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Кафедра специальной языковой подготовки

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## ПРОФЕССИОНАЛЬНО- ОРИЕНТИРОВАННЫЙ АНГЛИЙСКИЙ ЯЗЫК.

РАССЛЕДОВАНИЕ АВИАЦИОННЫХ  
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ОПАСНЫХ ГРУЗОВ. БЕЗОПАСНОСТЬ ПОЛЕТОВ

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*для студентов III–IV курсов  
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## UNIT 1

### ANNEX 13 to the Convention on International Civil Aviation

#### Aircraft Accident and Incident Investigation

The causes of an aircraft **accident** or serious **incident** must be identified in order **to prevent** repeated occurrences. The identification of causal factors is best accomplished through a properly conducted investigation. To emphasize this point, Annex 13 states that the objective of the investigation of an accident or incident is prevention. Annex 13 provides the international requirements for the investigation of aircraft accidents and incidents. It has been written in a way that can be understood by all participants in an investigation. As such, it serves as a **reference document** for people around the world who may be called on, often without any lead time, to deal with the many aspects involved in the investigation of an aircraft accident or serious incident. As an example, the Annex spells out which States may participate in an investigation, such as the **States of Occurrence, Registry, Operator, Design and Manufacture**.

It also defines the **rights and responsibilities** of such States.

The ninth edition of Annex 13 consists of eight chapters, an **appendix** and four **attachments**. The first three chapters cover **definitions, applicability and general information**. Chapter 3 includes the **protection of evidence** and the responsibility of the State of Occurrence for the **custody and removal** of the aircraft. It also defines how that State must handle **requests for participation** in the investigation from other States.

All States that may be involved in an investigation must **be promptly notified** of the **occurrence**. Procedures for this notification process are contained in Chapter 4. The same chapter outlines the responsibilities for conducting an investigation depending on the location of the occurrence, eg. in the territory of an ICAO Contracting State, in the territory of a non-contracting State, or outside the territory of any ICAO State. Following the formal notification of the investigation to the appropriate authorities, Chapter 5 addresses the investigation process.

Responsibility for an investigation belongs to the State in which the accident or incident occurred. That State usually conducts the investigation, but it may delegate all or part of the investigation to another State. If the occurrence takes place outside the territory of any State, the State of Registry has the responsibility to conduct the investigation.

States of Registry, Operator, Design and Manufacture who participate in an investigation **are entitled** to appoint an accredited representative to take part in the investigation. Advisers may also be appointed to assist accredited representatives. The State conducting the investigation may call on the best **technical expertise** available from any source to assist with the investigation. The investigation process includes the **gathering, recording and analysis** of all relevant information; the **determination of the causes; formulating appropriate safety recommendations** and the **completion of the final report**.

Chapter 5 also includes provisions regarding: the **investigator-in-charge, flight recorders, autopsy examinations, coordination with judicial authorities, informing aviation security authorities, disclosure of records, and re-opening of an investigation**. States whose citizens have **suffered fatalities** in an accident are also entitled to appoint an expert to participate in the investigation.

Chapter 6 contains the Standards and recommended practices dealing with the development and publication of the final report of an investigation. The recommended format for the final report is contained in an Appendix to the Annex.

**Computerized databases** greatly facilitate the storing and analyzing of information on accidents and incidents. The sharing of such safety information is regarded as vital to accident prevention. ICAO operates a computerized database known as the **Accident/Incident Data Reporting (ADREP) system**, which facilitates the exchange of safety information among Contracting States. Chapter 7 of Annex 13 addresses the reporting requirements of the ADREP system which is by means of Preliminary and Accident/Incident Data Reports.

Chapter 8 of Annex 13 deals with accident prevention measures. The provisions in this chapter cover incident reporting systems, both mandatory and voluntary, and the necessity for a non-punitive environment for the voluntary reporting of safety

hazards. This chapter then addresses database systems and a means to analyze the safety data contained in such databases in order to determine any preventive actions required. Finally, it recommends that States promote the establishment of safety information sharing networks to facilitate the free exchange of information on actual and potential safety deficiencies. The processes outlined in this chapter form part of a safety management system aimed at reducing the number of accidents and serious incidents worldwide.

## **Vocabulary**

accident – катастрофа

incident – инцидент

investigation – расследование

to prevent – предотвращать

reference document – справочный документ

States of – Государство

- Occurrence – происшествия
- Registry – регистрации
- Operator – эксплуатанта
- Design – проектирования
- Manufacture – производства

rights and responsibilities – права и обязанности

appendix – приложение

attachment – дополняющий документ

definition – определение

applicability – применение

general information – общая информация

protection of evidence – сохранение вещественных доказательств

custody – охрана

removal – перемещение

request for participation – заявка на участие

to be notified – получить уведомление

occurrence – происшествие, событие

to be entitled – быть уполномоченным

technical expertise - техническая экспертиза

gathering – сбор

recording – запись

analysis – анализ

determination of the causes – определение обстоятельств

formulating appropriate safety recommendations - формулирование соответствующих рекомендаций по безопасности

completion of the final report – заполнение итогового отчета

investigator-in-charge – уполномоченный по расследованию

flight recorder – регистратор полетных данных

autopsy examination – вскрытие

coordination with judicial authorities – сотрудничество с органами правопорядка

informing aviation security authorities – информирование властей в области авиационной безопасности

disclosure of record – раскрытие записей

re-opening of an investigation – возобновление расследования

to suffer fatalities – наступление смертельных случаев

computerized databases – компьютеризированная база данных

Accident/Incident Data Reporting (ADREP) system – система предоставления данных об авиационных происшествиях

Exercise 1. Please, answer the questions below. Comprehensive answers are welcome.

- Why is proper investigation of accidents and incidents so necessary?
- Why is prompt action in case of an accident needed?
- Which State is responsible for investigation?
- Why are computerized data bases used?
- What are stages of an investigation and who takes part in this process?

Exercise 2. Please, fill in the blanks.

- All States \_\_\_ may be involved \_\_\_ an investigation must be promptly notified \_\_\_ the occurrence. Procedures \_\_\_ this notification process are contained \_\_\_ Chapter 4. The same chapter outlines the responsibilities \_\_\_ conducting an investigation depending \_\_\_ the location \_\_\_ the occurrence, eg. \_\_\_ the territory \_\_\_ an ICAO Contracting State, \_\_\_ the territory \_\_\_ a non-contracting State, \_\_\_ outside the territory \_\_\_ any ICAO State.

- The State conducting the investigation may call \_\_\_ the best technical expertise available \_\_\_ any source \_\_\_ assist \_\_\_ the investigation. The investigation process includes the gathering, recording \_\_\_ analysis \_\_\_ all relevant information.

- The provisions \_\_\_ this chapter cover incident reporting systems, \_\_\_ mandatory \_\_\_ voluntary, \_\_\_ the necessity \_\_\_ a non-punitive environment \_\_\_ the voluntary reporting \_\_\_ safety hazards.

Exercise 3. Please, provide synonyms from the text for the following words and expressions.

- To emphasize
- Reference document
- Participation
- Occurrence

- Mandatory

Exercise 4. Please, provide antonyms from the text for the following words and expressions.

- Contracting State
- Appropriate
- To delegate
- investigator-in-charge
- To appoint

Exercise 5. Please, compose five sentences with words and expressions from Vocabulary provided (in written).

## UNIT 2

### ANNEX 14 to the Convention on International Civil Aviation

#### Aerodromes (Volumes I and II)

A distinction of Annex 14 is the broad range of subjects it contains. It extends from the planning of airports and heliports to such details as **switch-over times** for **secondary power supply**; from **civil engineering** to **illumination engineering**; from provision of sophisticated **rescue and fire fighting equipment** to simple requirements for **keeping** airports **clear of birds**. The impact of these numerous subjects on the Annex is compounded by the rapidly changing industry which airports must support. New aircraft models, increased aircraft operations, operations in lower visibilities and technological advances in airport equipment combine to make Annex 14 one of the most rapidly changing Annexes.

In 1990, after 39 amendments the Annex was split into two volumes, Volume I dealing with **aerodrome design and operations** and Volume II dealing with **heliport design**.

Annex 14, Volume I, is also unique: it is applicable to all airports open to public use in accordance with the requirements of Article 15 of the Convention. Historically, it came to life in 1951 with 61 pages of Standards and Recommended Practices and 13 additional pages on guidance for their implementation. That edition included specifications for **water aerodromes** and **aerodromes without runways**; specifications that no longer appear. Today over 180 pages of specifications and additional pages of guidance material set forth the requirements for international airports around the world.

The contents of Volume I reflect, to varying extents, the planning and design, as well as operation and maintenance, of aerodromes. The heart of the airport is the vast **movement area** extending from the **runway**, along the **taxiways** and onto the **apron**. Today's large modern aircraft require a more exacting design of these facilities. Specifications on their **physical characteristics**, i.e. **width**, **surface slope** and **separation distances** from other facilities, form a principal part of this Annex. Specifications for new facilities, unheard of at the beginning of ICAO, such as **runway end safety areas**, **clearways** and **stopways**, are all set forth. These facilities are the building blocks for airports which define its over-all shape and size and permit engineers to lay out the skeleton that forms the airport's basic structure.

Along with defining the ground environment of an airport, specifications are also required to define its airspace requirements. Airports must have airspace free from obstacles in order for aircraft to approach and depart safely from the airport. It is also important that the volume of this space be defined so that it may be protected to ensure the continued growth and existence of the airport or, as stated in the Annex, ". . . to prevent the aerodromes from becoming unusable by the growth of obstacles . . . by establishing a series of obstacle limitation surfaces that **define** the limits to which objects may project into the airspace". The requirements to provide a particular **obstacle limitation surface** and the **dimensions** of the surfaces are classified in the Annex by **runway type**. Six different types of runway are recognized: **non-instrument approach runways**, **non-precision approach runways**, **precision approach runways categories I, II and III**, and **takeoff runways**.

A striking feature of airports at night are the hundreds, sometimes thousands of lights used to guide and control aircraft movements. In contrast to flight, where guidance and control are done through radio aids, movements on the ground are primarily guided and controlled through visual aids. Annex 14, Volume I, defines in detail numerous systems for use under various types of meteorological conditions and other circumstances.

As these visual aids must be immediately understandable by pilots from all over the world, standardization of their location and light characteristics is highly important. Recent advances in **lighting technology** have led to great increases in the **intensity of lights**. Also, in recent years, the development of small light sources has facilitated the installation of lights in the surface of **pavements** that can be run over by aircraft. Modern high intensity lights are effective for both day and night operations and, in some day conditions, simple markings may be highly effective. Their uses are defined in the Annex as well.

**Airport signs** are a third type of visual aid. At large airports and airports with heavy traffic it is important that guidance be provided to pilots to permit them to find their way about the movement area. The objective of most specifications is to improve the safety of aviation. One section of Annex 14, Volume I, is devoted to improving the safety of equipment installed at airports. Particularly noteworthy are specifications concerning the **construction and siting of equipment** near runways. This is to reduce the hazard such equipment might pose to aircraft operations.

Requirements for secondary power supply are also specified, along with the characteristics of **light circuit design** and the need to monitor the operation of visual aids. In recent years more attention has been given to the operation of airports. The current edition of Annex 14, Volume I, includes specifications on maintenance of airports. Particular emphasis is given to pavement areas and visual aids. Attention is also given to eliminating features of airports which may be attractive to birds that **endanger** aircraft operation. Of critical importance to the operation of any airport is the rescue and **fire fighting service** which, according to Annex 14, all international airports are required to have. The Annex sets forth the agents to be used, their amounts and the time limits in which they must be delivered to the scene of an aircraft accident. To take off and land safely and

routinely today's aircraft require accurate information on the **condition** of facilities at airports. Annex 14, Volume I, sets forth: what information is to be provided; how it is to be determined; how it is to be reported; and to whom it is to be reported. (Specifications for the transmittal of this information through AIPs and NOTAMs are set out in Annex 15 — *Aeronautical Information Services*.) Typical of the type of information to be reported are **elevation** of different parts of the airport, **strength of pavements**, condition of runway surfaces and the level of airport rescue and fire fighting services.

Provisions for heliports are included in Volume II of Annex 14. These specifications complement those in Volume I which, in some cases, are also applicable to heliports. The provisions address the physical characteristics and obstacle limitation surfaces required for helicopter operations from surface level and **elevated on-shore heliports** and **helidecks**, under both visual and instrument meteorological conditions. Material dealing with the marking and lighting of heliports, as well as rescue and fire fighting requirements for heliports, also have been included in Volume II. Although specifications on marking and lighting of heliports are only applicable to operations in visual meteorological conditions, work is under way on the development of appropriate visual aids for helicopter operations in instrument meteorological conditions.

## **Vocabulary**

switch-over times for secondary power supply – время переключения на резервный источник питания

civil engineering – гражданское строительство

illumination engineering – осветительная техника

provision of sophisticated rescue and fire fighting equipment – предоставление сложного спасательного и пожарного оборудования

requirements for keeping airports clear of birds – требования к устранению птиц из аэропорта

aerodrome design and operation – проектирование и эксплуатация аэродрома

heliport design – проектирование хелипорта

water aerodrome – водный аэродром  
aerodrome without runways – аэродром без ВПП  
movement area – зона движения  
runway - взлетно-посадочная полоса  
taxiways – рулежные дорожки  
apron – перрон  
physical characteristics – физические характеристики  
width – ширина  
surface slope – наклон поверхности  
separation distances – разнесение по расстоянию  
runway end safety area – концевая зона безопасности ВПП  
clearway – полоса, свободная от препятствий  
stopway – полоса торможения  
to define – определять  
obstacle limitation surface – поверхность ограничения препятствий  
dimension – измерение  
runway type – тип ВПП  
non-instrument approach runway – ВПП без приборов  
non-precision approach runway – ВПП для захода на посадку без точных средств  
runways categories I, II and III – ВПП категорий I, II и III  
takeoff runway – взлетная полоса  
lighting technology – технология освещения  
intensity of lights – интенсивность огней  
pavement – покрытие  
airport signs – аэропортовые знаки

construction and siting of equipment – создание и размещение оборудования

light circuit design – проектирование цепей освещения

to endanger – подвергать опасности

fire fighting service – служба пожаротушения

condition – условие

elevation – подъем

strength of pavement – прочность покрытия

elevated on-shore heliport – сухопутный вертодром

helideck – вертолетная площадка

Exercise 1. Please, answer the questions below. Comprehensive answers are welcome.

- What are some of important details of an aerodrome?
- What types of airports can you name?
- What is a heliport and what is it needed for?
- Why are lights and signs so important at an aerodrome?
- Why is special attention paid to strength of pavements?

Exercise 2. Please, fill in the blanks.

• The contents \_\_\_ Volume I reflect, to varying extents, the planning \_\_\_ design, \_\_\_ operation and maintenance, \_\_\_ aerodromes. The heart \_\_\_ the airport is the vast movement area extending \_\_\_ the runway, \_\_\_ the taxiways and \_\_\_ the apron.

• As these visual aids must be immediately understandable \_\_\_ pilots \_\_\_ all over the world, standardization \_\_\_ their location \_\_\_ light characteristics is highly important. Recent advances \_\_\_ lighting technology have led to great increases \_\_\_ the intensity \_\_\_ lights.

• Requirements \_\_\_ secondary power supply are \_\_\_ specified, \_\_\_ with the characteristics \_\_\_ light circuit design and the need to monitor

the operation \_\_\_ visual aids. \_\_\_ recent years more attention has been given \_\_\_ the operation of airports.

Exercise 3. Please, provide synonyms from the text for the following words and expressions.

- Sophisticated
- Numerous
- Applicable
- Specifications
- Free from obstacles

Exercise 4. Please, provide antonyms from the text for the following words and expressions.

- Unique
- No longer appear
- To approach
- Precision approach runway
- Visual aids

Exercise 5. Please, compose five sentences with words and expressions from Vocabulary provided (in written).

## UNIT 3

### ANNEX 15 to the Convention on International Civil Aviation

#### Aeronautical Information Services

One of the least known and most vital roles in support of international civil aviation is filled by the **aeronautical information service (AIS)**. The object of the aeronautical information service is to ensure the flow of information necessary for

the safety, regularity and efficiency of international air navigation. Annex 15 defines how an aeronautical information service shall **receive** and/or **originate, collate** or **assemble, edit, format, publish/store** and **distribute** specified aeronautical information/data. The goal is to satisfy the need for uniformity and consistency in the provision of aeronautical information/data that is required for the operational use by international civil aviation.

The ICAO Council first adopted the original Standards and Recommended Practices in 1953. Annex 15 has its origins in Article 37 of the Chicago Convention. The first requirements for the Annex were developed by the ICAO Air Navigation Committee (now the **Air Navigation Commission**), following recommendations from regional air navigation meetings, and were published by the authority of the Council as *Procedures for International Notices to Airmen* back in 1947.

"**International notices to airmen**" is a phrase which led to the birth of an early aeronautical acronym: **NOTAM**. In 1949, a special NOTAM meeting reviewed and proposed amendments to these procedures, which were later issued as *Procedures for Air Navigation Services* that became applicable in 1951. A total of 33 amendments updated Annex 15 over the years to meet the rapid changes brought about by air travel and associated information technology. In recent years, Annex 15 amendments have reflected the increased need for the timely provision of quality aeronautical information/data and terrain data as they have become critical components of **data-dependent on-board navigation systems**.

The Annex now contains many provisions aimed at preventing **corrupt** or **erroneous** aeronautical information/data which can potentially affect the safety of air navigation. The operator of any type of aircraft, be it small private aircraft or large transport aircraft, must have available a variety of information concerning the air navigation facilities and services that may be expected to be used. For example, the operator must know the regulations concerning **entry into** and **transit of the airspace** of each State in which operations will be carried out, as well as what aerodromes, heliports, navigation aids, meteorological services, communication services and air traffic services are available and the procedures and regulations associated with them. The operator must also be informed, often **on very short notice**, of any change affecting the operation of these facilities and services and

must know of any **airspace restrictions** or hazards likely to affect flights. While this information can nearly always be provided before take-off, it must, in some instances, be provided during flight. The philosophy underlying Annex 15, which stems from Article 28 of the Convention on International Civil Aviation, is that each State is responsible for making available to civil aviation interests any and all information which is pertinent to and required for the operation of aircraft engaged in international civil aviation within its territory, as well as in areas outside its territory in which the State has air traffic control or other responsibilities.

The information handled by an AIS may vary widely in terms of the **duration** of its applicability. For example, information related to airports and its facilities may remain valid for many years while changes in the availability of those facilities (for instance, due to construction or repair) will only be valid for a relatively short period of time. Information may be valid for as short a time as days or hours. The urgency attached to information may also vary, as well as the extent of its applicability in terms of the number of operators or types of operations affected. Information may be **lengthy** or **concise** or include graphics. Therefore, aeronautical information is handled differently depending on its **urgency**, **operational significance**, scope, volume and the length of time it will remain **valid** and **relevant** to users. Annex 15 specifies that aeronautical information be published as an integrated aeronautical information package. It is composed of the following elements: the *Aeronautical Information Publication (AIP)*, including amendment service, **AIP supplements**, NOTAM, **pre-flight information bulletins (PIB)**, **aeronautical information circulars (AIC)**, checklists and lists of valid NOTAM.

Each element is used to distribute specific types of aeronautical information. Information concerning changes in facilities, services or procedures, in most cases, requires amendments to be made to airline operations manuals or other documents and databases produced by various aviation agencies. The organizations responsible for maintaining these publications usually work to a pre-arranged production program. If aeronautical information were published **indiscriminately** with a variety of effective dates, it would be impossible to keep the manuals and other documents and databases up to date. Since many of the changes to facilities, services and procedures can be anticipated, Annex 15 provides for the use of a regulated system, termed **AIRAC (aeronautical information regulation and control)**, which requires significant changes to become effective and information

to be distributed in accordance with a predetermined schedule of effective dates, unless operational considerations make it impracticable. Annex 15 also specifies that pre-flight information must be made available at each aerodrome/heliport normally used for international operations and sets the content of aeronautical information provided for pre-flight planning purposes as well as requirements for the provision of that information through automated aeronautical information systems. Additionally, there are requirements to ensure that important post-flight information provided by aircrews (for example, the presence of a bird hazard) are relayed to the AIS for distribution as the circumstances necessitate. The need, role and importance of aeronautical information/data have changed significantly with the evolution of the **Communications, Navigation and Surveillance/Air Traffic Management (CNS/ATM)** systems. The implementation of **area navigation (RNAV)**, **required navigation performance (RNP)** and airborne computer-based navigation systems has brought about exacting requirements for the quality (accuracy, resolution and integrity) of aeronautical information/data and terrain data.

The users' dependence on the quality of certain aeronautical information/data is evident from Annex 15, paragraph 3.2.8 a) which, when describing critical data, states: "There is a high probability when using corrupted critical data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe". Since corrupt or erroneous aeronautical information/data can potentially affect the safety of air navigation because of the direct dependence upon it by both airborne and ground-based systems, it is imperative that each State ensure that users (aviation industry, air traffic services, etc.) receive timely and quality aeronautical information/data for the period of its intended use. To achieve this, and to demonstrate to users the required information/data quality, Annex 15 provides that States must establish a quality system and put in place quality management procedures at all stages (receiving and/or originating, collating or assembling, editing, formatting, publishing, storing and distributing) of the aeronautical information/data process. The quality system must be documented and demonstrable for each function stage, ensuring that the organizational structure, procedures, processes and resources are in place in order to detect and remedy any information/data anomalies during the phases of production, maintenance and operational use. Explicit in such a quality management regime is the ability to trace all information/data from any point, back through the preceding processes, to its origin.

Of all the activities in international civil aviation, the provision and sustaining of aeronautical information services may not rank among the most glamorous and indeed the complexity of AIS information supplying data-dependant on-board navigation systems may be transparent to the user, but without this service a pilot would be flying into the unknown.

## Vocabulary

aeronautical information service (AIS) – Информационная служба обеспечения полетов

to receive – получать

to originate – создавать

to collate – сопоставлять

to assemble – собирать

to edit – редактировать

to format – форматировать

to publish – публиковать

to store – хранить

to distribute – распространять

Air Navigation Commission – Аэронавигационная комиссия

International notices to airmen NOTAM – извещения для летчиков NOTAM

*Procedures for Air Navigation Services – Правила аэронавигационного обслуживания*

data-dependant on-board navigation systems – бортовые навигационные системы, зависящие от данных

to corrupt – исказить, ломать

erroneous – ошибочный

entry into the airspace – выход в воздушное пространство

transit of the airspace – прохождение воздушного пространства

on short notice – срочно, за короткий период времени

airspace restrictions – ограничения воздушного пространства

duration – длительность

lengthy – слишком длинный

concise – короткий, компактный

urgency – срочная ситуация

operational significance – значение для оперативной деятельности

valid – действительный

relevant – относящийся к делу

*Aeronautical Information Publication (AIP)* – сборник аэронавигационной информации

AIP supplements – приложения к АИП

pre-flight information bulletin (PIB) – предполетный информационный бюллетень

aeronautical information circulars (AIC) – циркуляр аэронавигационной информации

indiscriminately – без ограничений, без системы

AIRAC (aeronautical information regulation and control) – система регламентации и контроля аэронавигационной информации

Communications, Navigation and Surveillance/Air Traffic Management (CNS/ATM) systems – система управления воздушным движением с применением средств связи, навигации и наблюдения

area navigation (RNAV) – зональная навигация

required navigation performance (RNP) – требуемые навигационные характеристики

Exercise 1. Please, answer the questions below. Comprehensive answers are welcome.

- What is AIS and what is its purpose?
- What procedures are undertaken with data under AIS?
- What is NOTAM and who needs it?
- What are the most difficult acronyms in this chapter and what do they mean?
- Why is AIS so important? Can aircraft fly without it?

Exercise 2. Please, fill in the blanks.

- The first requirements \_\_\_ the Annex were developed \_\_\_ the ICAO Air Navigation Committee (now the Air Navigation Commission), following recommendations \_\_\_ regional air navigation meetings, and were published \_\_\_ the authority of the Council \_\_\_ Procedures \_\_\_ International Notices \_\_\_ Airmen back in 1947.

- The information handled \_\_\_ an AIS may vary widely \_\_\_ terms \_\_\_ the duration \_\_\_ its applicability. \_\_\_ example, information related \_\_\_ airports and its facilities may remain valid \_\_\_ many years while changes \_\_\_ the availability \_\_\_ those facilities (\_\_\_ instance, due \_\_\_ construction or repair) will only be valid \_\_\_ a relatively short period \_\_\_ time.

- \_\_\_ all the activities \_\_\_ international civil aviation, the provision and sustaining \_\_\_ aeronautical information services may not rank among the most glamorous and indeed the complexity \_\_\_ AIS information supplying data-dependent on-board navigation systems may be transparent \_\_\_ the user, but without this service a pilot would be flying \_\_\_ the unknown.

Exercise 3. Please, provide synonyms from the text for the following words and expressions.

- To originate

- To collate
- To assemble
- To edit
- To distribute

Exercise 4. Please, provide antonyms from the text for the following words and expressions.

- Acronym
- Later issued
- Small private aircraft
- Available
- To affect

Exercise 5. Please, compose five sentences with words and expressions from Vocabulary provided (in written).

## UNIT 4

### ANNEX 16 to the Convention on International Civil Aviation

#### Environmental Protection (Volumes I and II)

Annex 16 (Volumes I and II) deals with the protection of the environment from the effect of **aircraft noise** and **aircraft engine emissions** - two topics hardly thought about when the Chicago Convention was signed. Aircraft noise was already of concern during the formative years of ICAO, but it was then limited to the noise caused by propellers whose tips rotated at **speeds** approaching that of **sound**. This concern increased with the introduction of the **first generation jet aeroplanes** in

the early 1960s and accelerated with the growth in the number of jet aircraft in international operations.

Aircraft noise is a **function**, among other things, of the power of the engines that propel aeroplanes through the atmosphere. Reduce the power and you reduce noise, but at the same time you may affect the safety characteristics of the jet aircraft. In 1968, the ICAO Assembly adopted a resolution which conceded the seriousness of noise in the **vicinity** of airports, and instructed the ICAO Council to establish international specifications and associated guidance material to control aircraft noise. In 1971, the Assembly adopted another resolution recognizing the **adverse environmental impact** that may be related to aircraft activity. This resolution placed on ICAO the responsibility to guide the development of international civil aviation in such a manner as to benefit the people of the world and to achieve maximum compatibility between the safe and orderly development of civil aviation and the quality of the human environment.

Annex 16 dealing with various aspects of aircraft noise problems was adopted in 1971 on the basis of recommendations of the 1969 Special Meeting on Aircraft Noise in the Vicinity of Aerodromes. These aspects included: procedures for describing and **measuring** aircraft noise; **human tolerance** to aircraft noise; **aircraft noise certification**; criteria for establishment of aircraft noise **abatement procedures**; land use control; and **ground run-up noise** abatement procedures. Shortly after this meeting, the **Committee on Aircraft Noise (CAN)** was established to assist ICAO in the development of noise certification requirements for different classes of aircraft.

The first meeting of this committee developed the first amendment to Annex 16, which became applicable in 1973 and included noise certification of future production and **derived versions** of subsonic jet aeroplanes.

During subsequent meetings, the Committee on Aircraft Noise developed noise certification standards for future subsonic jet aeroplanes and propeller-driven aeroplanes, and for future production of existing **supersonic** transport aeroplane types and helicopters. It also developed guidelines for noise certification of future supersonic and propellerdriven **STOL (short take-off and landing)** aeroplanes as

well as installed **APUs (auxiliary power-units)** and associated aircraft systems when operating on the ground.

A resolution adopted by the ICAO Assembly in 1971 led to specific action on the question of engine emissions and detailed proposals for ICAO Standards for the control of engine emissions from certain types of aircraft engines. The **Committee on Aircraft Engine Emissions (CAEE)** was subsequently established with a view to develop specific Standards for aircraft engine emissions.

These Standards, adopted in 1981, set limits for the emission of smoke and certain gaseous pollutants for large **turbo-jet** and **turbofan engines** to be produced in the future; they also prohibit the **venting of raw fuels**. The scope of the existing Annex 16 was widened to include engine emission provisions and the document was retitled Environmental Protection.

Volume I of the reorganized Annex 16 contains provisions related to aircraft noise while Volume II contains provisions related to aircraft engine emissions.

In Volume I, different aircraft classifications form the basis of noise certification. These classifications include **subsonic** jet aeroplanes for which application for the certification of the **prototype** was accepted before 6 October 1977; for those accepted on or after that date; for propeller-driven aeroplanes over 5 700 kg; for those not exceeding this mass; for supersonic aeroplanes for which application for certification of the prototype was accepted before 1 January 1975; and for helicopters for which the application for certification of the prototype was accepted on or after 1 January 1980.

For each classification of aircraft type, a noise evaluation measure has been standardized. Except for propeller-driven aeroplanes not exceeding 5 700 kg maximum certificated take-off mass, the noise evaluation measure is the **effective perceived noise level, expressed in EPNdB**. The EPNdB is a single number indicator of the subjective effects of aircraft noise on people, taking into account the instantaneous perceived noise level and duration. Various measurement points, maximum noise levels at **lateral, approach and flyover noise** measurement points, along with **flight test procedures**, have been designated for these types of aircraft. Noise certification is granted by the State of Registry of an aircraft on the basis of satisfactory evidence that the aircraft complies with the requirements

which are at least equal to the applicable Standards set out in this Annex. In Volume II of Annex 16, there are Standards which prohibit the intentional venting of raw fuel to the atmosphere from all turbine engine powered aircraft manufactured after 18 February 1982. There are also Standards which limit the **emission of smoke** from turbo-jet and turbofan engines intended for propulsion at subsonic speeds and manufactured after 1 January 1983.

For engines intended for supersonic propulsion, similar limitations apply to engines manufactured after 18 February 1982. Also included are Standards which limit the emission of carbon monoxide, unburned hydrocarbons and oxides of nitrogen from large turbo-jet and turbofan engines intended for subsonic propulsion and manufactured after 1 January 1986. These Standards are based on an aircraft's **landing and take-off (LTO) cycle**. In addition to these Standards, Volume II contains detailed measurement procedures and instrument specifications and details the statistical methods to be used in assessing test results. In 1983, the CAN and CAEE committees were amalgamated to form the **Committee on Aviation Environment Protection (CAEP)**, as a Technical Committee of the ICAO Council. Since its establishment, CAEP has further developed the Standards in Annex 16 for both aircraft noise and aircraft engine emissions.

Concerning aircraft noise, on the basis of recommendations by CAEP, the Council of ICAO in 2001 adopted a new Chapter 4 noise standard, more stringent than that contained in Chapter 3. Commencing on 1 January 2006, the new standard will apply to newly certificated aeroplanes and to Chapter 3 aeroplanes for which **re-certification** to Chapter 4 is requested. This new Standard was adopted at about the same time as the ICAO Assembly endorsed the concept of a “balanced approach to noise management” developed by CAEP that is comprised of four elements, namely **reduction of noise at source, land-use planning, operational measures, and operation restrictions**. For further details, see the *Consolidated statement of continuing ICAO policies and practices related to environmental protection*.

Concerning aircraft engine emissions, there has been a change in the focus of the Organization's work. While it was initially based on concerns regarding air quality in the vicinity of airports, in the 1990s it was expanded to include global atmospheric problems to which aircraft engine emissions contribute, such as

climate change. As a result, consideration is being given to further development of the ICAO emissions Standards to take account of emissions not only in the LTO cycle, but also during the cruise phase of operations.

In both 1993 and 1999, on the basis of CAEP recommendations, the Council of ICAO adopted more stringent Standards defining the emission limits for **oxides of nitrogen**. At the time of writing, a third revision of these limits was under consideration by the Council. Environmental protection has become one of the biggest challenges to civil aviation in the twenty-first century. Since it was first adopted, Annex 16 has been further developed to meet new environmental concerns and to accommodate new technology. The Organization will continue to keep the Annex under review, consistent with its aim of achieving maximum compatibility between the safe and orderly development of civil aviation and the quality of the environment.

## Vocabulary

environmental protection – охрана окружающей среды

aircraft noise – шум самолета

aircraft engine emission – выброс авиационного двигателя

speed of sound – скорость звука

first generation jet aeroplanes – первое поколение реактивных самолетов

function – функция, следствие

vicinity – близость

adverse environmental impact – неблагоприятное влияние на окружающую среду

measuring – измерение

human tolerance – выносливость человека

aircraft noise certification – сертификация воздушных судов по шуму

abatement procedures – процедуры снижения, ослабления

ground run-up noise – шум при опробовании двигателя

Committee on Aircraft Noise (CAN) – Комитет по авиационному шуму

derived version – модифицированный вариант

supersonic – сверхзвуковой

STOL (short take-off and landing) – ускоренный взлет и посадка

APUs (auxiliary power-units) – вспомогательная силовая установка

Committee on Aircraft Engine Emissions (CAEE) – Комитет по эмиссиям авиационных двигателей

turbo-jet and turbofan engines – турбореактивные и турбовинтовые двигатели

venting of raw fuels – выброс топлива

subsonic – дозвуковой

prototype - прототип

effective perceived noise – эффективный уровень воспринимаемого шума

level, expressed in EPNdB – уровень, выраженным в децибелах

lateral, approach and flyover noise – шум боковой, при заходе на посадку и при пролете

flight test procedures – процедуры летных испытаний

emission of smoke – эмиссия дыма

landing and take-off (LTO) cycle – взлетно-посадочный цикл

Committee on Aviation Environment Protection (CAEP) – Комитет по охране авиационной среды

re-certification – повторная сертификация

reduction of noise at source – снижения уровня шума у источника

land-use planning – планирование землепользования

operational measures – оперативные меры

operation restrictions – операционные ограничения

oxides of nitrogen – оксиды азота

Exercise 1. Please, answer the questions below. Comprehensive answers are welcome.

- What are the dangers of aviation in regard of environment?
- Why is noise studied so thoroughly?
- Why is environmental protection one of the biggest challenges in civil aviation?
- What is supersonic transport?
- What emissions do engines produce?

Exercise 2. Please, fill in the blanks.

• Aircraft noise is a function, \_\_\_ other things, \_\_\_ the power \_\_\_ the engines that propel aeroplanes \_\_\_ the atmosphere. Reduce the power and you reduce noise, \_\_\_ at the same time you may affect the safety characteristics \_\_\_ the jet aircraft.

• The first meeting \_\_\_ this committee developed the first amendment \_\_\_ Annex 16, \_\_\_ became applicable \_\_\_ 1973 and included noise certification \_\_\_ future production and derived versions \_\_\_ subsonic jet aeroplanes.

• A resolution adopted \_\_\_ the ICAO Assembly \_\_\_ 1971 led \_\_\_ specific action \_\_\_ the question \_\_\_ engine emissions and detailed proposals \_\_\_ ICAO Standards \_\_\_ the control \_\_\_ engine emissions \_\_\_ certain types \_\_\_ aircraft engines.

Exercise 3. Please, provide synonyms from the text for the following words and expressions.

- Vicinity
- To be related to
- Development
- Measuring
- Shortly after

Exercise 4. Please, provide antonyms from the text for the following words and expressions.

- Operating on the ground
- To prohibit
- To retile
- Subsonic
- Noise

Exercise 5. Please, compose five sentences with words and expressions from Vocabulary provided (in written).

## UNIT 4

### Annex 17 to the Convention on International Civil Aviation

#### Security - Safeguarding International Civil Aviation against Acts of Unlawful Interference

The dramatic increase in crimes of violence which adversely affected the safety of civil aviation during the late 1960's, resulted in an **Extraordinary Session of the ICAO Assembly** in June 1970. One of the resolutions of that Assembly called for specifications in existing or new Annexes to the Chicago Convention to specifically deal with the problem of unlawful interference, in particular with **unlawful seizure of aircraft**. Following the work of the **Air Navigation Commission**, the **Air Transport Committee**, and the **Committee on Unlawful Interference**, Standards and Recommended Practices on Security were adopted by the Council on 22 March 1974 and designated as Annex 17 – Security.

This Annex sets out the basis for the ICAO civil aviation security program and seeks to safeguard civil aviation and its facilities against acts of unlawful interference. Of critical importance to the future of civil aviation and to the international community at large are the measures taken by ICAO **to prevent** and

**suppress** all acts of unlawful interference against civil aviation throughout the world. Annex 17 is primarily concerned with administrative and co-ordination aspects, as well as with technical measures for the protection of the security of international air transport, requiring each Contracting State to establish its own civil aviation security program with such additional security measures as may be proposed by other appropriate bodies.

Annex 17 also seeks to coordinate the activities of those involved in **security programs**. It is recognized that airline operators themselves have a primary responsibility for protecting their passengers, **assets** and **revenues**, and therefore States must ensure that the **carriers** develop and implement effective complementary security programs compatible with those of the airports out of which they operate. Some of the specifications in Annex 17 and the other Annexes recognize that it is not possible **to achieve absolute security**. States must ensure, nevertheless, that the safety of passengers, crew, ground personnel and the general public is a primary consideration in the safeguarding action which they initiate. States are also urged to adopt measures for the safety of the passengers and crew of unlawfully diverted aircraft until their journey can be continued.

The Annex is maintained under constant review to ensure that the specifications are current and effective. Because this document sets minimum standards for aviation security worldwide, it is subjected to careful scrutiny before undergoing any changes, additions or deletions. Since its publication, Annex 17 has been amended ten times in response to needs identified by States and is kept under review by the **Aviation Security (AVSEC) Panel**. This group of experts appointed by the Council includes representatives from Argentina, Australia, Belgium, Brazil, Canada, Ethiopia, France, Germany, Greece, India, Italy, Japan, Jordan, Mexico, Nigeria, the Russian Federation, Senegal, Spain, Switzerland, the United Kingdom and the United States, as well as international organizations such as the **Airports Council International (ACI)**, the **International Air Transport Association (IATA)**, the **International Federation of Airlines Pilots Association (IFALPA)** and the **International Criminal Police Organization (ICPO-INTERPOL)**.

Prior to 1985, the significant threat to civil aviation was seen as the hijacking. As a result, the Standards and Recommended Practices tended to focus on hijacking

rather than **sabotage, in-flight attack** or **facility attack**. By modifying existing technology and applying agreed upon specifications and procedures, the worldwide aviation community established a reasonably effective **screening system** for passengers and their carry-on luggage. Following the three-year cycle for Annex amendments, additional changes to Annex 17 were developed in 1988 which included specifications to further assist in fighting sabotage.

Some of the changes included in Amendment 7 to Annex 17 adopted in June 1989, provide for a further clarification of the Standards dealing with **reconciliation of baggage** with passengers, controls over items **left behind** on the aircraft by disembarking passengers, security controls for **commercial courier services** and controls over cargo and mail under certain situations.

The latest Amendment 10 to Annex 17 was adopted by the ICAO Council on 7 December 2001 in order to address challenges posed to civil aviation by the events of 11 September 2001. It became applicable on 1 July 2002. The amendment includes various definitions and new provisions in relation to the applicability of this Annex to **domestic operations**; international cooperation relating to **threat information**; **national quality control**; **access control**; **measures related to** passengers and their cabin and hold baggage; in flight security personnel and protection of the cockpit; **code-sharing/collaborative arrangements**; human factors; and management of response to acts of unlawful interference.

The Attachment to Annex 17 provides officials of States responsible for implementing national programs with a verbatim extract of all relevant specifications appearing in the other Annexes as well as the related procedures appearing in the PANS documents (Procedures for Air Navigation Services - Rules of the Air and Air Traffic Services, and **Procedures for Air Navigation Services - Aircraft Operations**). This material provides officials with a summary of all security-related Standards, Recommended Practices and procedures in a single document.

The aviation security specifications in Annex 17 and the other Annexes are amplified by detailed guidance material contained in the *Security Manual for Safeguarding Civil Aviation Against Acts of Unlawful Interference* which was first published in 1971. This restricted document provides details of how States can comply with the various Standards and Recommended Practices contained in

Annex 17. The Manual has since been developed for the purpose of assisting States to promote safety and security in civil aviation through the development of the legal framework, practices, procedures and material, technical and human resources to prevent and, where necessary, respond to acts of unlawful interference. The very existence of these documents highlights the intensive vigilance that the Contracting States of ICAO maintain to preserve the safety of international civil aviation from a threat which is non-operational in character or origin. Although ICAO deals primarily in **multilateral arrangements** to establish an international framework, much has been done to encourage States to assist each other on a **bilateral basis**. Annex 17 encourages States to have a security clause in their air transport agreements and a model clause has been made available.

Commencing in late 2002, ICAO's **Universal Security Audit Program** is auditing the implementation of Annex 17 provisions by Contracting States. In addition to helping States improve their aviation security systems by identifying deficiencies and providing suitable recommendations, the audits are expected to provide useful feedback concerning the provisions in Annex 17. ICAO and its Council continue to treat the subject of aviation security as a matter of the highest priority. However, acts of unlawful interference continue to pose a serious threat to the safety and regularity of civil aviation. The Organization has developed and continues to update legal and technical regulations and procedures to prevent and suppress acts of unlawful interference. Since Annex 17 is the principal document giving direction on the establishment of security measures, its uniform and consistent application is paramount if the aviation security system is to be successful.

## Vocabulary

security – авиационная безопасность

safeguarding – деятельность по обеспечению безопасности

acts of unlawful interference – акты незаконного вмешательства

Extraordinary Session of the ICAO – Чрезвычайная сессия ИКАО

assembly – собрание

unlawful seizure of aircraft – незаконный захват судна

Air Navigation Commission – Аэронавигационная комиссия

Air Transport Committee – Комитет воздушного транспорта

Committee on Unlawful Interference – Комитет по незаконному вмешательству

to prevent – предотвращать

to suppress – подавлять

security program – программа обеспечения безопасности

assets – имущество

revenues – доходы

carrier – перевозчик

to achieve absolute security – достичь абсолютного уровня безопасности

Aviation Security (AVSEC) Panel – Группа экспертов по авиационной безопасности

Airports Council International (ACI) – Международный совет аэропортов

the International Air Transport Association (IATA) - Международная Ассоциация Воздушного Транспорта

the International Federation of Airlines Pilots Association (IFALPA) - Международная федерация Ассоциации пилотов авиакомпаний

the International Criminal Police Organization (ICPO-INTERPOL) - Международная Организация Уголовной Полиции

sabotage – диверсия

in-flight attack – атака в полете

facility attack – атака на объект инфраструктуры

screening system – система просвечивания

reconciliation of baggage – распознавание багажа

to be left behind – быть забытым

commercial courier service – коммерческая курьерская служба

domestic operation – внутренние полеты

international cooperation relating to threat information – международное сотрудничество в области обмена информацией об угрозах

national quality control – национальный контроль качества

access control – контроль доступа

measures related to – меры, связанные с

code-sharing – код-шеринг

collaborative arrangements – совместные усилия

Procedures for Air Navigation Services (PANS) – правила аэронавигационного обслуживания

multilateral arrangements – многосторонние меры

bilateral basis – на двусторонней основе

Universal Security Audit Program – универсальная программа аудита

Exercise 1. Please, answer the questions below. Comprehensive answers are welcome.

- What is security and why is it different to Safety?
- Which international organizations delegate participants to Aviation Security Panel?
- Is it possible to achieve absolute security?
- Why is international collaboration important in this field?
- Which program is auditing implementation of ICAO provisions?

Exercise 2. Please, fill in the blanks.

- States must ensure, \_\_\_\_, that the safety \_\_\_\_ passengers, crew, ground personnel and the general public is a primary consideration \_\_\_\_ the safeguarding action \_\_\_\_ they initiate.
- Some \_\_\_\_ the changes included \_\_\_\_ Amendment 7 \_\_\_\_ Annex 17 adopted \_\_\_\_ June 1989, provide \_\_\_\_ a further clarification \_\_\_\_ the Standards dealing \_\_\_\_ reconciliation \_\_\_\_ baggage \_\_\_\_ passengers, controls

\_\_\_ items left behind \_\_\_ the aircraft \_\_\_ disembarking passengers, security controls \_\_\_ commercial courier services and controls \_\_\_ cargo and mail \_\_\_ certain situations.

- The Manual has since been developed \_\_\_ the purpose \_\_\_ assisting States \_\_\_ promote safety and security \_\_\_ civil aviation through the development \_\_\_ the legal framework, practices, procedures and material, technical and human resources \_\_\_ prevent and, where necessary, respond \_\_\_ acts of unlawful interference

Exercise 3. Please, provide synonyms from the text for the following words and expressions.

- Adversely
- To safeguard
- Unlawful interference
- Protecting
- To initiate

Exercise 4. Please, provide antonyms from the text for the following words and expressions.

- To assist
- Domestic operations
- Unlawful
- Various
- To establish

Exercise 5. Please, compose five sentences with words and expressions from Vocabulary provided (in written).

## UNIT 6

### ANNEX 18 to the Convention on International Civil Aviation

## The Safe Transport of Dangerous Goods by Air

More than half of the **cargo** carried by all modes of transport in the world is dangerous cargo – **explosive, corrosive, flammable, toxic** and even **radioactive**. These dangerous goods are essential for a wide variety of global industrial, commercial, medical and research requirements and processes. Because of the advantages of air transport, a great deal of this dangerous cargo is carried by aircraft. ICAO recognizes the importance of this type of cargo and has taken steps to ensure that such cargo can be carried safely. This has been done by adopting Annex 18, together with the associated document Technical Instructions for the Safe Transport of Dangerous Goods by Air. Other codes have existed for regulating the carriage of dangerous goods by air, but these did not apply internationally or were difficult to enforce internationally and, moreover, were not compatible with the corresponding rules of other transport modes. Annex 18 specifies the broad Standards and Recommended Practices to be followed to enable dangerous goods to be carried safely.

The Annex contains fairly stable material requiring only infrequent amendment using the normal Annex amendment process. The Annex also makes binding upon Contracting States the provisions of the Technical Instructions, which contain the very detailed and numerous instructions necessary for the **correct handling** of dangerous cargo. These require frequent updating as developments occur in the chemical, manufacturing and packaging industries, and a special procedure has been established by the Council to allow the Technical Instructions to be revised and reissued regularly to keep up with new products and advances in technology.

The ICAO requirements for dangerous goods have been largely developed by a panel of experts which was established in 1976. This panel continues to meet and recommends the necessary revisions to the Technical Instructions. As far as possible the Technical Instructions are kept aligned with the recommendations of the **United Nations Committee of Experts on the Transport of Dangerous Goods** and with the regulations of the International Atomic Energy Agency. The use of these common bases by all forms of transport allows cargo to be transferred safely and smoothly between air, sea, rail and road modes.

The ICAO requirements for the safe handling of dangerous goods firstly identify a limited list of those substances which are unsafe to carry in any circumstances and

then show how other potentially dangerous articles or substances can be transported safely. The nine hazard classes are those determined by the United Nations Committee of Experts and are used for all **modes of transport**.

Class 1 includes **explosives** of all kinds, such as **sporting ammunition, fireworks** and **signal flares**. Class 2 comprises **compressed** or **liquefied gases** which may also be **toxic** or **flammable**; examples are **cylinders of oxygen** and **refrigerated liquid nitrogen**. Class 3 substances are **flammable liquids** including **gasoline, lacquers, paint thinners**, etc. Class 4 covers **flammable solids, spontaneously combustible materials** and materials which, when in contact with water, **emit flammable gases** (examples are some powdered metals, cellulose type film and charcoal). Class 5 covers **oxidizing material**, including bromates, chlorates or nitrates; this class also covers organic peroxides which are both oxygen carriers and very combustible. **Poisonous** or toxic substances, such as pesticides, mercury compounds, etc., comprise Class 6, together with **infectious substances** which must sometimes be shipped for diagnostic or preventative purposes. **Radioactive materials** are in Class 7; these are mainly radioactive isotopes needed for medical or research purposes but are sometimes contained in manufactured articles such as heart pacemakers or smoke detectors. Corrosive substances which may be dangerous to **human tissue** or which pose a hazard to the structure of an aircraft are dealt with in Class 8 (for example, caustic soda, battery fluid, paint remover). Finally, Class 9 is a **miscellaneous category** for other materials which are potentially hazardous in air transport, such as magnetized materials which could affect the aircraft's navigational systems.

Annex 18 and the Technical Instructions became effective on 1 January 1983 and applicable on 1 January 1984 when all of the Contracting States of ICAO were expected to conform to the ICAO requirements and to give them legislative recognition.

## **Vocabulary**

dangerous goods – опасные грузы

cargo - карго

explosive – взрывчатое вещество

corrosive – едкое вещество

flammable – воспламеняющееся вещество

toxic – токсичное вещество

radioactive – радиоактивное вещество

Technical Instructions for the Safe Transport of Dangerous Goods by Air –  
Технические инструкции по безопасной перевозке опасных грузов по  
воздуху

correct handling – правильное обращение

United Nations Committee of Experts on the Transport of Dangerous Goods –  
Подкомитет экспертов по транспортировке опасных грузов ООН

modes of transport – виды транспорта

sporting ammunition – боеприпасы спортивного оружия

fireworks – салюты

signal flare – сигнальная ракета

compressed – сжатый

liquefied – сжиженный

cylinders of oxygen – кислородные баллоны

refrigerated liquid nitrogen – охлажденный жидкий азот

flammable liquid – легковоспламеняющаяся жидкость

gasoline - газолин

lacquer – лак

paint thinner – растворитель для краски

flammable solid – воспламеняющееся твердое вещество

spontaneously combustible material – самовоспламеняющийся материал

exit flammable gases – выход горючих газов

oxidizing material – окисляющий материал

poisonous – ядовитый

infectious substances – инфицирующие вещества

radioactive material – радиоактивный материал

human tissue – ткани человека

miscellaneous category – категория «разное»

Exercise 1. Please, answer the questions below. Comprehensive answers are welcome.

- What types of dangerous cargo do you know?
- Why is special attention paid to dangerous goods?
- Why these goods are to be carried by air if they are dangerous?
- How are dangerous goods classified?
- What is the associated document to this Annex?

Exercise 2. Please, fill in the blanks.

- Because \_\_\_ the advantages \_\_\_ air transport, a great deal \_\_\_ this dangerous cargo is carried \_\_\_ aircraft. ICAO recognizes the importance \_\_\_ this type \_\_\_ cargo and has taken steps to ensure \_\_\_ such cargo can be carried safely.

- The ICAO requirements \_\_\_ dangerous goods have been largely developed \_\_\_ a panel \_\_\_ experts \_\_\_ was established \_\_\_ 1976. This panel continues to meet \_\_\_ recommends the necessary revisions \_\_\_ the Technical Instructions.

- The ICAO requirements \_\_\_ the safe handling \_\_\_ dangerous goods firstly identify a limited list \_\_\_ those substances \_\_\_ are unsafe to carry \_\_\_ any circumstances and then show \_\_\_ other potentially dangerous articles \_\_\_ substances can be transported safely.

Exercise 3. Please, provide synonyms from the text for the following words and expressions.

- Advantages
- Importance
- To enforce
- Infrequent
- Binding upon

Exercise 4. Please, provide antonyms from the text for the following words and expressions.

- Dangerous
- Carriage
- Broad
- Correct handling
- To be transferred

Exercise 5. Please, compose five sentences with words and expressions from Vocabulary provided (in written).

## UNIT 7

### ANNEX 19 to the Convention on International Civil Aviation

#### Safety Management

The first edition of the Annex was adopted by ICAO Council on the 25<sup>th</sup> of February 2013 and is applied starting from the 14<sup>th</sup> of November 2013.

This is the first Annex, introduced starting from 1984. Annex 19 by fact unifies several provisions regulating flight safety, in particular Personnel Licensing (Annex 1), Operation of Aircraft (Annex 6), Airworthiness of Aircraft (Annex 8), Air Traffic Services (Annex 11), Aircraft Accident and Incident Investigation (Annex 13), Aerodromes (Annex 14).

**Requirements for flight safety management** for special areas of aviation performance are kept in relevant Annexes. Unified and expanded provisions of

Annex 19 allow to use them for air enterprises. Particular part of Annex 19 is represented by standards for **public systems of flight safety management**.

The purpose of Standards and Recommended Practices of Annex 19 is to help States to manage risks for the purposes of flight safety. In terms of globalization of aviation industry, Annex 19 is aimed at supporting of advanced strategy in the sphere of flight safety, which is based upon realization by States of Flights Safety Program. Task of the program is **to identify** and **decrease** risks for flight safety.

Besides Annex 19, ICAO also published **Safety Management Manual (SMM)** (Doc 9895).

Important activity of ICAO is development of Standardized Training Packages (STPs) which are aimed at first of all representatives of public regulating and executive bodies, involved in creation and implementation of State Flight Safety Program.

Annex 19 is to amended in basis of practice and feedback of ICAO States and aviation industry representatives.

The Annex is adopted in six official ICAO languages: Russian, English, Arab, Spanish, Chinese, and French.

Standards and Recommended Practices contained in the Annex 19 are applicable to **functions** of flight safety management retaining to safe aircraft operation or supporting such functions directly.

Each State in order to achieve a required level of flight safety, approves its national flight safety management system, which comprises the following components:

- State policy and goals of flight safety;
- State level risk management for flight safety;
- Realization of flight safety at level of the State;
- Popularization of flight safety.

Under this program the State requires from controlled by the State suppliers, such as training organizations, aircraft operators, maintenance organizations, design bureaus, air traffic control organizations, aerodrome operators, implementation of Safety management system (SMS), and also creates a **system of control** over flight safety.

Annex 19 also contains requirements for States to collect and analyze flight safety data, as well as to exchange this information. It is obligatory to provide data on incidents in order to collect information on current and potential failures in SMS provision, and it is voluntary to provide data which is not obligatory for recording. The State also maintains data base on flight safety data, this information is to be analyzed in order to specify **existing and potential risks** and to approve actions for increase of flight safety level.

Annex 19 also recommends states to exchange information in case it is of an interest for other States, and also to endorse creation networks for collective use. In order to facilitate this instruments ICAO provides guidelines, which include in particular standard definitions, classification and format.

## **Vocabulary**

safety management – управление безопасностью полетов

requirements for flight safety management – требования к управлению безопасностью полетов

public systems of flight safety management – государственная программа безопасности полетов (ГосПБП)

to identify – определять

to decrease – снижать

Safety Management Manual (SMM) – Руководство по управлению безопасностью полетов

Function – функция, следствие

system of control – система контроля

existing and potential risks – существующие и потенциальные риски

Exercise 1. Please, answer the questions below. Comprehensive answers are welcome.

- Why is Annex 19 specific?
- Please name all ICAO official languages.
- Which components does SMS system comprise?
- What else does Annex 19 contain?
- What does ICAO provide to facilitate international collaboration?

Exercise 2. Please, fill in the blanks.

- Requirements \_\_\_ flight safety management \_\_\_ special areas \_\_\_ aviation performance are kept \_\_\_ relevant Annexes. Unified and expanded provisions \_\_\_ Annex 19 allow to use them \_\_\_ air enterprises.
- The purpose \_\_\_ Standards and Recommended Practices \_\_\_ Annex 19 is to help States to manage risks \_\_\_ the purposes \_\_\_ flight safety. In terms \_\_\_ globalization \_\_\_ aviation industry, Annex 19 is aimed \_\_\_ supporting \_\_\_ advanced strategy in the sphere \_\_\_ flight safety, which is based upon realization \_\_\_ States \_\_\_ Flights Safety Program.
- Important activity \_\_\_ ICAO is development \_\_\_ Standardized Training Packages (STPs) which are aimed \_\_\_ first of all representatives \_\_\_ public regulating \_\_\_ executive bodies, involved \_\_\_ creation and implementation \_\_\_ State Flight Safety Program.

Exercise 3. Please, provide synonyms from the text for the following words and expressions.

- To help
- To identify
- Executive bodies
- A required level

- To exchange information

Exercise 4. Please, provide antonyms from the text for the following words and expressions.

- Starting from
- To unify
- Public
- Globalization
- Standardized

Exercise 5. Please, compose five sentences with words and expressions from Vocabulary provided (in written).

## ЛИТЕРАТУРА

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