result, thoughts regarding the future of airport security suggest a shift of policy, from a reactive approach to screening for the placement of weapons or explosives on aircraft, to a proactive approach to protecting against violent or other criminal acts by persons in and around the entire airport environment. This proactive approach requires technological and human expertise to screen persons for suspicious activity, rather than simply screening them for unauthorized possessions. Two such programs in development that address this include the **Computer Assisted Passenger Pre-Screening System (CAPPS II)** and the **Trusted Traveler Program**.

CAPPS II

The Computer Assisted Passenger Pre-Screening System, known as CAPPS II, is an enhancement of a profiling system employed by the FAA that selected passengers for additional screening based on their air carrier itinerary and citizenship. CAPPS II, designed to be a non-discriminatory selection system uses passenger information to verify identity and then determine risk, which is presented in a score and its corresponding color: red, yellow, or green. The system is designed to start with four pieces of passenger information, voluntarily given when passengers purchase airline tickets: name, address, phone number, and date of birth. CAPPS II then combs criminal activity and other databases to build a risk assessment score based on verified passenger information.

CAPPS II is designed to reduce the number of random security searches that have occurred since TSA regulations have been implemented. In addition, CAPPS II is designed to provide comprehensive prescreening of passengers without racial bias.

Trusted Traveler Program

While CAPPS II focuses on prescreening passengers for prior criminal or other

suspicious activity, a program known as Trusted Traveler is being developed to allow members of the traveling public to enter themselves into a database of "trusted travelers", by submitting an application for the program and inviting of background check, similar to those performed for airport employees. Once accepted into the database, the trusted traveler would be relieved from secondary searches, which historically have existed on a random basis, or be allowed to proceed through expedited security screening at the airport. This program is thought by supporters to have the potential of significantly streamlining the efficiency of passenger screening at airports by allowing security screeners to focus their efforts on those persons not in the Trusted Traveler Program, while allowing those in the program to proceed more quickly through the airport terminal.

Critics of these programs site issues of public privacy and bias toward select groups of persons, from negative bias toward those persons with petty criminal and adverse financial records, to unfair positive benefits to frequent travelers paying typically higher air carrier fares.

These programs, along with the further development of advanced biometric and information technologies, are expected to provide a contribution to enriching airport security, with the goal of proactively mitigating any future threats to the aviation system while preserving the efficiency of the system itself.

Concluding remarks

The events of September 11, 2001 were certainly most tragic, and as a result future concerns regarding the security of airports, and the aviation system in general, may prove to be addressed in a much more proactive manner. Prioritizing airport security has resulted in rapid developments in security technology and significantly increased security funding, and has led to addressing issues long considered a concern by many members of the traveling public.

Protecting against unknown future threats is an imperfect science, and as such, the future of airport security will always be an unknown entity. Concerns for the safe, secure, and efficient travel of passengers and cargo domestically and internationally will always be a top priority for the civil aviation system, and it can be assured that efforts to make the system as secure as possible will continue to be held in top priority, by all levels of government, as well as airport management, for the foreseeable future.

Remember the Key terms, be ready to explain their meanings

air piracy

terrorism

air operations area (AOA)

positive passenger baggage matching (PPBM)

Aviation and Transportation Security Act of 2001 (ATSA)

Transportation Security Administration (TSA)

federal security director (FSD)

airport security plan (ASP)

secure area
sterile area
security identification display area (SIDA)
exclusive area
passenger screening
magnetometer
explosive trace detection (ETD)
explosive detection system (EDS)
controlled access
biometrics
perimeter fencing
security lighting
AOPA Airport Watch
twelve-five program
private charter program
Computer Assisted Passenger Pre-Screening System
(CAPPS II)
Trusted Traveler Program

Answer the following questions:

1. What is CAPPS II?
2. What is the trusted traveler program?
3. How might airports better prepare themselves for future threats to civil aviation security?

Unit IV. Baggage Handling

Introduction

Within the total airport operations system, an essential element is the handling of passengers' luggage. If there are any difficulties with the processing of baggage, either on departure or arrival, it can have repercussions across a wide range of airport operations. If, for instance, baggage for departing flights is delayed then aircraft are kept at the gate longer than planned, and extended parking on the ramps inevitably leads to congestion and a general slowing down of airside operations and with this, possible delays also to the parking of arriving aircraft. It has also been established by past studies in the U.S. that terminal and roadway congestion can result from delays in processing arriving baggage.

Furthermore, baggage handling is a particularly sensitive issue from the passengers' point of view, as indicated by numerous surveys, which place the subject very high, if not at the top, of the passengers' priority list. As a consequence, the subject figures predominantly in correspondence between passengers and airport/airline management. Even though the handling of baggage is more often than not performed by non-airport personnel - airline or handling company - it is still all too often perceived by passengers as an airport operational responsibility.

For the airlines, the cost of irregularities can be substantial. Typical costs of (US) \$150 upwards can result from the temporary loss of a bag and the necessity subsequently to deliver it to the passenger's home. Station costs can quickly get out of hand if this is a frequent occurrence, to say nothing of costs if the baggage is irretrievably lost. One major North Atlantic carrier has estimated that it needs to earn an additional (US) \$30 to \$40 million in revenue to cover costs under this heading.

The nature and amount of passengers' baggage changed dramatically during the early 1970s as a result of three influences:

- 1 Aircraft sizes increased.
- 2 Baggage allowance criteria were changed.
- 3 Low fares were introduced.

The greatly increased capacity available on the wide bodies, brought about considerable relaxation of baggage constraints in the interest of simplified procedures. On many long distance routes, the limitations now related only to the number of bags checked, a maximum of two was allowed. There was no longer the weight restriction in regard to these checked bags. In addition, low fares brought with them large numbers of low-budget travelers, including vastly increased numbers of young people carrying with them all they required to be self-sufficient, including such items as bedrolls and rucksacks/backpacks. It became a problem not only of handling greatly increased volumes of baggage, but also of dealing with baggage of every size, shape, and description. It was necessary to make provision for this oversized, or in the European terminology *out of gauge* baggage. There was initially a failure on the part of the industry in the early 1970s, to appreciate that the flood of passengers would bring with them an even greater volume of baggage. The typical average on all but the shortest range business flight is in the region of 1.3 checked bags per passenger. There are certain routes throughout the world where checked baggage, regardless of excess charges, far exceeds this average. Typically, this phenomenon is associated with routes to and from third-world countries where, for one reason or another, consumer goods are not readily available. The overall effect over recent years has been a truly massive increase in the amount of baggage presented by passengers to accompany them on their journey, with a significant impact on all aspects of baggage handling. Foremost among these has been the introduction of containers for the carriage of baggage.

With the gradual increase in the numbers of wide-bodied aircraft, containerized baggage is now becoming the industry norm. It is interesting to note that there is still no universal standard size for wide-bodied baggage containers, although the LD3 is the most commonly used size, designed that two, positioned side by side, fill the underfloor cross section of most wide-bodied aircraft.

Baggage Operations

A certain number of tasks have to be carried out at every airport, and they are essentially similar whether the airport is small or large. The differences will emerge in the means employed and the procedures adopted. Baggage operations may be conveniently divided into two broad areas, departures and arrival:

Departure

- Carriage of baggage to check-in
- Check-in procedures including tagging and on occasions weighing
- Conveyance of baggage to airside
- Sortation and makeup into aircraft loads
- Transport of baggage to planeside
- Loading onto aircraft

Arrival

- Unloading from aircraft
- Transport to terminal airside
- Sortation - loading onto claim devices
- Conveyance to reclaim area
- Presentation of baggage to passengers for reclaim
- Carriage from reclaim area

Carriage of baggage to check-In

The majority of passengers need to check in one or more bags at the commencement of their air journey and the aim of most baggage handling systems is to enable this to be done as soon as possible after the passenger enters the airport in order to ensure there is the shortest possible distance for the passenger to carry heavy baggage. This does not, of course, take into account the fact that there might be off-airport check-in facilities.

The concept of off-airport check-in facilities has entered a new phase changing from the older concept of dedicated downtown terminals to a much more varied system. In some cases in Europe hotels have facilities to check-in baggage for their guests. Where there are direct rail links to airport terminals, baggage can often be checked-in at the passengers' origination rail station; (e.g., Switzerland) and at some major city rail stations in England and Germany. In addition, several major European airlines now allow passengers with only hand luggage to check-in by telephone, or in one case by fax (Air France).

Within individual airports there will be considerable variation in the distances over which a passenger has to carry baggage to the check-in desks. An airport or airline will provide curbside check-in or, at very least, porter/skycap service to transport the baggage to the check-in desk for the passenger. Curbside check-in usually provides for the bag to be conveyed directly to the baggage sort/make-up / area adjacent to the ramp.

Additionally, the airports might provide self-help baggage trolleys - usually called baggage carts in the U.S. - for passengers.

Check-in procedures

One of the several tasks involved in the check-in procedure is to ensure control of the numbers and weight of passengers' baggage. The number of bags carried by the individual passenger is recorded on that person's ticket, together with the weight when this is required. It is at this point that the airline (or handling agent acting on behalf of the airline) takes charge of the baggage and assumes responsibility for it,

issuing reclaim tags to the passenger as appropriate. Prior to accepting the baggage, the airline should take the necessary steps to warn a passenger against including any dangerous or hazardous articles in the checked baggage.

These procedures will invariably lead to waiting lines and, for wide-bodied aircraft in particular, waiting lines might be very long. Typically, individual check-in time per passenger is somewhere between 45 seconds and 3 minutes. This can, however, be seriously disrupted if any query or problem arises, and because of this, most airlines/handling agents will have a procedure whereby the passenger with a query is removed from the check-in line and dealt with separately at another desk. Every effort must be made by airline and airport authorities to exercise control over the check-in lines, and this might be accomplished by stationing additional staff in front of the desks to direct passengers or, alternatively, by providing light barriers of one kind or another.

Many passengers make use of the widespread airline practice of allowing those carrying only hand baggage to avoid the ticket desk queue and proceed directly to the gate for their flight. There is also the added advantage that passengers then have no need to wait for checked baggage on arrival at their destination. However, as a result, there has been a growing tendency for carry-on items to become larger and heavier, leading to difficulties with storage in the overhead bins in the aircraft cabin. This, in turn, can lead to congestion and delays in the boarding area. Airlines are aware of the problem and have attempted to control it but with limited success, largely due to the highly competitive nature of the airline business and their desire to retain the goodwill of their passengers.

Operating Characteristics of Baggage-handling Systems

The manner of operation of baggage-handling systems can differ quite substantially from airport to airport, and certainly from country to country.

Overall costs could be significantly reduced if a way could be found to abandon the present system of separating passengers from their bags and mixing all bags together prior to sortation and transportation to the aircraft. The air passenger is in a unique position vis-a-vis other travelers, in being able to transfer responsibility for the personal baggage to the carrier for most of the journey. This not only requires a higher labor input at the airport but also opens up the possibility of baggage irregularities, either by mishandling or by loss and pilferage, which can be quite high at some airports. In attempting to lower operating costs, new baggage systems and procedures are constantly being considered. Among these is the possibility of taking the baggage from the passenger at the last possible moment for direct loading onto the aircraft. Such a procedure is, in fact, adopted at some airports for "last minute" passengers who, on arriving late for check-in, are advised to carry their baggage to the aircraft boarding gate. This presupposes the provision of the slides beside each boarding gate and, on wide-bodied aircraft, the capability to "loose-load" baggage, i.e., without using a baggage container. It also presupposes the existence of an intervening security check.

The Inbound Baggage System

The objective of the inbound baggage system is to provide, in an economical and efficient manner, a fast method of unloading and delivery of baggage to the terminal and displaying it in the reclaim hall so that the passenger can easily retrieve it. Clearly, as aircraft have become larger, the amount of baggage to be displayed has grown greater, and thus the display area has grown at least proportionately. To avoid excessive confusion of many passengers individually moving among and examining many pieces of baggage, mechanical claim devices are usually used to carry the bags in a continuous display before the stationary passenger.

Linear counters are nonmechanized displays that are suitable for small aircraft only and at most airports where passenger flows are very low. The *linear conveyor* is slightly more sophisticated in that it moves the baggage past the passenger rather than making the passenger hunt for baggage up and down a counter. Normally there is a roller storage at the end of the conveyor for bags that remain unclaimed for a time. *Carousels* and *racetracks* are continuous devices that continue to circulate unclaimed baggage.

From the viewpoint of both efficiency and security, many airport authorities ban all visitors from the baggage claim area unless they are aiding an elderly or handicapped traveler. Airport authorities have found that such bans materially improve the efficiency of the system and also cut down on baggage theft.

To some extent, the customs examination and controls for international passengers removes this problem, certainly from the immediate vicinity of the reclaim area. However, serious congestion might still occur in adjacent areas where there is a solid wall between these areas and baggage reclaim. Random groups collect and usually seriously impede the progress of anyone who wishes to pass through that part of the terminal. Where part of the wall is glass, for example at the Rio de Janeiro, Frankfurt, and Amsterdam airports, waiting groups tend to line up against the glass screens, thus leaving space for circulation behind them.

The Outbound Baggage System

The outbound baggage system consists of *check-in*, *carriage to the outbound bag room*, *sortation*, and *carriage to the aircraft*.

Check-in

The *linear counter* arrangement, with a backing baggage conveyor, is perhaps the most traditional. Although it has the advantages of good visual presentation to the passenger, the waiting lines can make for an inefficient use of space, and passengers once served must backtrack and cut through lines of those still waiting. In narrow-gate arrival terminals, the lineups of waiting passengers tend to interfere with free movement of passengers through the terminal, and special single-line multichannel lineup arrangements have become necessary to avoid unnecessary congestion. The *island* check-in arrangement makes more efficient use of the baggage conveyor, which is loaded from both sides; there is a consequent saving in space. However, the flow patterns of waiting passengers and those seeking to leave the area after service offer many points of conflict. With island configurations, however, there is little

interference between waiting passengers and general flows along the longitudinal terminal axis. To overcome these problems, *the flow-through* arrangement of desks provides flow patterns in which passengers move in one direction without backtracking. Flow-through systems are not necessarily more space extensive than the linear counter system, but because they require deep check-in halls, they are usually feasible only if considered in the design stage of a facility. They have the added advantage that if designed as shown, there is no need for the check-in attendant to lift baggage.

Baggage is normally conveyed directly by belt from the check-in area to the outbound bag room or baggage make-up area, where it is sorted into the appropriate bag cart or container to be conveyed to the aircraft. Currently, three principles of sortation are in use: *manual*, *semiautomated*, and *fully automated*.

Automated baggage systems are more commonly used for the handling of departure baggage. They offer two advantages: reduction in labor costs and speed of conveyance. The elements of the handling operation for departure baggage that come between check-in and make-up into flight loads were the last ones to be automated. They involve "recognition" of the bags' eventual destination and conveyance to the appropriate loading point for that particular flight. If the bag is conveyed on a belt, a recognition code can be incorporated in the baggage tag. One of the systems developed in the United States in recent years utilizes the commodity bar code, which is read by laser beam(s) as in many supermarket checkout points. The original format used for the bar code was in the shape of a bull's-eye, but this occasionally gave rise to difficulties if the bag was upside down or in some unusual position that caused the laser beam to miss the label. This has now been resolved by increasing the number of laser beams at the read position and using a new strip label and also, for security purposes, adding check-in information.

If, as in some systems, it is conveyed on a self-propelled cart or bin, then the code is electronically imprinted on the bin by check-in staff. This code can then be read out by a variety of systems and the bag or bag container directed along an appropriate route to a sorting area or to the departure gate along the automated conveyor lines. If these lines, in effect miniature rail systems, are routed to individual gates, then the bag can be processed automatically from the check-in desk to the departure gates. Such a system is used in Frankfurt Airport, Germany and it involves 30 miles (50 km) of track. A recent development has been the requirement to ensure that no unaccompanied bags are loaded onto an aircraft, which is achieved by reconciling bags and individual owners. An automated system, introduced at Frankfurt Airport in 1994, enables passenger/baggage reconciliation to be carried out at the final makeup state of baggage loading. A hand-held laser gun is used to scan the bar code label that contains confirmation of check-in, as well as destination information.

Provision is made for connecting/interline baggage to be fed into the system and the running connect time for Frankfurt Airport interline baggage is 40 minutes, an important factor for an airport where 40 to 45 percent of its passengers transfer to

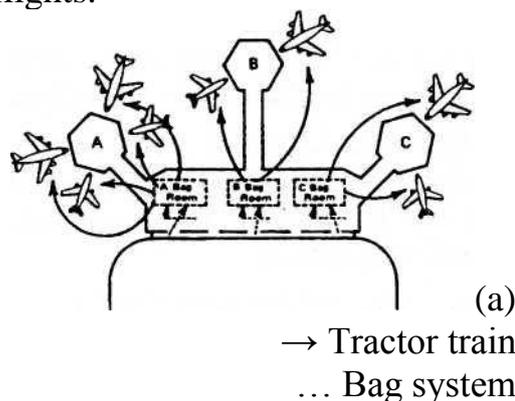
other flights.

With manual systems where there is only a single sortation belt serving a large number of check-in desks, serious delay problems can arise if the belt breaks down.

If there are two or more sortation recirculating belts, some check-in desks can still operate even if one belt breaks down. Especially in larger terminal buildings, it is advisable to safeguard the continuation of the check-in process by making suitable provision for sortation in the event of a partial breakdown.

The design of the passenger terminal complex itself can radically affect the outbound baggage system. Conventional centralized pier finger airports, such as Chicago O'Hare, Schiphol, Amsterdam, and Manchester International, operate on one or more *central* bag rooms in the main terminal area. These require elaborate sorting systems, but can be efficient in the use of personnel that is released when not necessary in off-peak periods. Decentralized facilities, such as Kansas City and Dallas-Fort Worth, have a number of *decentralized* bag rooms that are closely associated with a few gates. The sortation requirements of these makeup areas is minimal, but it is more difficult to use staff efficiently in the decentralized situation where there are substantial variations in workload between peak and off-peak periods. A third concept of baggage makeup area is the remote bag room. In an airport like Atlanta, where three-quarters of the traffic is transfer, there is considerable cross-apron activity. Remote bag rooms provide for the complex sortation necessary without transporting all baggage back to the main terminal. Schematics of the three systems are shown in Figure 4-1.

In fact transfer baggage represents a critical performance area for airlines or handling companies, as IATA notes in its *Airport Handling Manual*. "Transfer baggage accounts for most of the airlines baggage mishandling". It therefore calls for particular diligence on the part of staffs dealing with transfer baggage. There can be time pressures, when arriving and departing times are close, or alternatively problems of timely identification and retrieval from storage where there is a long interval between connecting flights.



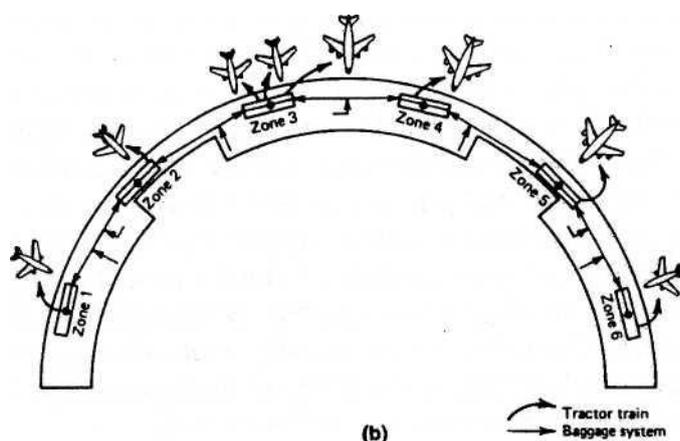


Figure 4-1 Outbound bag room arrangements:

- (a) central bag room;
- (b) decentralized bag rooms.

EXERCISES

Exercise 1. Give the Russian equivalents to the following words and word combinations:

To have repercussions; extended parking on the ramps; airside operations; terminal and roadway congestion; a sensitive issue; to figure predominantly; the cost of irregularities; a frequent occurrence; a temporary boss of a bag; baggage allowance; baggage constraints; weight restriction; low-budget travelers; out of gauge baggage; consumer goods; containerized baggage; off-airport check-in facilities; conveyance of baggage to airside; curbside check-in; reclaim tags; to take charge of the baggage; by loss and pilferage; “loose-load” baggage; excessive confusion of many passengers; a linear counter; a linear conveyor; cut down on baggage theft; reclaim area; outbound bay room; a self-propelled cart; passenger/ baggage reconciliation; in the shape of a bull’s-eye.

Exercise 2. Give the English equivalents to the following words and word combinations:

Операции за пределами терминала; парковка прибывающих самолётов; обработка прибывающего багажа; безвозвратная потеря багажа; широкофюзеляжный самолёт; багаж больших размеров; страны третьего мира; установки для регистрации багажа за пределами аэропорта; погрузка на самолёт; разгрузка с самолёта; принимать на себя ответственность; очередь; серьёзно нарушать; осуществлять контроль; ручная кладь; путешествующий инвалид; чрезмерное скопление пассажиров; ручная лазерная пушка; болезненный вопрос; преобладать; восприниматься пассажирами как ответственность аэропорта; покрывать затраты; допустимое к провозу количество багажа; небогатые пассажиры; миниатюрные рельсовые системы; уменьшение трудовых затрат; товарный код.

Exercise 3. Answer the following questions:

1. What is the effect of any difficulties with the processing of passenger's baggage on

- airport airline operations?
2. What did the greatly increased capacity of wide bodies bring about?
 3. What type of baggage handling is now becoming the industry norm?
 4. What two broad areas may baggage operations be divided into and what procedures does each of them include?
 5. What does the concept of off-airport check-in mean?
 6. What are the main tasks involved in the check-in procedure?
 7. What is the average individual check-in time?
 8. What kind of a procedure do most airlines have to avoid disruption if any query or problem arises at check-in?
 9. What advantage do airlines allow to those carrying only hand baggage?
 10. What can it lead to?
 11. How could overall costs of baggage handling be reduced?
 12. What are the ways of displaying baggage in the reclaim hall?
 13. What is the outbound baggage system like?
 14. What advantages does automated system for the handling of departure baggage offer and what do they involve?
 15. What other important procedure does an automated system of Frankfurt airport involve?
 16. What is the difference between centralized and decentralized bag rooms?
What type of baggage accounts for most of the airlines baggage mishandling and why?

Exercise 4. Speak on the topic

1. Baggage handling as an essential element of an airport/airline operation.
2. Baggage operations on departure and arrival.
3. Carriage of baggage to check-in.
4. Check-in procedure.
5. Baggage handling systems.
6. Inbound baggage system.
7. Outbound baggage system.

Unit V. Cargo Operations

The Air Cargo Market

For more than 40 years the air cargo market has been a steadily growing sector of the air transport market. During the late 1960s, the total world tonne kilometrage of freight doubled every four years, an average growth rate of 17 percent (ICAO 1995). At that time, the aviation world was replete with extremely optimistic forecasts of a burgeoning air cargo market. For example, McDonnell Douglas in 1970 projected that growth rates would increase and that the total market would grow from 10 billion route ton kilometers (6.2 billion route ton miles) in 1970 to 100 billion route kilometers (62 billion route ton miles) in 1980. In fact, this figure was not reached until 1995 due to recurrent economic recessions and steep fuel cost rises in

the 1970s and 1980s. More recent forecasts reflect the steady annual growth of 7.8 percent for the 20 years after 1975, indicating a most likely average annual growth rate of 6.5 percent between 1995 and 2015 with high and low estimates of 8.6 percent and 4.3 percent annually (Boeing 1995).

Cost

In real terms, the cost of the air freight declined until 1974, aided by the decreasing real cost of fuel and technological improvements. Declining real costs ceased abruptly with oil price increases and the subsequent growth rates were significantly lower. For the 10 years following 1985, the real cost of oil again declined and inflation fell dramatically in the industrialized nations; these two factors combined to make the real cost of air freight tariffs fall once more and the demand for air freight to rise in a healthy manner.

Technological improvement usually manifests itself in terms of lower freight costs through improved efficiency. Improvements to technology have taken place in three principle areas: the *air vehicle*, with the introduction of wide-bodied large-capacity aircraft; the development of a *wide range of ULDs*, and the necessary subsidiary handling and loading devices on the aircraft, on the apron, and in the terminal; and finally in *facilitation* with the maturing of freight forwarding organizations and the development of computerized control and documentation. In the last 20 years, freight yield has declined at an annual rate of 2.9 percent reflecting productivity efficiencies and intense competition.

Other factors

Various other secular trends have contributed to the increasing demand in air freight. For example, *miniaturization* of industrial and consumer products has made items much more suitable for carriage by air. The expected growth of the silicon-chip market will continue this trend. Another factor is the increasing trend for industry to move away from regional warehousing and the high associated labor, construction, and land costs. Manufacturers find that centralized warehouses backed by sophisticated electronic ordering systems and air cargo delivery are as efficient and less costly to operate than decentralized regional warehouses. Since the mid 1970s the concept of *just-in-time* delivery has revolutionized many industrial production processes.

Air cargo is extremely heterogeneous in character. It is often convenient to categorize the freight according to the manner in which it is to be handled in the terminal.

1. *Planned*. For this type of commodity, the air mode has been selected as the most appropriate after analysis of distribution costs. It is either cheaper to move by air freight or the added cost is negligible when weighed against improved security and reliability. Speed of delivery is not of vital importance to this type of freight.
2. *Regular*. Commodities in this category have a very limited commercial life, and delivery must be rapid and reliable. Newspapers and fresh flowers are examples of regular commodities.

3. *Emergency.* Speed is vital and lives might depend on rapid delivery of emergency cargo such as serums and blood plasma.
4. *High value.* Very high value cargo such as gemstones and bullion require special security precautions in terms of staffing and facilities.
5. *Dangerous.* The carriage by air of dangerous goods is a topic of much concern with airlines because of onboard hazard. It is important that personnel are adequately trained in the handling of dangerous shipments. IATA includes within its definition of hazardous goods the following: combustible liquids, compressed gases, corrosive materials, etiologic agents, explosives, flammable liquids and solids, magnetized materials, noxious and irritating substances, organic peroxides, oxidizing materials, poisons, polymerizable and radioactive materials.
6. *Restricted articles.* In most countries, arms and explosives can be imported only under the severest restrictions. Normally, restricted goods such as these can be transported only under very strict security conditions.
7. *Livestock.* Where livestock is transported, arrangements must be made for animals to receive necessary food and water and kept in a suitable environment. In a large terminal with considerable livestock movements, such as London Heathrow, the care of animals occupies a number of fulltime staff.

Expediting the Movement

Freight is moved from the shipper to the consignee, usually through the agency of a freight forwarder, by one or more airlines, using premises and infrastructure provided to some degree by the airports through which it passes. In many cases, on-airport facilities are provided not only for the airline, but also for the freight forwarders. Even large firms frequently use the facilities of a freight-forwarding agency because air cargo requires rather specialized knowledge, and air cargo might form only a small part of the firm's normal shipping operation. In order to provide an air shipping service, the freight forwarder performs several functions that are likely to be beyond the expertise or capability of the shipper. These are:

- To determine and obtain the optimum freight rate and to select the best mixture of modes and routes
- To arrange and oversee export and import customs clearances, including preparing all necessary documentation and obtaining requisite licenses (these are procedures with which the specialist forwarder is familiar)
- To arrange for the secure packing of individual consignments
- To consolidate small consignments into larger shipments to take advantage of lower shipping rates (the financial savings obtained by consolidation are shared between the forwarder and the shipper)
- To provide timely pickup and delivery services at both ends of the shipment

Most airlines see freight forwarders as providing a necessary and welcome intermediary service between themselves and the shipper and consignee. The freight forwarder, being familiar with the necessary procedures, permits the airline to concentrate on the provision of air transport and to avoid time-consuming details of the facilitation and landside distribution systems. Shippers with large air-cargo

operations frequently use their own in-house expertise within a specialized shipping department.

To encourage shipments that are more economical to handle, airlines have a complex rate structure, of which the main components are:

- **General cargo rates.** These apply to general cargo between specific airport pairs.
- **Specific commodity rates.** Often over particular routes, there are high movement volumes of a particular commodity. IATA approves specific commodity rates between specific airports. For *general cargo* and *specific commodity* rates, there are quantity discounts.
- **Classified rates.** Certain commodities because of their nature or value attract either a percentage discount or surcharge on the general commodity rate. Classified rates frequently apply to the shipment of gold, bullion, newspapers, flowers, live animals, and human remains.
- **ULD rates.** This is the cost of shipping a ULD container or pallet of specified design containing up to a specified weight of cargo. ULDs are part of the air line's equipment and are loaned to the shipper or forwarder free of charge, provided they are loaded and reloaded with the airline within a specified period, normally 48 hours.
- **Consolidation rates.** Space is sold in bulk, normally to forwarders at reduced rates, because the forwarder can take advantage of quantity and ULD discounts. The individual consignee receives the shipment through a break bulk agent at destination.
- **Container rates.** Containers in this context are normally owned by the shipper rather than the airline. They are usually nonstructural, of fiberboard construction, and suitable for packing into the aircraft ULDs. If a shipment is delivered to them in approved containers, airlines make a reduction of air freight rates.

The very rapid movement of air cargo requires precise documentation. This is provided in terms of the *air consignment note* of the freight forwarder, and the airline's *airway bill*, which form the major essential documentation of carriage. The airway bill is a document with multiple uses. It provides:

- Evidence of the airline's receipt of goods
- A dispatch note showing accompanying documentation and special instructions
- A form of invoice indicating transportation charges
- An insurance certificate, if insurance is effected by the airlines
- Documentary evidence of contents for export, transit, and import requirements of customs
- Contents information for constructing the loading sheet and flight manifest
- A delivery receipt

Flow Through the Cargo Terminal

The terminal operation on the input side is one that accepts over a very short period of time a large "batch" of freight (i.e., the aircraft payload). This batch is then sorted and that which is inbound and not direct transfer is checked in, stored, processed, stored again prior to delivery in relatively small shipments (i.e., up to container size). The export operation is the reverse process. Small shipments are received, processed, stored, and assembled into the payload for a particular flight that

is then loaded by a procedure which keeps aircraft turnaround time to an acceptable minimum. Figures 6.4a and 6.4b show for import and export cargo, respectively, how facilitation proceeds concurrently with the physical flow of cargo through the terminal. For very large terminals, the flow of documentation has proved to be a potential bottleneck; however, the use of on-line computers has reduced the problems of large paper flows, resulting in faster more efficient cargo processing.

Unit Load Devices (IA TA 1994)

Cargo, which is freight, mail, and unaccompanied baggage, was originally carried, loosely loaded in the cargo holds of passenger aircraft and if small all-cargo aircraft. Until the mid 1960s, all air cargo was carried in this loosely loaded or "bulk" cargo form. The introduction of large all-cargo aircraft, such as the DCS and the B707, meant very long ground turnaround times due to the lengthy unloading and loading times involved with bulk cargo. The ground handling process was substantially speeded up by combining loads into larger loading units on pallets.

IATA recognizes a set "of standard ULDs in the form of dimensional pallets, igloos, and ULD containers (IATA 1994 and IATA 1992). These ULDs are each compatible with a number of different aircraft types and are generally compatible with the terminal, the apron, and the loading equipment. However, there is serious incompatibility among aircraft types, which can cause considerable rehandling at freight transfer airports.

Projections indicate that in the future, intermodal ULDs are likely to be developed and they might capture an increasing share of the market. This figure also indicates that by the mid 1990s manually loose-loaded bulk cargo had already shrunk to less than five percent of the total cargo market.

Handling Within the Terminal (IATA, 1992)

Unlike passengers, who merely require information and directions in order to flow through a terminal, cargo is passive and must be physically moved from landside to air-side or vice versa. The system to be used for achieving this physical movement, will depend partly on the degree of mechanization to be used to offset manpower costs. The range of terminal designs is encompassed by three main types. Any particular terminal is likely to be made up of a combination of these types.

Low mechanization/high worker handling

Typically, in this design, all freight within the terminal is handled by workers over unpowered roller systems. Forklift trucks are used only for building and breaking down ULDs. On the landside, freight, is brought, to the general level of operation in the terminal by a dock-leveling device. This operational level, which is maintained throughout the terminal, is the same as the level of the transporting dollies on the airside. Even heavy containers are fairly easily handled by the workers over the unpowered rollers. This system is very effective for low- to medium-volume flows in developing countries where unskilled labor is cheap, where mechanization is expensive, and where there might be a lack of skilled labor for servicing equipment.

Open mechanized

The open mechanized system has been used for some time in developed

countries at medium-flow terminals. All cargo movement within the terminal is achieved using forklift vehicles of various designs that are capable of moving fairly small loads or large aircraft container ULDs. Moreover, these forklift vehicles can stack up to five levels of bin containers. Many older terminals operated successfully with this system, but the mode is space extensive and forklift operations incur very high levels of ULD container damage. As pressure has come on cargo terminals to achieve less costly, higher volume throughputs in existing terminal space, many open mechanized terminals are being converted to fixed mechanized operation.

Fixed mechanized

The very rapid growth of the use of ULDs in aircraft has led to cargo terminal operations in which extensive fixed mechanical systems are capable of moving and storing the devices with minimum use of workers and low levels of container damage in handling. These fixed-rack systems are known as *transfer devices* (TV) if they operate on one level and *elevating transfer devices* (ETV) if they operate on several levels. Because they have very large ULD storage capacities, they can level out the very high apron throughput peaks that can occur with all freight wide-bodied aircraft. ETV rack storage can absorb for several hours incoming ULD freight and conversely can provide departure flows on the airside greatly in excess of the terminal's ULD capacity. New and renovated terminals at New York JFK, Tokyo Narita, Frankfurt, Paris Charles de Gaulle, and London Heathrow, all include ETV and TV systems. Fixed mechanized systems also have a great advantage over open mechanized systems from the viewpoint of container damage. Forklift operations can cause millions of dollars damage to containers at high volume open mechanized terminals each year.

Cargo Apron Operation

During the 1960s, there was a widely held belief that the next 20 years would see a general trend to virtual separation of passenger and cargo transport and the rapid development of all-cargo fleets. Two principal factors combined to ensure that this did not take place. First, wide-bodied passenger aircraft were introduced very rapidly in the 1970s to achieve crewing and fuel-efficiency objectives. The new wide-bodied aircraft had substantial and under-utilized belly space that was suitable for the movement of containerized cargo. Second, while exhibiting healthy growth rates, air cargo did not achieve the explosive growth expected at that time. By the early 1980s, the air-cargo operation had changed so much in character that a number of major airlines, which previously operated all-cargo aircraft, abandoned this form of operation in the short term in favor of using lower-deck space on passenger aircraft. This position is likely to continue while such space is available, although by the mid 1990s several major carriers had re-introduced all-cargo aircraft. All-cargo aircraft are common at airports served by all-cargo airlines.

Even though much freight is carried by other than all-cargo aircraft, very large volumes are moved by such operations through the air-cargo apron. All-cargo aircraft are capable of very high productivity, provided that there is a sufficient level of flow to support these productivity levels. The maximum payload of the B747F is more

than over 270,000 pounds (122,000 kg). Figure 5-6 indicates that with containerized cargo, the aircraft manufacturer estimates that it is possible to off-load and on-load 220 total tons in slightly less than one hour. A more typical operational time would be considerably longer.

The times given by the manufacturer must be regarded as being ideal times where the load is immediately available and sequenced for loading. Real-world apron operations often mean that load control of the aircraft seriously inhibits total loading time. For a 100 series 747 with only side-door loading, a turnaround time of VA hours would be considered very good, and for a 200 series aircraft only nose-loaded, 2% hours is more likely. Minimum total turnaround time might well be seriously affected by outside considerations such as off-loading equipment availability or the necessity to wait for customs or agricultural inspection before any off-loading can be started. Average turnarounds are much greater than minimum times because frequently aircraft are con-strained by schedules that give a total ground handling time much greater than these quoted minima.

Using containers, the payload is decreased, but considerable gains are made in operational efficiency. Typically, the total payload of a B747F would be constituted in the following way:

Main deck cargo	168,000	Ib (containerized)
Lower lobe aft	21,700	Ib (containerized)
Lower lobe forward	24,800	Ib (containerized)
Bulk compartment	7,500	Ib
Total payload	<u>222,000</u>	Ib

Figure 5-1 shows the location of ground handling and servicing equipment required for simultaneous upper- and lower-deck unloading and loading sequence assumed in the Gantt chart shown in Figure 5-2. Such an operation places a very heavy load on apron equipment and apron space. In all, 45 containers will be off-loaded and a similar number loaded. Two lower deck low-lift loaders and one upper deck high-lift loader will be required, each requiring at least one and possibly two container transporters. The bulk cargo hold is operated with a bulk loader fed by an apron trailer unit. Additionally, for general turnaround servicing, two fuel trucks are required if hydrant fueling is unavailable, a potable water truck, a truck to supply demineralized water for water injection, a sanitary track for toilet servicing, a ground power unit, a compressed air start unit, and a crew access stair. In the immediate vicinity of the cargo building, it is usually necessary to provide a bed of "lazy rollers" or slave pallets to accept and temporarily store the offloaded containers that might arrive from the apron at a peak rate beyond the terminal capacity. Peak apron capacity is normally in excess of terminal throughput capacity. An ETV system is equally capable of absorbing apron peaks by storing received ULDs until they can be processed in the terminal.

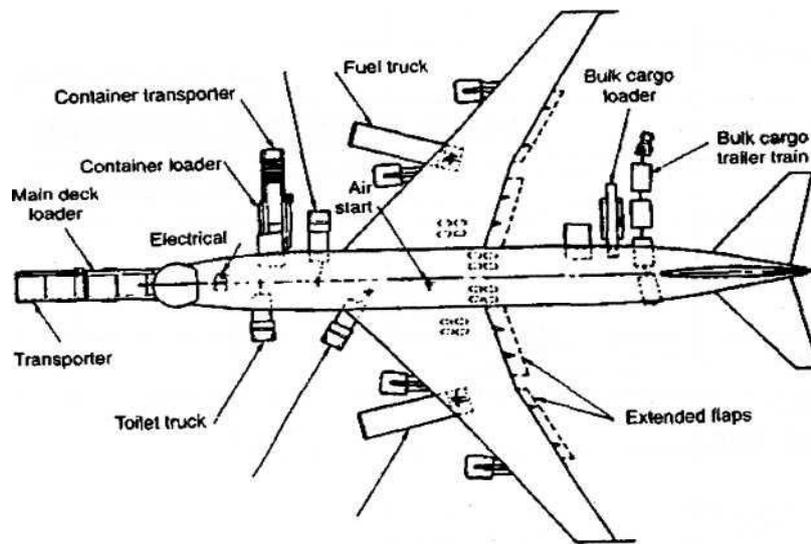


Figure 5-2 Location of servicing and loading/unloading equipment on cargo apron.

Computerization of Facilitation

The secure and efficient shipment of a consignment can take place only when documentation keeps pace with the physical movement of cargo. This is a fairly straightforward matter with low volumes moving through a single air-cargo terminal building. At major airports with high volumes, numerous airlines, and multiple processing facilities, the control of facilitation becomes extremely complex and very necessary. This has been achieved for the last 25 years through computerization. Initially main-frame systems, such as the LACES and AGP 80 systems at Heathrow, were utilized. These connected Customs with the inventory-control systems of a number of airline operators and the airlines connected their own computers to the central bureau in order to transmit inventory control data to a communal file. Information from the communal file was made available to airlines, agents, and customs provided that the information sought is within the authority of the operator requesting it. Many main-frame systems still operate but are being steadily replaced by cargo community systems.

Main frame systems

Figure 5-3 shows the major events in the computerized life of a typical consignment, first on export then in import. A computer record of the consignment is initially created either at the time of space reservation or at reception. The initial file contains all details of the consignment from the airway bill, such as weight, contents, destination, carrier, shipper, and consignee. As the consignment moves through the system, numerous subsidiary files are created. Additionally, files are created that create flight records up to seven days in advance of departure date, indicating maximum weights and volumes to be allocated to each particular destination. When the consignment is completely received (i.e., the number of packages agrees with the airway bill), the consignment is either allocated to a flight or to an ULD, which itself will be allocated to a flight. The computer then provides a flight-tally file that

indicates shed storage location, ULD details, and any instructions on handling. Once all consignments have been tallied, a flight manifest, the working document reporting the movement of cargo, is produced. The manifest is used on the load control of the aircraft itself. The final input to the information system is the statement that the flight and the goods have departed. The data system can be interrogated at any point to determine the current location and status of the cargo. There is also the possibility of modifying initial input data to allow for consignment splitting, off-loading and for coping with short shipments where a partial shipment is made when part of the consignment is held up.

On the import side, a file record is created on receipt of the waybill documentation. This computerized record identified the receiving shed, the airline, the airway bill number, and the necessary data contained on the airway bill. Status reports are made on the physical receipt of the goods; first that all goods have been received and second that the consignee is creditworthy. After customs entry and clearance, either a release note is produced after clearance, or removal authority to permit transshipment to another airport for clearance, or for removal to another import shed. At this stage, a transfer manifest is produced for through-transit consignments. The final input in the life of the record is that the goods have been delivered. Several reports are automatically available that record discrepancies, such as the receipt of more or less packages than expected. As a standard inventory control measure, a number of daily operational reports are produced. These give the current status of problem areas such as:

- Consignments not received within 24 hours of the receipt of the airway bill
- Consignments not delivered with 2 days of customs clearance
- Through transits not delivered to onward carrier in 6 hours
- Transshipments and interairport removals not achieved within 7 days

At all stages, the status files may be interrogated by operators with necessary authority.

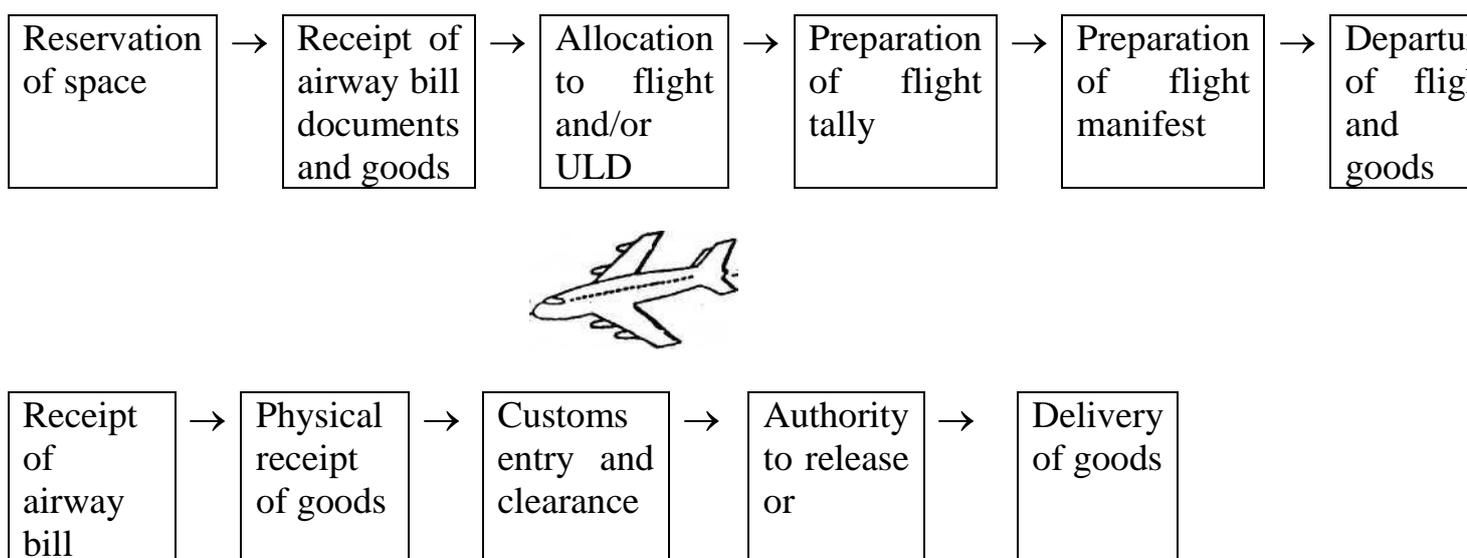


Figure 5-3 Principal stages in exporting and importing freight

Cargo community systems

With the widespread introduction of personal-computer (PC) technology to business, PC hardware has become generally available. Cargo community systems enable freight operations with PCs to join systems which, using *electronic data interchange* (EDI), enable computers to exchange data directly without human intervention. The ICARUS system by the mid 1990s, links more than 50 major airlines with in excess of 1500 forwarders, carriers and other EDI-based systems, including the CCS-UK system used by British Airways and others at London Heathrow. The worldwide ICARUS system connects with the CCN system at Changi Singapore, the TRAXON systems in France, Japan and Hong Kong, Avex in the United States, Cargonet in Australia, and other CCS systems in Austria, Italy, South Africa, and the United Kingdom. The user is able to exchange information between computers without the need for paper-based documentation and can:

- access flight space availability
- obtain electronic booking/reservation
- transmit electronic documents (e.g., airway bill)
- receive electronic documents
- provide consignment tracking and status
- community among forwarders
- provide schedule information

Although the initial investment to join such a CCS system is relatively expensive, for airports handling in excess of 100,000 tons of freight each year the system is likely to be seen as an essential element of the operation and is much cheaper and more flexible than a main-frame system.

EXERCISES

Exercise 1. Give the Russian equivalents to the following words and word combinations:

Growing sector; average growth rate; steep fuel cost rises; real cost of fuel; technological improvements; to fall dramatically; industrialized nations; air vehicle; wide-bodied large-capacity aircraft; on the apron; in facilitation; intense competition; consumer product; sophisticated electronic ordering system; warehouses; just-in-time delivery; extremely heterogeneous; to handle; commodity; commercial life; security precautions; shipment; combustible liquids; compressed gases; etiologic agents; the severest restrictions; fulltime staff; pickup and delivery services; own-in-house expertise; quantity discounts; human remains; requirements of customs; large paper flows; pre-check in hold area; customs examination and clearance; domestic delivery; air consignment note; airlines airway bill; cargo terminal; aircraft turnaround time; to be potential bottleneck; bonded storage; main deck; lower deck; small all-cargo aircraft; bulk cargo; loading equipment; from landside to airside; vice versa; dock-leveling device; elevating transfer devices; renovated terminals; all-cargo fleets; belly space; explosive growth; major airlines; to abandon ground power unit; crew access stair; main-frame system; flight-tally file.

Exercise 2. Give the English equivalents to the following words and word

combinations:

Обновленные терминалы; забрасывать; основные авиалинии; оборудование для загрузки; большой бумажный поток; скидки из-за количества; запрет; нижняя палуба; улучшение технологии; повышение цен на топливо; реальная цена на топливо; высокоразвитые государства; растущий сектор; конкуренция; предварительная проверка; товар широкого потребления; жизненно-важный; быстрая (скорая) и надёжная; сыворотка; самоцвет; драгоценный камень; риск, опасность; взрывчатые вещества; легковоспламеняющиеся жидкости; радиоактивные вещества; строгие меры безопасности; подходящие условия (для содержания животных) грузополучатель; экспедитор; осуществлять (выполнять); растаможевание; надзирать; загружать; квитанция доставки; требование таможни; прямые перевозки; накладная; заранее; проверять и сортировать документы; тип самолёта; несопровождаемый багаж; оформлять (заполнять) лётную документацию; документы на ввоз чего-либо; наоборот; ленточный транспортёр; развивающиеся страны; развитые страны; повреждение контейнеров; вместимость; с точки зрения; разделение пассажирского и грузового транспорта; разгрузка через боковую дверь; разгрузка через нос; негативно влиять; оборудование перрона; окрестности; временное хранение; закрылки; топливозаправщик; физическое перемещение груза; данные.

Exercise 3.

a) Find synonyms to the following words and word combinations:

Plan; goods; prices; comfortable; danger; staff; van; reservation; timetable; tendency; producer; steady competition; storage places; local delivery; airport; customs check; construction.

b) Find antonyms to the following words and word combinations:

Growth; high; maximum; skilled labour; load minor; send electronic documents; cheap; disconnect; reducing sector; wide-bodied aircraft; to leave; loading equipment.

Exercise 4. Give all the derivatives to the following words and translate all of them into Russian. Use a dictionary if necessary.

To develop; improvement; efficiency; technological; facilitation; competition; insurance; to accept; substantial; manufacturer; load; connect; change; available; to carry; reserve; dramatically; requirements; to abandon.

Exercise 5. Answer the following questions:

1. What were the most optimistic forecasts of air cargo market like and why was not the figure of 100 billion route kilometers reached in 1980?
2. What do most recent forecasts reflect?
3. In what terms does technological improvement manifest itself?
4. What three principal areas have technological improvements taken place in?
5. What other trends contributed to the increasing demand in airfreight?
6. How is it convenient to categorize the freight according to the manner of handling it?

7. Who is responsible for the movement of freight from the shipper to the consignee?
8. What functions does the freight forwarder usually perform?
9. What kind of a rate structure do airlines have?
10. What kind of documents form the major documentation package?
11. What are the principal stages of freight flow?
12. What is the main difference in carrying freight before the introduction of large all cargo aircraft and after it was introduced?
13. What forms of ULDs does IATA recognize and what are their disadvantages?
14. What do projections indicate in terms of ULDs?
15. What is the range of cargo terminal designs?
16. Why was it possible to abandon all cargo aircraft in favour of using lower-deck space?
17. What might minimum total turn around time be affected by?
18. What are the major events in the computerized life of a typical consignment?
19. What are cargo community systems like?

Exercise 6. *Speak on the topics*

1. History of the Air Cargo Market.
2. Cost and other trends contributed to the increasing demand of airfreight.
3. Expediting the movement of airfreight.
4. Rate structure.
5. Air cargo documentation.
6. Stages involved in freight flow through the terminal.
7. Unit Load Devices.
8. Handling with the terminal.
9. Cargo handling systems.
10. Cargo Apron Operation.
11. Computerization of Facilitation.

Unit VI. Information Technologies

Vocabulary

airline-dedicated kiosks	киоски, принадлежащие авиакомпании
back-end system interface	связь с внешним устройством
biometrics	измерение биологических параметров
by and large	в общем
congestion	перегрузка, затор, скопление
CUSS middleware	промежуточное устройство
hardware platform	аппаратура
hardware configuration	комплект аппаратуры
hardware requirements	требования к аппаратуре
proliferation	быстрое увеличение, разрастание,

proprietary (kiosks)	распространение находящимся в собственности, принадлежащий фирмам
pros and cons	за и против
self-policing	самостоятельный курс (линия поведения, политика)
single application mode	однофункциональный режим
multiple application mode	многофункциональный режим
survey	опрос, обозрение, обзор
terrestrial transports	наземный транспорт
to deploy	развертывать(ся)
to embrace	охватывать
to enhance	усиливать, повышать, увеличивать
to evidence	свидетельствовать
to favour	оказывать предпочтение
to get the greatest return on investment	получить наибольшую отдачу от вложений
Interface (v., n.)	взаимодействовать, координировать; взаимосвязь, взаимодействие
to predict	предсказывать
to reduce	сокращать
to restrict	ограничивать
transaction	сделка, акция
trend	направление, тенденция
ultimate user	конечный пользователь
verification	проверка, подтверждение
wireless connectivity	беспроводная связь

Information Technologies

Airports Council International has once again conducted an annual survey on airport technology trends with the help of SITA in 2006. The survey asked senior executives from the top 200 airports about current and future investments in technologies.

Some 60 answers were received, with North America representing 43 per cent of all answers, Europe 27 per cent, Asia and the Middle East/Africa each representing 15 per cent.

Contrary to popular belief most airports have embraced new technologies over the last decade. The survey shows that 64 per cent of the airports reported increased IT investments in 2006 and 75 per cent predict a growth in IT spending in 2007. With passenger numbers continuing to rise, the trend for increasing IT budgets in the future looks positive.

The 2006 survey shows a marked shift in investments, with the priority given to new information technologies able to simplify passenger experience at airports.

Airports realize they went too far in their quest for safety and started to refocus again on passengers, who are the ultimate users. As traffic grows again, congestion is becoming a priority issue.

New information technologies include check-in kiosks, wireless connectivity, biometrics and faster baggage processing systems.

According to the survey, common-use, self-service check-in kiosks for airlines will be one of the largest areas of investment for airports. At least 42 per cent of airports globally have already deployed some form of self-service kiosk and the results show that over the next two years this figure will rise to 70 per cent. Growing interest from airlines and airports in self-service kiosks seems to be to the advantage of airports. If airlines favour their own self-service check-in system, airports will look towards offering common-use self-service kiosks(CUSS) in a bid to reduce the possible proliferation of machines throughout airport departure halls; the survey reflects this trend.

The first generation of kiosks was largely dedicated to a single airline, as evidenced by the survey results that show 50 per cent of airports have deployed them. By comparison, only nine per cent of the surveyed airports indicated implementing common-use kiosks. However, 66 per cent of the airports indicate an interest in investing, within the next two years, into CUSS kiosks against two per cent Investing into airline-dedicated kiosks.

Originally the airline applications restricted the functionality of the kiosks to passengers travelling with carry-on luggage only. But airlines and airports have realised that to get the greatest return on investment, the kiosks need to handle all types of passengers, including those with bags for checking and those travelling in groups.

Four basic scenarios exist for CUSS baggage check-in: one stop, where the passenger checks in at the kiosks located at a check-in counter and drops his bag on an adjacent scale where an agent applies the bag tag; two stops, where the passengers check in at a kiosk, receive their boarding pass and then move to another desk to have bags tagged and accepted by the airline/handling agent; semi-self bag tagging, where passengers tag the bag themselves but still go to a counter for baggage verification and drop-off; and full self-bag tagging, where passengers check in at the kiosk, apply the bag tag and drop the bag off at a common-use baggage belt.

Each of the models has its pros and cons and it depends on terminal space, personnel resources and type of passenger traffic to determine the best scenario. Also specific security regulations must be considered and met for each solution.

The policy of airports and airlines is understandable. The airport wants to make much better use of the infrastructure they have got (building new terminals is a long term process) and they want happy passengers moving airside and buying in the retail outlets. The airlines want to cut the overall cost of the check-in process and they also want to offer a better service to their passengers.

The CUSS concept is simple- a kiosk platform to be shared by any number of check-in applications that conform to the CUSS standard. And this standard is very

much alive. It was developed (and is enhanced) by a mix of airlines, airports and suppliers, is self-policing and, by and large, has worked very well.

There is obviously a lot of detail. But at the top level the main components are:

1. The CUSS Kiosk Platform. It manages the devices like card readers, boarding pass printers and passport readers. The devices are interlaced via the IATA CUSS standard layer. It provides monitoring information on the hardware platform (this is called public information) and the airline business transactions (called private information). The information can be sent to an external airport and/or airline monitoring tool to manage. It manages the CUSS applications that share the kiosk, launching them from a common screen and generally making sure they perform to CUSS standard. It ensures any CUSS certified platform runs any certified CUSS certified application.

2. The CUSS Kiosk Application. The airline self-service application lets the passenger check-in and prints the boarding pass. Many airlines will have developed their application so that they can run on their dedicated kiosks in "single application" mode, and on CUSS kiosks in "multiple application" mode. These airlines will also run CUSS on their proprietary kiosks, thus enabling them to maintain a single application.

The IATA CUSS standard applies to what is happening at the kiosk, not to the Departure Control System (DCS) interface or any back-end system interfaces. Thus it governs how the airline application interfaces with the kiosk platform and not how the application communicates with back-end servers and the airline DCS, the application look, or what services it offers to the passenger.

The IATA CUSS standard has been developed according to several principles, including operating system independence, although in practice, most vendors are delivering Windows 2000/XP solutions. There is also no specific hardware requirements assumed, although at a minimum the kiosk must be able to read cards and print boarding passes. The standard allows for vendor independence and applications written to the CUSS standard are platform independent. The interface between the CUSS applications and the platform components is based on CORBA. Standard CORBA HOP is used for all ORB communication between the CUSS platform and any CUSS application and or CUSS system manager.

3. The CUSS Kiosk Platform Provider. To make it all work at the airport typically the CUSS Kiosk Platform provider (Airport) provides: a) the kiosk hardware platform consisting of the kiosk and the CUSS middleware, b) a Common Launch Application (also part of CUSS), which provides a launch screen that defines which airlines share the CUSS platform. The Common Launch Application provides an interface for the end-user passenger to select the airline with which they are travelling and would like to check-in with, c) a monitoring tool- such as IBM Kiosk Manager.

The airlines each bring their CUSS self-service application to the airport and install them on the airport CUSS kiosks.

ICAO has approved three biometric methods: fingerprinting, iris scanning and

face recognition of which any two are acceptable.

In the safety arena, biometric identification will be the main area of investment for airports in the years ahead. At present biometric systems are largely used for employee identification. Some 15 per cent of the surveyed airports reported use of biometrics on an internal basis, with predicted growth to 65 per cent by 2009. The pace of investments into biometrics will certainly speed up in the years to come, once the ICAO and other world air transport institutions agree on global standards of use. Only three per cent of the surveyed airports have implemented a biometric security system for check-in and boarding, a figure likely to increase to 33 per cent in the next years.

Other technology trends forecast by the survey see almost all airports offering wireless/web access in terminals by 2007. Over 90 per cent of airports surveyed said they already offered or planned to offer it in the next two years. Mobile passenger check-in is also likely to rise with 36 per cent of the airports offering the possibility within two years, compared to three per cent today. If six per cent of airports use today RFID (Radio Frequency Identification) tags for baggage management this number is likely to rise to 45 per cent by 2009.

It is predicted that airport IT will concentrate on inter-modality with other forms of transport in the next few years. Travelling to and from an airport is most of the time an unpleasant experience due to the lack of integration between terrestrial transports and airlines.

Common ticket issue for airlines, trains, buses or even public transport should become the norm with the possibility of luggage transferred directly from the flight to the final traveller's destination. Experiences in Germany, France, Switzerland and Hong Kong of integrating various transport systems are still exceptions today.

EXERCISES

Exercise 1. Give the Russian equivalents to the following words and word combinations:

Annual; survey; senior executive; ultimate user; a marked shift of investments; check-in kiosks; wireless connectivity; biometrics and faster baggage processing system; common-use; self-service; carry-on luggage; counter; bag tag; boarding pass; drop off; verification; pros and cons; outlets; the devices like card readers; tool; application; employee identification; wireless/web access; lack of; terrestrial transport; to evidence; transaction; self-policing.

Exercise 2. Give the English equivalents to the following words and word combinations:

Посадочный талон; беспроводной; исключение; отсутствие чего-либо; сравнивать; ярлык, бирка; в общем; предсказывать; опрос; за и против; наземный транспорт; общественный транспорт; перегрузка; основной пользователь; одобрять; прогноз; учреждение; новые технологии; текущие и будущие инвестиции; отдать предпочтение; запрещённый.

Exercise 3. Find synonyms to the following words and word combinations:

Investigation; easy; understand; baggage; increase; suggest; cut; terminal; largest; personnel; number; web access airport; check; polls; cooperation; tendency.

Exercise 4. Give all the derivatives to the following words. Use a dictionary if necessary.

Represent; simple; standard; monitor; independence; requirements; communication; install; employee; identification; possible; exception.

Exercise 5. Answer the following questions:

1. What was the aim of the survey conducted by ACI in 2006?
2. Why does increasing IT budgets look positive?
3. What are advantages and disadvantages for passengers in using kiosks for self check-in?
4. What are the basic scenarios for CUSS baggage check-in?
5. What is the reason of disagreement between airports and airlines in the question of using CUSS kiosks?
6. What are the main components of the CUSS concept?
7. What are the main biometric methods approved by ICAO?
8. Wireless/web access in terminals seems to be actual nowadays, doesn't it? What do you think about it?
9. Can you predict popularity of mobile passenger check-in in the future?
10. Is getting to and from airports a problem for many passengers? What is the way of solving this problem?

Unit VII. Telephone Reservations

Special Terms

Code: A system of numbers or abbreviated words that is used to make communication easier. The airlines use letter codes to identify cities (or airports), names of airlines, and so on. The identification of flights may be considered a number code.

Domestic vs. International: As used by airlines, *domestic* refers to travel within one country. A domestic passenger in the United States is traveling within the United States. A domestic airline operates completely within one country. *International*, on the other hand, means between two or more countries. An international passenger is going to travel in more than one country; an international airline operates in more than one country.

Leg: A segment or part of a journey. A passenger is traveling from New York to London, from London to Paris, from Paris to Nice, from Nice to Marseille, from Marseille to Paris, and from Paris to New York. Each of these segments of his trip is on a different flight; each flight is a separate leg of his trip.

No-show: A passenger with a reservation who does not claim his seat at departure time. The airlines consider no-shows undesirable.

Offline: A reservation made by a particular airline on any other airline.

Reservations Agent: An airlines sales agent who makes sales by telephone,

Most airlines do a large part of their business by phone, so the reservations agent is an important member of the sales force.

Travel Agency. A commercial office (though in some countries it may be operated by the government) that makes all kinds of arrangements for travelers-reservations for transportation, hotels, tours, etc. A travel agency, however, does not ordinarily provide the services for which it makes the arrangements.

Answer the following questions:

1. What is a *code*? What are some of the codes that are used by the airlines?
2. How does a *domestic* passenger or airline differ from an *international* passenger or airline?
3. In what special sense do the airlines use the word *leg*?
4. What is a *no-show*?
5. What is an *offline*?
6. What does the job of a *reservations agent* consist of? Are you interested in becoming a reservations agent? Give your reasons.
7. What is a *travel agency*? How does it differ from an airline or other transportation company?

Telephone Reservations

John Smith is going to travel by air from New York to Detroit. He is planning to go on from Detroit to Chicago and then return directly to New York. There are three ways he can make the arrangements for the trip: (1) by going to a travel agency; (2) by going in person to an airline ticket office; or (3) by telephoning an airline reservations office. The last would probably be the easiest way for Mr. Smith to make the arrangements for such a short trip.

Thousands of agents handle telephone calls for the airlines. They are usually called reservations agents since their principal job is to make or confirm reservations for passengers who telephone the airline. They may also give information on weather, food service, and so on. When a passenger calls an airline for a reservation, the agent should find out:

1. Who is traveling.
2. Where the passenger wants to go.
3. What time and what day the passenger wants to go and return.
4. What class of service the passenger wants.

The passenger may also have other special needs. He may, for example, want the airline to make hotel reservations or special arrangements for ground transportation. He may also need the special passenger services that are provided for infants or physically handicapped passengers. If he is an international passenger, he must be informed about the documents - passports, health cards, visas - that he will need for his journey.

The passenger will probably first ask for a flight to a particular destination. All airlines use a standard code for all destinations. This code consists of three letters which identify a particular city - SFO, for example, for San Francisco, or CCS for

Caracas, Venezuela. In cities where there is more than one airport, the code will indicate the particular airport. At New York, for example, JFK indicates Kennedy International Airport and LGA indicates La Guardia Airport.

The passenger will probably then ask for a flight at a particular time and day. For a heavily traveled route, like Mr. Smith's trip from New York to Detroit, there will be a choice of several flights every day. The reservations agent will have to determine what time and what day are most desirable for the passenger. He will also have to find out whether the passenger wants continuing space - Mr. Smith wants to go on to Chicago -and return space - Mr. Smith wants to come back from Chicago to New York.

City and Airport codes

JFK	New York (John F. Kennedy International Airport)	FCO	Rome (Fiumicino Airport)
IAD	Washington (Dulles International Airport)	BEY	Beirut
SFO	San Francisco	THR	Tehran
MIA	Miami	BKK	Bangkok
HNL	Honolulu	TYO	Tokyo
SDO	Santo Domingo	MAD	Madrid
MEX	Mexico City	LHR	London (Heathrow Airport)
CCS	Caracas	ATH	Athens
CIG	Rio de Janeiro (Galeao Airport)	UIO	Quito
EZE	Buenos Aires (Ezeiza Airport)	SJU	Bogota
ORY	Paris (Orly Airport)	BDG	Lima

The reservations agent will also need to find out whether the passenger is traveling alone - "a party of one," in airlines' usage - or with other people - "a party of two," "a party of three," and so on. He should also get the name of the passenger (or passengers).

In addition he must find out which class of service the passenger desires - that is, first class or economy. The code for first class is the letter F; for economy it is the letter Y.

When the agent has this information, he can go to reservations control to check whether or not the space is available. Reservations control may be a computerized system such as those used by the large airlines; or it might be just a sheet of paper - a passenger manifest list - with the names of passengers holding reservations for a local airline. If space is not available on the flight that the passenger desires, it is advisable that the agent be able to suggest an alternate flight. If, for instance, there is no space on the nine o'clock flight, there may be space on the eight o'clock flight

All flights, incidentally, have number codes. The nine o'clock flight might be number 359, and the eight o'clock flight might be number 259. The odd-numbered flights are westbound or southbound, and even-numbered flights are eastbound or

northbound. Airline personnel refer to "flight two-five-nine of the two-four," with the two-four indicating the day of the month.

Another airline practice that the reservations agent must become accustomed to is the 24-hour clock, which is used by all the international airlines. Instead of dividing time into two twelve-hour parts, each day is given as a full twenty-four hour day. Thus 1:00 p.m. would be given as 1300 (thirteen hundred). Times are always written with four digits when using the 24-hour clock.

<i>2-hour Clock</i>	<i>24-hour Clock</i>	<i>Spoken Equivalent</i>
7:00 a.m.	0700	oh-seven hundred
9:15 a.m.	0915	oh-nine fifteen
10:30 a.m.	1030	ten-thirty
12:00 Noon	1200	twelve hundred
1:00 p.m.	1300	thirteen hundred
8:15 p.m.	2015	twenty-fifteen
11:30 p.m.	2330	twenty-three thirty
12:00 Midnight	2400	twenty-four hundred

For any time over 1200, you can subtract 1200 from the 24-hour clock to get p.m. times:

$$1415-1200 = 2:15 \text{ p.m.}$$

$$2359-1200 = 11:59 \text{ p.m.}$$

Incidentally, airline timetables give all arrival and departure times in local time.

Most of the large airlines, especially those that use computers for their reservations, can immediately confirm reservations not only for space going but also for space returning. If, however, the passenger is making part of his trip on another airline, the agent may be able to confirm the space; sometimes he can only request it. The code for a confirmed reservation is OK; RQ is used for a reservation that has been requested but not confirmed.

Let's return to Mr. Smith. He can travel from New York to Detroit on the airline that he called; he can also return from Chicago to New York on the same airline. The leg of his flight from Detroit to Chicago, however, must be made on another airline. This is called an offline reservation. The reservations agent must see that offline space is requested if it is included in the passenger's itinerary.

It is also necessary to inform the passenger about the status of space that has been requested. If it cannot be confirmed, it is necessary, of course, to suggest an alternate flight. For this and other reasons, reservations agents always try to get a telephone number from the passenger where he can be reached.

When the reservations agent has confirmed space for the passenger, he must also establish a time limit for the passenger to pick up his ticket. If the ticket is not purchased before the time limit expires, the reservation is automatically canceled. If the reservation is made far enough in advance, the airline can mail the ticket to the customer and charge it to his credit card. In this case, the agent must get the passenger's credit card number. Otherwise, the airlines prefer to have the ticket

picked up as far in advance as possible. A twenty-four hour time limit is the maximum that most of the airlines are willing to accept.

The airlines insist on a time limit because of the large number of no-shows. A no-show is a passenger who has made a reservation for a flight and then fails to appear and take his seat at departure time. Some members of the traveling public make reservations on several flights and then choose the one that they will actually use at the last minute without canceling their other reservations. Others change their plans and forget to cancel their reservations. The airlines feel that if the ticket is in the passenger's hand, he is more likely to show up for the flight.

The reservations agent is an important person in the airline sales setup. His voice on the telephone is often the only human contact the passenger has with the airline before flight. Incidentally, though we use he to refer to the reservations agent, many reservations agents are women.

Because of the key role that reservations agents play with the traveling public, the airlines offer careful training before a new agent handles his first telephone call. He will be thoroughly drilled in the systems of codes, in its schedule and fare structure, its general policies, and any other information he may need. The airline will also provide him with the reference manuals that include offline schedules, fares, international travel regulations, freight service that he must use, and so on. At large stations, there will be a considerable amount of specialization; at small stations, however, the agent must have at his fingertips all the information the passengers may require.

EXERCISES

Exercise 1. Give the Russian equivalents to the following words and word combinations:

A domestic flight; a domestic passenger; a domestic airline; an international airline; an international passenger; no-show; offline; to handle telephone calls; to confirm reservations; physically handicapped passengers; a particular destination; a heavily traveled route; an alternate flight; odd-numbered flights; even-numbered flights; space going; space returning; offline reservations; to cancel reservations; to show up for the flight; the airline sales setup; a reference manual; a flight with return space; a flight with both continuing and return space.

Exercise 2. Give the English equivalents to the following words and word combinations:

Объявиться на рейс; справочник; внутренний рейс; пассажир на внутреннем рейсе; авиакомпания, осуществляющая рейсы внутри страны; бронирование на рейс другой авиакомпании; авиакомпания, осуществляющая полеты на международных воздушных линиях; пассажир, осуществляющий полёт в другую страну; пассажир с ограниченными физическими возможностями; пассажир, забронировавший билет и не явившийся к рейсу; принимать телефонные звонки; загруженный маршрут; рейсы с чётными номерами; рейсы с нечётными номерами; рейс туда и обратно; рейс с транзитом и обратно; подтвердить бронирование; отменить бронирование; организация

продаж; билет в данной авиакомпании; конкретный пункт назначения; место на рейс туда и обратно; альтернативный рейс.

Exercise 3. Find synonyms to the following words and word combinations:

To facilitate commutation; a flight within one country; a part of a journey; a passenger with a reservation who does not claim his seat at departure; a reservation made by a particular airline on any other airline; a commercial office which makes all kinds of arrangement for travelers; disabled passengers; a heavy traffic route; return ticket; to find out; domestic airline; airline schedule; to set up a time limit; to arrive for the flight.

Exercise 4. Give all the derivatives to the following words. Use a dictionary if necessary.

Reserve; computer; inform; arrange; economy; confirm; train; advise; desire; incident; indicate; cancel; expire; accept; insist; depart; care; regulate; refer; special; consider.

Exercise 5. Answer the following questions:

1. In what three ways can a passenger make the arrangements for a trip on an air line?
2. What should the reservations agent find out from the passenger?
3. What other special needs may the passenger have?
4. How are cities (or airports) identified by the airlines? What is your city? What is the airline code for it?
5. What will the reservations agent need to find out about the passenger's travel plans?
6. What do "a party of one," "a party of two" etc., mean?
7. What is the airline code for first-class service? For economy service?
8. What should the reservations agent do if he cannot confirm the space that the passenger desires?
9. What code is used for airline flights?
10. How do airline personnel refer to particular flights?
11. How do international airlines indicate time on their schedules?
12. What is the code for confirmed space? For requested space? When must an agent request space?
13. What is the reason for getting a telephone number from a passenger?
14. What must the reservations agent do when he has confirmed space for a passenger?
15. Why do the airlines insist on a time limit for picking up tickets?
16. Why is the reservations agent an important person in the airline sales setup?
17. What kind of training and help will the airline give the reservations agent?

Review

- A. Give the spoken equivalents for the following flight numbers. Read across.
- | | | |
|--------|-------|--------|
| 83/21 | 192/6 | 259/16 |
| 783/30 | 124/9 | 16/17 |

B. Give the spoken equivalents for the following times on the 24-hour clock.

0905	2230	0800
2100	1745	0630
0710	1930	0215

G. Give the a.m. or p.m. equivalents for the following times on the 24-hour clock.

0815	2159	1215
0630	2215	1430
1520	2045	1735

D. You are a reservations agent working for an international airline. Make up the conversation you might have with a passenger who calls the airline to request a reservation:

1. For a flight with return space.
2. For a flight with both continuing and return space.

Try to remember all the information that you must get from the passenger as well as all the information that you must give him in return.

Unit VIII. Telephone Calls for Information

Special Terms

Confirmation: Most airlines, especially on international routes, require their passengers to *confirm* their continuing or return reservations. That is, they must call the airline to check the reservation and indicate whether they will use it. This protects the airline against no-shows, and it protects the passenger against the loss of his seat. In many cases, there is an automatic cancellation if there is no confirmation (or *reconfirmation*, as it is sometimes called) within twenty-four hours of flight time. International reconfirmation is seventy-two hours.

Connection: Connecting Time: Many passengers have to travel on more than one flight to reach their destination. A passenger traveling from Washington to Mexico City, for instance, might have to change planes at San Antonio, Texas. This is called a connection. Reservations agents must know the *connecting time* at different airports - the time that must be allowed to make a connection between two flights, sometimes between two airlines, and occasionally between two airports.

Interline: Between two airlines. An interline connection is one where a passenger changes from a flight on one airline to a flight on a second airline.

Load Factor: The percentage of (paying) passengers that a certain type of aircraft must carry over a particular route in order to be profitable for the airline. For example, the load factor on a 707 (a jet plane) over the North Atlantic might be 70 percent to make the flight profitable.

Manual: A book giving information or instructions. Another term is *guide*. Reservations and other travel agents use manuals for schedules, both on their own and other airlines, for air freight procedures, and for immigration and international travel regulations. These manuals are supplied by particular airlines for their own employees. There are also manuals covering this

information that are commercially available.

Overbooking: Selling more seats than there are on an airplane. Some airlines deliberately overbook their flights to offset possible no-shows, but the government has been trying to discourage this practice with fines and other penalties. An *overbooked passenger* who does not get a seat, is usually a very angry passenger.

Stopover A stop on an international trip with the privilege of continuing without paying a higher fare. For example, a passenger traveling from New York to Frankfurt might be allowed a stopover in London or Paris. That is, he would pay for a ticket from New York to Frankfurt, *not* New York-London-Paris-Frankfurt.

Vocabulary Practice

- 1 Why do some airlines insist on confirmation of continuing or return reservations? How does the reconfirmation also protect the passenger?
- 2 What is a connection? Why is the connecting time important?
- 3 What does interline mean?
- 4 Why is the load factor important to the airlines?
- 5 What are some of the manuals or guides that a reservations agent uses?
- 6 What does overbooking mean? Do you think it a good or bad idea for airlines to overbook their flights? Give your reasons.
- 7 What is a stopover? Give an example of a route on which you think a stopover would be allowed.

Telephone Calls for Information

The principal job of a reservations agent is to make a sale - that is, to confirm space on his own airline that is as close as possible to the passenger's needs and desires. However, the airlines receive a large number of calls that do not result in sales. These calls for general information must be handled with the same efficiency and courtesy as calls that end with confirmed reservations. Again, we must stress the fact that many passengers consider the voice on the other end of the phone as the voice of the airline itself.

Most common calls are requests for action and information on the following subjects:

1. *Cancellations.* Many passengers will call to cancel space because of changes in their plans. These calls are encouraged by the airlines so that they can resell the space. Airlines measure the profit and loss on their rights by the load factor, which is the percentage of seats that are paid for on each flight. Too many no-shows - passengers who have not canceled reservations but do not show up - mean that not enough seats are filled on some flights. An agent should ask a passenger who is canceling space whether he wants to make a reservation on some other flight.

2. *Fares*. Airline fares can be very complicated. The reservations agent will, of course, be familiar with the fares on his own airline. In addition there are manuals from which he can work out fares. For a complicated case, it is sometimes necessary to take the caller's phone number and call him back.
3. *Stopovers*. This is really a subdivision of information about fares; that is, the caller will probably want to know if he can make a stopover on his trip without paying a higher fare. Can he for instance, make a stop at Hong Kong on his way from Bangkok to Tokyo? The agent can find this information in the manual on air fares that he has been given by the airline.
4. *Flight Information*. This may include requests for information about arrival and departure, times, weather conditions, delays, flight cancellations, incoming passengers, and many other items.
5. *Confirmations*. Passengers may call in to confirm their ongoing or return reservations. This is no longer usually required within the United States, but it is customary -and advisable - on international flights. In addition to checking the passenger's reservation, the agent should also obtain a telephone contact where the passenger can be reached.
6. *Baggage*. Questions about baggage will include those about weight limits, carry-on baggage, pets, lost baggage, interline arrangements, and so on. We discussed airline baggage regulations and policies in Unit Six.
7. *Freight*. The larger reservations offices will have special agents who handle questions about air freight. At a smaller office, however, the agent may have to be familiar with air freight procedures and regulations. His airline will provide him with a manual that contains all the necessary information.
8. *Immigration and Customs*. The agent who is working with international passengers must give necessary information about immigration regulations, such as passport, visa, and health requirements. In addition he will receive many phone calls requesting information about these matters. He will also receive calls requesting information about customs regulations: How many rolls of film can I take into Nepal? How many cigarettes can I take into Morocco? He will also receive calls for information about currency and exchange regulations, and rates: How many Turkish liras can I have with me when I enter Turkey? What is the rate of exchange between the American dollar and the Brazilian cruzeiro? The airline will provide the agent with a manual that will give him the information he must have to answer these questions.
9. *Ground Services*. The most common question probably concerns transportation to and from the airport. Other questions may include requests for special services - wheelchairs, for example.
10. *Other Travel Arrangements*. Agents for airlines, particularly international airlines, will often receive requests for other types of travel arrangements, such as hotel reservations, or car rental services. These requests are usually handled by special agents, and the passenger should be kept informed of the status of these requests.

11. *In-flight Services.* Passengers frequently want to know about meal or beverage services on various flights. Sometimes the difference in meal service may affect the sale. Other passengers will want to know about special arrangements for infants or pets or bulky objects which are too fragile to be carried as regular baggage (musical instruments, for example).

12. *Connections.* There may be calls concerning connections and connecting times. Most passengers, for obvious reasons, prefer a non stop flight rather than one that requires a connection. If there is a connection, however, the agent must know the time required to make the second flight, especially if it is an interline connection – one between two airlines - or if two airports are involved, as they often are in New York.

13. *Complaints.* Probably the most unpleasant kind of call that an agent has to handle is from a passenger with a complaint against the airline. If possible, the agent should try to correct the problem, but if there is nothing he can do about it, he must simply listen and try to soothe the passenger. Complaints usually cover failures in service - overbookings, lost or damaged baggage, delays, missed connections, and so on. As we have already indicated, a reservations agent in a small office will have to handle all kinds of situations. He must really know all the airline procedures from A to Z and be prepared for any kind of call. Most of the larger offices, however, will have a setup where certain agents handle specialized jobs.

Some offices will have special agents who handle nothing but requests for offline space. They call other airlines to make the reservations that have been requested; then they call the passenger to tell him whether or not the space has been confirmed. If it is not confirmed, the offline agents must be able to suggest alternate flights.

Most large reservations offices also have special clerks who handle nothing but calls from travel agencies. The agencies play an important part in airline sales since they make arrangements for a large number of travelers. Many people traveling for pleasure prefer to go to travel agencies, where they often feel they can get more personal service than they can from an airline. Many corporations also use travel agencies to make arrangements for trips for their personnel. The services of a travel agency usually do not cost a passenger anything extra; the agencies receive a small percentage of the price of the tickets that they sell.

Other agents may handle the waiting list. Many passengers will ask to be put on a waiting list for a flight that is already fully booked. If there are cancellations on the flight, the passenger on the waiting list will get preference for the space that has become available. The agents who take care of the list will inform the passenger if he can get the space. They will also take care of any alternate space that he may be holding.

In many reservations offices, the passenger lists for flights that are going out within the current twenty-four hour period are often separated from future flights. They are assigned to special agents who handle all the calls about these particular flights. The volume of calls about departing flights is usually greater than for future

flights.

Reservations agents may also have to handle outgoing phone calls other than those which we have already mentioned—confirming requested reservations, for example, or confirming space to a passenger on the waiting list. Some of these calls may be less pleasant to handle than those we have talked about.

In spite of the advances that have been made both in navigational aids and in airplanes themselves, weather can still close down an airport from time to time, thereby causing cancellation of flights or considerable delays. The reservations agent will then be pressed into the disagreeable chore of calling passengers to inform them of the situation and helping them secure other reservations on later flights.

The agent may also have to call passengers who have been overbooked. As we have said, an overbooked passenger is not apt to be happy, so the agent may have to exert a great deal of tact in persuading him to choose another flight.

The reservations agent deals with the traveling public during his entire working day. A few passengers may be unpleasant, but on the whole, airline customers are agreeable and cooperative. Being a reservations agent is particularly rewarding for the kind of person who enjoys working with other people and helping them to solve their problems.

EXERCISES

Exercise 1. Give the Russian equivalents to the following words and word combinations:

International routes; continuing reservations; return reservations; international reconfirmation; connecting time; an interline connection; load factor; commercially; available; overbooking; overbooked passenger; a stopover; to cancel space; to resell the space; air fares; ongoing reservation; air freight procedures; immigration regulations; car rental services; meal or beverage services; bulky objects; non-stop flight; a connection; to soothe the passenger; a waiting list; navigation aids.

Exercise 2. Give the English equivalents to the following words and word combinations:

Лист ожидания; успокоить пассажира; пересадка на другой рейс; международные линии; бронирование с остановкой в каком-либо месте по маршруту до места назначения; бронирование на обратный рейс; громоздкие предметы; прямой (беспосадочный) рейс; навигационные приборы; остановка на пути следования; отменить бронь; процедуры по оформлению груза; тарифы на воздушные перевозки; перепродать забронированное место; время между двумя рейсами при пересадке; предоставление питания и напитков; иммиграционные правила; служба по прокату автомобилей; бронирование мест на отбывающие рейсы; продажа большего количества мест, чем имеется в самолёте; пассажир, на место которого продан ещё один билет; пересадка с рейса одной авиакомпании на рейс другой авиакомпании.

Exercise 3. Answer the following questions:

1. What is the principal job of a reservations agent? What else will he have to do?
2. Why do the airlines encourage passengers to cancel space that they are not going to use?
3. What may an agent need to do if he has to work out a complicated fare?
4. Where can the agent get information about stopovers on various routes?
5. What kinds of flight information may the agent be requested to give?
6. When an agent takes a confirmation call, what information should he get from the passenger?
7. What kinds of questions may be asked about baggage?
8. Do all agents at all reservations offices have to know about air freight procedures? How are enquiries about air freight handled at some offices?
9. What kinds of questions about international travel will the agent have to answer?
10. What questions may be asked about airline ground services?
11. What other travel arrangements may the agent have to make for the passenger?
12. What may passengers ask about in-flight services?
13. What kinds of connections will cause special problems?
14. What do complaints usually cover?
15. What are some of the specialized duties in larger airline reservations offices?
16. What are some of the less pleasant outgoing calls that the agent may have to make?
17. For what kind of person is the work of a reservations agent especially rewarding? Would you like this kind of work? Give your reasons.

Exercise 4. Make up short dialogues based on the following situations:

The subject matter is given below for several kinds of telephone calls that a reservations agent might have to handle. Make up short dialogues - four or five lines - the could develop from these situations

A. Mr. Johnson is holding a reservation for a flight from Miami to Caracas. He can't remember the flight number. He wants to cancel the reservation. He doesn't want another reservation now. His plans have changed. He will call when he has made new plans.

B. Mrs. Ido is making a trip from San Francisco to Tokyo. She wants to know whether she can make a stopover in Honolulu. She doesn't want to pay anything extra. If she can include the stopover, she wants to make a new reservation and stay in Honolulu for four days.

C. It is a rainy day. Mr. Axelson has a reservation on a flight from Montreal to Toronto. Mr. Axelson wants to know what the weather conditions are in Toronto. He also wants to know whether there is any danger of a cancellation or a delay in his flight. If the flight is going to be canceled, he prefers to go by train.

D. Miss Mendoza has just arrived in Athens. She is holding a continuing reservation on a flight to Rome two days from now. She wants to reconfirm the reservation. She already has her ticket for the flight. Her telephone number in Athens

is 35-654.

E. Mr. Macmillan wants to know what baggage he can carry on the plane on a flight from Rio de Janeiro to Paris. He has a camera, a coat, a briefcase, a shaving kit, and two suitcases.

F. Mrs. Cable is an American citizen. She wants to know what travel documents she needs for a trip to Italy. Does she need a passport? A visa? What shots does she need to get? What currency regulations are in effect? Are there any special customs regulations she should know about?

G. Mrs. Cable has made a reservation on a flight to Rome. Now she wants to know if the airline will make a hotel reservation for her in Rome. If the airline will make the reservation, she wants a single room with a bath. She doesn't want to pay more than twenty dollars a day for the room.

H. Mr. Godoy is taking a flight from New York to Chicago. It leaves at four o'clock and arrives at six o'clock. He wants to know whether dinner is served on the flight. If dinner is not served, he wants to change his reservation to a later flight on which dinner will be served.

I. Mr. Hayden is making a connection at Beirut, Lebanon. He is coming from Karachi, and he is going to change to a flight to Frankfurt. He is making an interline connection. He wants to know if he has been given enough time to change planes even if he is late arriving from Karachi.

J. Mr. Sackett was overbooked on a flight from Mexico City to San Jose, Costa Rica. The airline couldn't get him a seat on another flight. He couldn't leave until the following day. He missed a very important business engagement. Mr. Sackett is very angry.

Unit IX. Ticketing and Fares

Special Terms

CAB: The Civil Aeronautics Board. The CAB is an agency of the United States government that regulates fares, routes, and similar matters for airlines in the United States. Another government agency, the FAA, standing for Federal Aviation Administration, controls the technical side of commercial aviation -safety standards, air traffic control, and so on.

Carrier: The airline which is carrying a passenger on a flight. It is the word which is used on tickets instead of airline. A two-letter code is used to designate a carrier.

CARRIER CODES

AC -Air Canada

AF - Air France

AZ -Alitalia

BA - BOAC (British Airways)

IB -Iberia

JL -Japan Air Lines

AY - Finnair

AV - Avianca (Colombian Airlines)

BG - Varig (Brazilian Airlines)

LA - Lan Chile

NW - Northwest Orient Airlines

AI -Air India

PA - Pan American World Airways
SK - Scandinavian Airlines System
TW - Trans World Airlines
VA - Viasa
WA - Western Airlines
BN - Braniff International
KL - KLM (Royal Dutch Airlines)
AT - Royal Air Maroc
LY - KIAL (Israel Airlines)

OA - Olympia Airlines
KE - Korean Airlines
LH - Lufthansa (German Airlines)
AM - Aeromexico
SN - Sabena (Belgian Airlines)
SU - Aeroflot (Soviet Airlines)
IR - Iran National Airlines
SV - Saudi Arabian Airlines

Coupon: A part of a ticket which can be separated from the rest of the ticket. An airline ticket has a coupon for each flight the passenger will take. Tickets are usually issued in standard form with two or three coupons.

IATA: The International Air Transport Association. Almost all the international airlines are members of IATA. It reaches agreement on fares, baggage allowances, and many other matters for the member airlines.

Ticket: A receipt for transportation or other services (such as theatrical performances) that has been paid for in advance. An airline passenger must, of course, have a ticket before he boards a flight, with the single exception of the shuttle services mentioned in Unit One.

Ticket Agent: Handles all the same problems and questions as the reservations agent, but he also issues tickets and meets the public face to face.

Validate: To make valid - that is legally binding. An airline ticket has to be validated before it can be used. This is usually done with a stamp of a kind on the face of the ticket.

Ticketing and Fares

The ticket agent handles all the same kinds of problems as the reservations agent, but with two important differences. First, he meets the public face-to-face at the airline ticket counter. His contact with the passenger is much more personal than the disembodied voice of the agent on the telephone. Second, the ticket agent is responsible for receiving money and making out tickets.

An airline ticket is a receipt for transportation that has been paid for in advance by the passenger. The ticket specifies the points between which the transportation will take place. There is a separate coupon for each flight. For example, a passenger traveling from Miami to London, from London to Paris, from Paris to New York, and from New York to Miami will have a ticket with four coupons, one for each separate leg of his flight.

Each ticket shows the airline that issues it and also has a serial number which is printed on it. The ticket agent first has to fill in the passenger's name. An airline ticket is non-transferable; that is, it cannot be used by any person other than the one

whose name appears on the ticket.

There is also space on the ticket to indicate where the trip starts and what the type of service is, first class or economy. The code F, for first class, or Y, for economy, is used on the ticket. The agent must also indicate the baggage allowance, the airline (or the carrier, as the ticket says), the flight number, and the time of departure. A two-letter code is used for the carrier - PA, for Pan American, AZ for Alitalia, and so on. Finally, the "reservations status" must be indicated. This shows whether the seat has been confirmed (OK) or only requested (RQ).

The various codes - for cities, airlines, type of service, and reservation status - are used throughout the world. Their use in the thousands of messages that are sent out by airlines is economical both in terms of space and money. All airlines that are members of the International Air Transport Association - usually called IATA for short - have adopted the same codes, and a ticket issued by one member airline is valid for travel on any other. In addition, the 24-hour clock which we discussed in Unit Two is used by all international airlines.

Please note that in the illustration of a ticket that is shown above, all the information that is given is printed in block capital letters. This practice is required by all airlines since it makes the ticket easier to read and cuts down the possibility of error.

In the upper right-hand corner of the ticket, there is a space where the ticket can be validated. This is usually done with some kind of stamp that shows the date and place of issue. It is then signed or initialed by the agent who sells the ticket. A validated ticket means that payment has been made and the ticket can be used for the transportation that is described on it.

Needless to say, the airlines prefer to receive payment in cash. However, other types of payment are accepted, particularly with credit cards. Each airline has its own regulations about other types of payment or credit (checks, for example) that are acceptable, and the ticket agent, of course, will receive careful training in this important matter.

The ticket also contains spaces for calculating the fare. International air fares are established by IATA in agreement with the airlines that are members of the organization. Within the United States, fares are established by the Civil Aeronautics Board - the CAB for short. Domestic air fares within other countries are usually set by a similar governmental agency.

Air fares have become very complicated in the last few years. It is no longer simply a question of a first-class versus an economy-class fare over a certain route. Many airlines, for instance, have high season and low season fares. On North Atlantic routes between the United States and Europe - the most traveled route in the world - the high season is the summer, when hundreds of thousands of tourists cross the ocean. Fares are higher and service is more frequent during the summer than the winter, the low season when there are fewer tourists.

There are many other variations on the standard fares. It is traditional for children

under twelve to pay only half fare, but today there are also youth fares, usually for young people up to twenty-five years of age. There are also excursion fares for people who will complete their trips within a certain number of days, usually twenty-one or forty-five. On some airlines there are also special fares for families traveling together. The husband might pay full fare, but his wife would pay three-quarters fare and the children would pay only half fare. Other airlines offer special lower fares on days when travel is not as heavy as usual - on Saturday, for example, when fewer businessmen are traveling.

Another question involving fares is the stopover which can be made without additional cost to the passenger. A passenger traveling from New York to Barcelona, for instance, would be allowed stopovers in Lisbon and Madrid.

All of these fares and routings are given in various manuals issued by IATA. Many of the airlines also prepare special manuals for their agents which contain fares and routings in digest form. The agent will have the manuals available to work out the fare. He has a responsibility to his employer to make the sale; but he also has a responsibility to the customer to offer him the lowest possible fare.

Airlines usually have ticket offices in downtown locations in the cities that they serve or in other cities where passengers' trips may originate. Pan American Airways, for example, serves New York and has ticket offices there; it does not serve Denver, but it maintains a sales office there for the convenience of passengers who are traveling out of that city. The customers who use the downtown offices usually make reservations or pick up tickets some time in advance of their flights; therefore, the atmosphere in a city sales office is usually relatively relaxed and leisurely.

There are also airline ticket offices at the airports. The agents often sell tickets for flights on the same day, so the agent may be under more pressure than they would be in the city sales office. Nevertheless, selling a ticket is a financial transaction, and the agent must be sure that he is not being hurried into making an error.

Because of the importance of face to face sales, ticket agents receive careful training from their airlines before they actually start working at the ticket counter. They also have the benefit of help from experienced supervisors. The airlines regard the entire sales and ticketing procedure as a crucial part of their operation.

EXERCISES

Exercise 1. Give the Russian equivalents to the following words and word combinations:

A ticket agent; a reservation agent; to meet somebody face-to-face; an airline ticket counter disembodied voice; a receipt for transportation; to pay in advance; each separate leg of the flight; a serial number; to fill in (out) the passenger's name; to be non-transferable; the luggage allowance; reservation status; valid for travel; economic both in terms of space and money; in block capital letters; to make easier to read; to receive payment in cash; to receive careful training; to calculate the fare; high season fares; low season fares; youth fares; downtown offices; a crucial part.

Exercise 2. Give the English equivalents to the following words and word combinations:

Серийный номер; агент по продаже билетов; билетная касса авиакомпании; нельзя использовать другим лицам; разрешённый по весу провоз

багажа; квитанция для полёта; «статус бронирования»; агент по бронированию рейса; экономичный, как с точки зрения пространства, так и в смысле денежных затрат; облегчать чтение; печатными заглавными буквами; излишне говорить; пройти тщательное обучение; принимать плату наличными; рассчитать стоимость проезда; стоимость билета для молодёжи до 25 лет; финансовая операция.

Exercise 3. Answer the following questions:

1. What do CAB and FAA stand for? What matters do they regulate?
2. What is a "carrier"? What are some of the two-letter codes for carriers?
3. How many coupons does an airline ticket have?
4. What does IATA stand for? What does IATA do?
5. What is a ticket?
6. What is the difference between a ticket agent's job and that of a reservations agent?
7. Why does the ticket agent have a more personal relationship with the passenger than the reservations agent?
8. How is an airline ticket validated?