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Московской области

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УТВЕРЖДАЮ

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«\_\_\_\_\_\_\_» \_\_\_\_\_\_\_\_\_\_\_\_\_\_2016 г.

Цикловая комиссия общеобразовательных и естественнонаучных дисциплин

**УЧЕБНО – ПРАКТИЧЕСКОЕ ПОСОБИЕ**

по английскому языку для развития умений и навыков

профессионального общения

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| по дисциплине | | «Иностранный язык» | |
|  | | | |
| для студентов | | 2 | курса |
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| специальности | 24.02.01 Производство летательных аппаратов | | |

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**2016**

Учебное пособие по английскому языку предназначено для студентов 2 курса специальности 24.02.01 Производство летательных аппаратов.

Профессионально ориентированное содержание пособия нацелено на формирование коммуникативной компетенции в выбранной профессиональной сфере, развитие навыков чтения, перевода английских технических текстов авиационной тематики среднего уровня, а также на освоение, повторение и закрепление грамматических и лексических структур, которые наиболее часто используются в деловой и профессиональной речи.

Материал пособия охватывает тематику специальности: конструкции и характеристики летательных аппаратов, техническое обслуживание и ремонт ЛА, управление воздушным движением, радиосвязь, предполетная подготовка, службы аэропорта, авиационные профессии и обеспечивает междисциплинарные связи.

Представленные задания построены на основе дифференцированного отбора языкового и текстового материалов с учётом особенностей иноязычного общения специалистов в области авиационной деятельности.

Тексты снабжены словарями, лексико-грамматическими упражнениями и заданиями на развитие коммуникативных компетенций в профессиональной сфере.

Содержание учебно-методического пособия соответствует рабочей программе и календарно-тематическому плану по дисциплине ОГСЭ.03 «Иностранный язык» и полностью освещает профессионально ориентированное содержание программы.

Материалы пособия могут использоваться как в ходе самостоятельной работы студентов над языком, так и на практических занятиях под руководством преподавателя.

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# INTRODUCTION

# FROM THE HISTORY OF AVIATION

**CULTURAL NOTES:**

**Leonardo da Vinci** [lɪəˌnɑːdəʊ də 'vɪntʃi] was an Italian Renaissance polymath (erudite ['erudaɪt] - эрудит; учёный) whose areas of interest included invention, painting, sculpting, architecture, science, music, mathematics, engineering, literature, anatomy, geology, astronomy, botany, writing, history, and cartography. He has been variously called the father of palaeontology, ichnology *наука, изучающая отпечатки ступнёй вымерших животных; ихнология*, and architecture, and is widely considered one of the greatest painters of all time. He is also credited with the inventions of the parachute, helicopter and tank.

**The Montgolfier [mɒn'gɒlfɪə] brothers** - Joseph Michel (1740-1810) and Jacques Étienne (1745-99), French inventors and pioneers in hot-air ballooning. In 1782 they built a large balloon from linen and paper and successfully lifted a number of animals; the first human ascents followed in 1783

**Alexander Mozhaisky** was an admiral in the Imperial Russian Navy, aviation pioneer, researcher and designer of heavier-than-air craft.

**Henri Farman** (26 May 1874 – 17 July 1958) - was an Anglo-French aviator and aircraft designer and manufacturer with his brother Maurice Farman. His family was British and he took French nationality in 1937.

**Лобанов, Николай Родионович** (28 ноября 1882, Москва — 1959) — известный авиаконструктор, основатель русской зимней авиации, изобретатель первого снеголёта, директор Московского аэродрома на Ходынском поле. Lobanov invented aeroplane skis

**Igor Ivanovich Sikorsky** (May 25, 1889 – October 26, 1972) was a Russian-American aviation pioneer in both helicopters and fixed-wing aircraft. First success came with the S-2, the second aircraft of his design and construction.

After immigrating to the United States in 1919, Sikorsky founded the Sikorsky Aircraft Corporation in 1923, and developed the first of Pan American Airways' ocean-conquering flying boats in the 1930s.

In 1939, Sikorsky designed and flew the Vought-Sikorsky VS-300, the first viable American helicopter, which pioneered the rotor configuration used by most helicopters today. Sikorsky modified the design into the Sikorsky R-4, which became the world's first mass-produced helicopter in 1942.

**Константи́н Константи́нович Арцеу́лов** (17 (29) мая 1891, Ялта — 18 марта 1980, Москва) — русский и советский лётчик, художник-иллюстратор, внук художника Ивана Константиновича Айвазовского. Konstantin Artseulov was an artist, and also an aerobatics pilot and constructor of sailplanes. During WWI he was a military pilot and an instructor in a flight school where used a **tailspin figure** for the first time in Russian aviation. Artseulov was also a skillful artist and was trained from early childhood by his famous grandfather the marine painter Ivan Aivazovsky.

Aviation is an ***operation*** of heavier-than-air aircraft and related activities. Aviation can be ***conveniently*** divided into ***military aviation, air transport, and general aviation.*** Military aviation includes all aviation activity by the ***armed services, such as combat, reconnaissance [rɪ'kɔnɪs(ə)n(t)s], and military air transport***. Air transport consists mainly of the operation of commercial airlines, which ***handle both freight and passengers***. ***General aviation*** consists of agricultural, business, charter, instructional, and pleasure flying; it includes such activities as the ***operation of air taxis***, as well as ***aerial surveying*** and ***mapping***.

One of the most famous Greek legends is the legend of Daedalus ['diːdələs] and his son Icarus who made wings and fastened them on with wax. Daedalus landed in safety, Icarus ['ɪkərəs] was not so careful and he flew closer and closer to the sun. The wax melted, the wings came off and he fell into the sea.

The first scientific principles of human flight appeared in the 14-th century. The problem was studied by the great scientist Leonardo da Vinci [lɪəˌnɑːdəʊ də 'vɪntʃi]. He observed the flight of birds, studied the air and its currents and designed a flying machine the wings of which were operated by a man.

But the first actual flight which man made was that in the balloon. In October 1783 the Montgolfier [mɒn'gɒlfɪə] brothers in France sent two men almost 25 metres up in a balloon which **descended** 10 minutes later, about 2.5 kilometres away.

The first Russian aircraft designer was Alexander Mozhaisky. His airplane, a monoplane, with two **light steam engines** was tested on August 1, 1882. With the first Russian pilot, I.N. Golubev the plane rose into the air and flew a distance of 200 metres before it landed.

At that time the same work was being conducted by Otto Lilienthal ['liːlɪəntɑːl], a remarkable German inventor. In 1891 he made his flight in a glider covering 35 metres. In 1903 two Americans, the brothers Wilbur and Orville Wright, built their aeroplane. It flew only 32 metres but it was the first aeroplane with an **internal** **combustion engine** that was a big step forward.

In the following years aviation made big advances. In 1908 Henry Farman, in France, made a **circular flight** of one kilometre. A year later Bleriot [ˈbler-ē-ˌō] crossed the English Channel. In 1913 a Russian student Lobanov invented aeroplane skis and this enabled to land and take off in winter.

In 1913 the Russian designer Igor Sikorsky built the world's first multiengined heavy aircraft. That same year the Russian pilot Nesterov **executed the first loop.** Another Russian pilot, Artseulov, in 1916 proved that a pilot can take his plane out of a **corkscrew.**

At the beginning of the 20-th century the **dirigible** was invented. The most known inventor of a dirigible is Count Ferdinand von Zeppelin, a retired German army officer. His famous "Graf Zeppelin" in 1929 began a cruise which took 21 days 8 hours and 26 minutes to circle the world.

An outstanding event in the history of aviation took place in Petersburg in 1913. That year a heavy multiengined aeroplane "Russky Vityaz» was constructed. It **weighed** 4,940 kg and had a 1,440 kg useful load. On August 2, 1913 with seven passengers on board it **set up a world record** by remaining in the air for 1 hour 34 minutes. Its top speed was over 90 km/hr.

In 1914 an **improved version** of the multiengined **heavy bomber** of the Ilya Murometz type was built. It weighed 3,000 kg and had a 1,760 kg useful load, a maximum **cruising range** of 700 km and a top speed of more than 110 km/hr.

Among the pioneers of aviation are the names of aircraft designers Tupolev, Polikarpov, Sukhoi, Arkhangelsky, Ilyushin, Yakovlev and others; the pilots Vodopyanov, Doronin, Kamanin, Lyapidevsky and some others - the first Heroes of the Soviet Union who were **awarded** this title for saving the passengers and the crew after **ice-breaker** Chelyuskin had been crashed by ice. In 1937 the world applauded the **daring** non-stop flight by Chkalov and his crew to the USA via the North Pole on the ANT-23. In 1938 Soviet **aviatrixes** Grisodubova, Raskova and Osipenko made a non-stop long-distance flight to the Far East and became the first Heroes of the Soviet Union among women.

And, of course, it is necessary to mention the names of the outstanding Russian scientists who considerably contributed aviation. It is the great Russian scientist M.V.Lomonosov who developed the scientific principles of flight of bodies heavier-than-air and built the first helicopter model in the world.

The great Russian scientist D.I. Mendeleyev is the author of man **outstanding** researches in aeronautics. He developed the principles of the stratostat design with a **pressurized cabin.**

S.A.Chaplygin, the outstanding scientist in mechanics, is one of the founders of the modern aviation theory and the pioneer in aerodynamics of high speeds.

Special services in science belong to another famous scientist who is called "father of Russian aviation". It was N.E. Zhukovsky who was the first to develop a scientific **wing theory** and the **principles of airscrew design**. From that time aerodynamics has been a science combining theoretical knowledge with practical experiments. All modern aerodynamical calculations are based on his outstanding theoretical works.

N.E. Zhukovsky is the founder of the Central Aero-Hydrodynamic Institute (Z.A.G.I) which became the leading centre of the **aeronautics** and **aeronautical engineering**.

The **rapid development** of aviation began after the World War II. But this is another story.

1. **Study the vocabulary:**

descend - опускаться, снижаться (о самолёте)

steam engine - паровой двигатель

internal combustion engine - двигатель внутреннего сгорания

circular flight - полёт по кругу; полёт по замкнутому маршруту

execute the loop – выполнить петлю

corkscrew – штопор

dirigible ['dɪrɪʤəbl] - дирижабль

weigh - весить

set up a world record - установить мировой рекорд

improved version – улучшенная версия

heavy bomber - тяжелый бомбардировщик

cruising range - дальность полёта

award - награждать

ice-breaker - ледокол

daring - отважный

aviatrixes ['eɪvɪeɪtrɪks] - лётчица; авиаторша

outstanding - выдающийся

pressurized cabin - герметизированная кабина

wing theory - теория крыла

principles of airscrew design – принципы конструкции винта

aeronautics [ˌɛərə'nɔːtɪks] - аэронавтика

aeronautical engineering - самолётостроение

rapid development - бурное развитие

1. **Ответьте на вопросы:**
2. When did the first scientific principles of human flight appear?
3. Who was the first to study the problem of human flight?
4. Describe the flying machine designed by Leonardo da Vinchi.
5. What was the first actual flight man made?
6. Why was it impossible to fly in a balloon?
7. Who was the first Russian aeroplane designer?
8. What plane was designed by him?
9. What distance did the plane cover?
10. Who designed the first glider?
11. What is glider?
12. What event took place in Petersburg in 1913?
13. How long did “Russky Vityaz” stay in the air?
14. Who is called “the father of Russian aviation”?
15. **Переведите слова, обращая внимание на словообразующие элементы:**

observe – observer – observation

safe – safely – safety – unsafe

science – scientist – scientific

design – designer

fly – flight

invent – inventor – invention

construct – constructor – construction

improve – improvement

weigh – weight - weightless

develop – development

1. **Найдите в тексте эквивалент следующим словосочетаниям:**

вооружённые силы, полет человека, поток воздуха, конструктор самолета, конструкция крыла, модель вертолета, мировой рекорд, максимальная скорость, беспосадочный полет, паровой двигатель, лыжи самолета, штопор, гермокабина, теория крыла, ледокол, установить мировой рекорд, авиационная техника, награждать, опускаться, быстрое развитие, смелый, усовершенствованный вариант, аппарат тяжелее воздуха; легко, просто, без труда; военная авиация; воздушный транспорт; авиация общего назначения; малая авиация; вооружённые силы; разведывательный воздушный транспорт; военный воздушный транспорт; воздушно-десантный транспорт; управлять перевозкой грузов и пассажиров; эксплуатация авиатакси; аэросъёмка и топографическая съёмка; эксплуатация; сельскохозяйственная авиация; бизнес-авиация; чартерная (на договорной основе) авиация; учебная авиация; летать – летал; снижаться; авиаконструктор; набирать высоту; многомоторный; полёт; необходимо отметить; выдающийся; знаменитый; внести значительный вклад в авиацию; прогресс; аэронавтика; теория авиации; аэродинамические расчеты; приземляться; взлетать

1. **Переведите на английский язык:**
2. Научные принципы полета человека изучались великим ученым Леонардо де Винчи.
3. Леонардо де Винчи изучал потоки воздуха и создал первую летающую машину.
4. Первый фактический полет был сделан на воздушном шаре в 1783 г.
5. Этот полет длился всего лишь 10 минут, и высота полета была 25 метров.
6. Первым русским конструктором самолета был Александр Можайский.
7. Он сконструировал моноплан с двумя паровыми двигателями в 1882 году.
8. Большим шагом вперед было создание первого самолета с двигателем внутреннего сгорания, сконструированного двумя американцами, братьями Райт.
9. Ученые и конструкторы многих стран работали над созданием и совершенствованием летательных аппаратов.
10. Первый в мире многомоторный самолет был сконструирован русским конструктором Игорем Сикорским.
11. В начале 20го столетия был изобретен дирижабль.
12. В 1913 г. в Петербурге был сконструирован тяжелый многомоторный самолет «Русский витязь».
13. Полет «Русского Витязя» продолжался 1 час 34 минуты, его скорость была 90 км/час.
14. В 1937 году русский летчик Чкалов со своим экипажем совершил беспосадочный полет в США через Северный полюс.
15. Ломоносов построил модель первого вертолета.
16. Менделеев разработал конструкцию стратостата с герметизированной кабиной.

# CLASSIFICATION OF AN AIRCRAFT AND A SPACECRAFT

**TYPES OF AIRCRAFT**

Aircraft can be classified into various types based on:

* Mach number
* purpose
* type of engine
* number of engines
* number of wings
* range
* mode of takeoff and landing
* size and payload capacity
* source of power
* special aircraft
* THE STEALTH

Further a general classification of aircraft is shown.

**I.** **LIGHTER THAN AIR** - aerostat

1. airship
2. free balloon

**II. HEAVIER THAN AIR** - aerodyne

1. WITHOUT ENGINE - glider & sailplane; kite
2. ENGINE DRIVEN
3. AIRPLANE – amphibian, land plane, sea plane (float plane, flying boat)
4. ROTARY WING AIRCRAFT – helicopter

**Vocabulary:**

payload capacity - грузоподъёмность

airship - дирижабль

free balloon - неуправляемый аэростат

aerodyne ['eərə(u)daɪn] - аэродин; аппарат тяжелее воздуха летательный

glider – планер

sailplane – планёр

amphibian - самолет-амфибия

float plane – гидросамолёт

flying boat - гидросамолёт типа "летающая лодка", лодочный гидросамолёт

**TYPES OF SPACECRAFT**

satellite - спутник

communications satellite - спутник связи

subsatellite - субспутник (запускаемый с космического ЛА)

weather satellite - метеорологический спутник

flyby spacecraft - КА для пролёта планеты (without orbiting a planetary orbit)

orbiter spacecraft – орбитальный КА

probe spacecraft - автоматическая научно-исследовательская станция

lander spacecraft - спускаемый аппарат; посадочная ступень

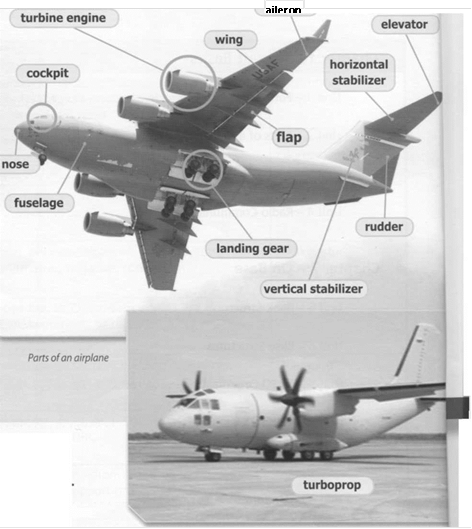
rover spacecraft - планетоход (в зависимости от контекста может переводиться как луноход и марсоход)

observatory spacecraft - разведывательный космический корабль

communications & navigation spacecraft – КК (спутник) связи и навигации

# UNIT I PARTS OF AN AIRPLANE AND HELICOPTER

**Text 1. PARTS OF AN AIRPLANE**



The differences between **small fighters** and **large cargo planes** are obvious. But all **fixed-wing aircraft** like jets and airplanes require the same basic structures.

Every airplane has **wings** attached to the **fuselage**. The **wings** on the **fuselage** create lift. The cockpit sits behind the nose, and the tail supports the vertical and horizontal stabilizers. **Rudders, ailerons and elevators** control direction. **Flaps** provide lift. Aircraft roll on **landing gear** during **takeoff** and **landing**. Landing gear usually has wheels so the pilot can drive the aircraft along the ground. An aircraft needs strong **tires** to support its weight.

But not all airplanes have the same type of engine. Most modern **military airplanes** have **turbine engines**. **Medium-sized transports** have **turboprops.** Bigger, faster **jets**, on the other hand, usually need more powerful **gas turbines** (ГТД).

**Text 2. PARTS OF AN AIRPLANE**

**To control an aircraft movement you need elevators** to guide an aircraft during **takeoff** and **landing**. **Ailerons** turn an aircraft left and right and roll it. A **rudder**keeps turns **smooth**.

Pilots **adjustflaps** to change the force produced during the flight. Increased **air resistance** on a spoiler helps **reduce** speed. During landing, **slats** along the wings and **outboard slats** at the **wing tips** also slow an aircraft.

Stabilizers keep the pilot in control during the flight. The horizontal stabilizer maintains **up-and-down steadiness***.* Unwanted **side-to-side movement** is minimized with the vertical stabilizer. **Winglets** at the tip of the wings also keep an aircraft steady***.***

**Study the words:**

adjust flaps - выпускать/убирать закрылки

aileron – элерон

aircraft movement - движение воздушного судна

air resistance - аэродинамическое сопротивление, сопротивление воздуха

cargo plane - грузовое воздушное судно

elevator - руль высоты

engine – мотор; машина, двигатель

fighter - самолёт-истребитель

fixed-wing aircraft - самолёт с крылом неизменяемой геометрии

flap - закрылок; щиток

fuselage - корпус, фюзеляж

jet - реактивный самолёт

landing - посадка, приземление

landing gear - шасси

lift - подъёмная сила

military airplane - военный самолёт

nose – носовая, передняя часть

outboard slats -внешние предкрылки

powerful gas turbines – ГТД

reduce - сокращать, уменьшать

rudder ['rʌdə] - руль направления

slats –предкрылки

side-to-side movement - движение из стороны в сторону

smooth [smuːð] - гладкий, ровный

support - поддержка; помощь, поддерживать

tail - хвостовое оперение, хвост

take off - взлететь

tire - шина; покрышка

turbine engine - газотурбинный двигатель

turboprops - турбовинтовой двигатель

up-and-down steadiness - вертикальная устойчивость

vertical and horizontal stabilizers – вертикальные и горизонтальные стабилизаторы

weight - вес; масса

wheel - колесо

wing – крыло

Winglets - вертикальные законцовки крыла

wing tips - конец крыла

1. **Answer the questions.**
2. What are some of the parts of a fixed wing aircraft?

2. What part of an airplane is involved in landing?

**2. Read the training manual on aircraft parts. Then, mark the following statements as true (T) or false (F).**

1 \_ Ailerons guide an aircraft during takeoff.

2 \_ A spoiler helps a pilot fly faster.

3 \_ Pilots need stabilizers to prevent unwanted movement.

**3. Read and choose the correct answers**

1 Which structure is located at the tail of an airplane?

A the cockpit

B the landing gear

C the vertical stabilizer

D the turboprops

2 The following parts all control direction, EXCEPT the...

A fuselage.

B ailerons.

C elevators.

D flaps.

3 What does the passage say about turboprops?

A Heavier military airplanes use them.

B They attach to the vertical stabilizers.

C They are not used for large transports.

D They create higher speeds than turbines.

**3. Match the definitions (A-H) to the correct parts of an airplane (1-8).**

|  |  |  |  |
| --- | --- | --- | --- |
|  | \_\_ fuselage | A | the rear part of an aircraft |
|  | \_\_ turboprop | B | a part that increases force |
|  | \_\_ landing gear | C | the central part of an aircraft's body |
|  | \_\_ flap | D | a part that prevents sideways motion |
|  | \_\_ cockpit | E | the part of an aircraft where pilots sit |
|  | \_\_ tail | F | the structure that supports an aircraft |
|  | \_\_ nose | G | the front part of an aircraft |
|  | \_\_ vertical stabilizer | H | an aircraft engine that uses a propeller |
|  | \_\_ tire | I | an engine that uses exhaust for propulsion |
|  | **\_\_** turbine engine | J | a rubber part around a wheel |

**4. Complete the sentences with the terms below.**

***Rudder elevator turbine engines fixed-wing ailerons wings horizontal stabilizers***

1 The \_\_\_\_\_\_\_\_\_\_\_\_\_\_ roll planes from side to side.

2 The pilot can't turn because the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is broken.

3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ move planes at high speeds.

4 Aircraft need \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to keep the nose level.

5 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ create lift and store fuel.

6 The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ planes up and down.

7 Airplanes are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ aircraft.

**5 Choose the sentence that uses the underlined part correctly**

1 A The plane needs wheels to land safely.

B The damaged tire caused the pilot to lose control during flight.

2 A Airplanes and jets are examples of fixed wing aircraft.

B A jet gets its propulsion from the fuselage.

3 A The cockpit is usually located at the tail of an aircraft.

В Wings provide the lift needed for a plane to fly.

**6 Read the sentence and choose the correct word.**

1 The *spoiler / horizontal stabilizer* prevents unwanted up-and-down movement.

2 The pilot used *the rudder / elevator* to bring the plane down to the runway.

3 *Flaps / Winglets* allow the pilot to increase the amount of force produced.

4 Slow down during landing by adjusting the *vertical stabilizers / slats.*

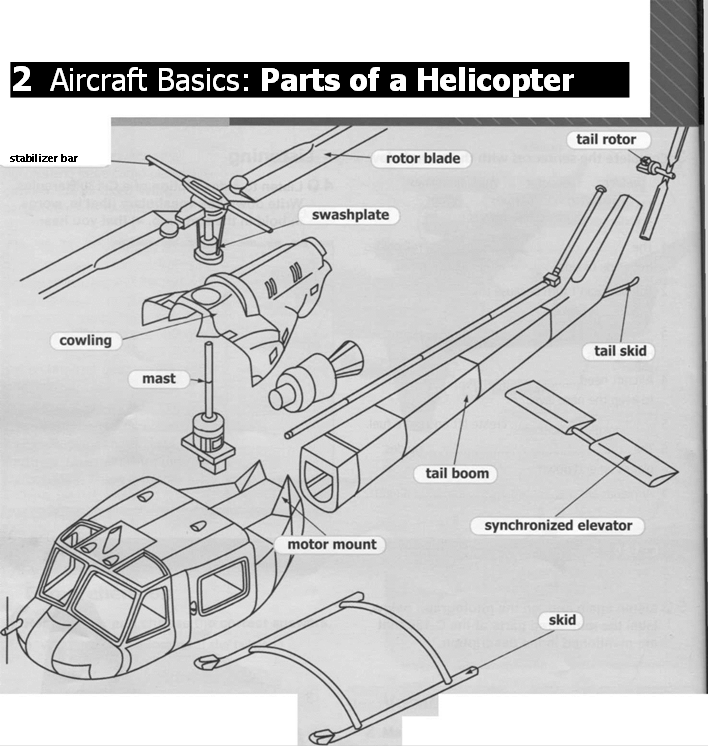
**7 Place the correct words and phrases from the word bank under the correct headings.**

**Winglet vertical stabilizer spoiler rudder outboard slat aileron**

|  |  |  |
| --- | --- | --- |
| **Steering** (***рулевое управление)*** | **Speed** | **Steadiness** |
|  |  |  |
|  |  |  |
|  |  |  |

**Text 3. PARTS OF A HELICOPTER**

Troops must move in or out of dangerous combat zones quickly. No aircraft does that better than helicopters. The design of **rotary-wing aircraft** allows them to take off or land in almost any area. The **mast** rotates two or **more rotor blades** which lift the helicopter straight up. **Swashplates** control the flight angle, and **synchronized elevators** stabilize it. The tail rotor and **stabilizer bar** provide the pilot with precise control. **Skids** or landing gear support the helicopter when it lands to load or unload troops and supplies. **Tail skids** protect the **tail boom** during landings. The **motor mount** holds the engine in place, and the **cowling** covers the engine to protect it from damage in flight or combat. It also redirects airflow.



**Study the words:**

airflow - воздушный поток

combat - бой, сражение

combat zone - зона боевых действий

cowling ['kaulɪŋ] - капот двигателя, обтекатель

damage - дефект, поломка

design - конструкция

flight angle - угол атаки

helicopter - вертолёт, геликоптер

mast - вал несущего винта

motor mount - 1) кронштейн (крепление) двигателя

2) монтажные опоры двигателя

precise control - точное управление

rotary-wing aircraft - винтокрылый летательный аппарат

rotor blades - лопасть несущего винта (вертолёта)

skids - полозковое шасси (вертолёта)

stabilizer bar - стержень стабилизатора

straight up - прямо вверх

supplies - запасы

swash plates - автомат перекоса

synchronized elevators - синхронизируемый руль высоты (стабилизатор)

tail boom - хвостовая балка

tail rotor - рулевой винт (вертолёта)

tail skids - хвостовой костыль

to cover - накрывать, закрывать

to damage – повреждать

to load - грузить

to redirect - изменять направление

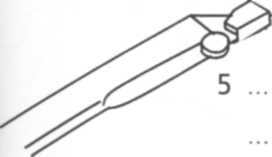
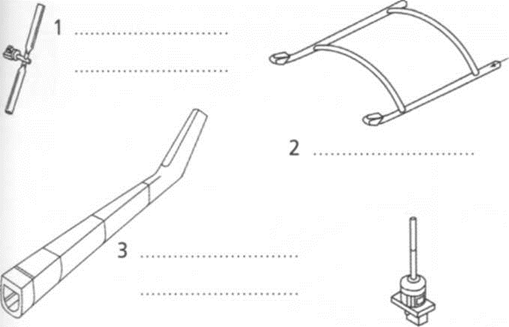
to rotate - вращаться

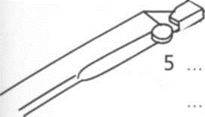
to stabilize - стабилизировать, делать устойчивым

to unload - разгружать; выгружать

troop - войска, армия, вооружённые силы

**1 Label the parts of a helicopter shown below.**





**2 Match the definitions (A-G) to the correct terms (1-7) for parts of a helicopter.**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | \_ cowling | A | a part that adjusts the pitch of rotor blades |
| 2 | \_ tail skid | B | a part that attaches an engine to the frame |
| 3 | \_ rotary-wing | C | a part that supports the tail boom |
| 4 | \_ swashplate | D | a part that reduces external forces impact on helicopter movement |
| 5 | \_ motor mount | E | a part of the tail boom that stabilizes pitch |
| 6 | \_ stabilizer bar | F | an aircraft that uses spinning blades to create lift |
| 7 | \_ synchronized elevator | G | a part that covers an engine |

**3. Complete the conversation with the following words and word-combinations.**

**one of the tires pretty difficult strong enough take off the problem when we landed in bad weather**

Pilot: Jamie, are we ready to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Co-pilot: Almost, Glen. But I'm concerned about \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ though.

Pilot: Really? What's \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Co-pilot: It looks a little crooked. I think we damaged it \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ yesterday.

Pilot: Oh, I remember. That was \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Co-pilot: I don't think our tires were\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to handle that.

Pilot: Hmm. We'd better take a look at it before we get started.

**4. Use the conversation from Task 3 to complete the pilot's damage report.**

**Pilot's Damage Report**

**Aircraft**: JetWing 579

**Part damaged**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Cause of damage:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Replace damaged part?** Y / N

**5. Complete the conversation with the following words and word-combinations.**

**Aileron elevator not quite right rudder steering that’s right**

Instructor: Okay, Henry. Tell me what parts are important for \_\_\_\_\_\_\_\_\_\_\_\_\_\_ an aircraft.

Student: Well, you 2\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_to move up and down.

Instructor: Good. What else?

Student: Um, let's see. The 3\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ allows the aircraft to roll from side to side.

Instructor: You're close, but that's 4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ . Try again.

Student: Oh, of course. It's the 5 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .that controls rolling movements.

Instructor: 6 \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_ .And what does the rudder do?

Student: The rudder helps the pilot turn the aircraft smoothly.

**6. Use the conversation from Task 8 to complete the lesson notes.**

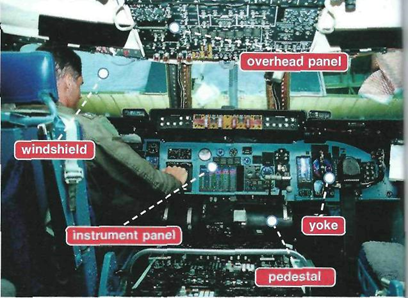
|  |  |
| --- | --- |
| **Aircraft part:** | **Movement controlled:** |
| 1 |  |
| 2 |  |
| 3 |  |

**7. Translate from Russian into English:**

1. Самолет - это летательный аппарат, предназначенный для перемещения различных грузов и людей по воздуху.
2. Основные **элементы конструкции самолета:** фюзеляж, крыло, хвостовое оперение, взлетно-посадочное устройство, силовая установка.
3. Крыло создаёт подъемную силу.
4. На крыле расположены органы управления для поворота - элероны, закрылки и предкрылки.
5. Хвостовое оперение - важный элемент конструкции самолета. Состоит из двух частей: киль и стабилизатор.
6. Киль стабилизирует направление, а стабилизатор – высоту.
7. Руль направления изменяет курс полета, а руль высоты на стабилизаторе изменяет высоту.
8. Шасси используется на взлете, посадке и рулении.

**UNIT 2 THE COCKPIT**

**Cockpit Basics**

****

A **cockpit** or **flight deck** contains the controls needed for flying the aircraft. Here, you will find **rudder pedals** for **steering** Always check whether to control movement with a **side stick, center stick**, or traditional **yoke***.* Power controls like the **throttle** are typically between the pilot and **co-pilot** on the **pedestal***.*

Learn about your **instrument panel**. Most aircraft have an **overhead panel** above the **windshield***.* This area often includes the cabin's climate controls*.*

**Study the words:**

center stick - ручка управления с центральным расположением

climate controls - система кондиционирования воздуха

cockpit; flight deck - кабина экипажа

instrument panel - приборная доска

overhead panel - верхняя панель

pedestal - центральный пульт

power controls - управление двигателем

rudder pedals - педали руля направления

side stick - боковая ручка управления

steering - управление

throttle - рычаг останова двигателя

windshield - лобовое стекло

yoke - ручка управления, штурвал

**1 Answer the questions.**

1 What are the two main panels in a cockpit?

2 What is the yoke used for?

**2 Read the training manual entry on cockpits. Then, choose the correct answers.**

1 What is the purpose of the passage?

A to outline a checklist for cockpit inspections

В to compare types of cockpit controls

С to give instructions for flying an aircraft

D to introduce features of a cockpit

2 Which feature does NOT control flight movement?

A center stick

В r rudder pedals

С overhead panel

D throttle

3 What can you infer about a yoke?

1. It is a feature of some aircraft, but not all
2. It is superior to a center stick
3. It is typically located to the side of a pilot
4. It is an alternative to a throttle

**3 Write a word that is similar in meaning to the underlined part.**

1 Large, commercial jets often have a W-shaped control for adjusting pitch *(тангаж).* \_\_ \_\_ ke

2 To turn the nose to the right, press the right control for turning the aircraft.

\_\_ud\_ \_ p\_ \_al

3 We inspected all the controls in the section of an aircraft where the pilot sits.

\_ о \_ к \_ it

4 Speed up by adjusting the part that controls fuel to the engine.

t\_ \_ ot \_ \_e

5 Pilots of smaller aircraft often prefer a pitch control located to the side of the pilot. s \_ \_e \_t\_ ck

**4 Choose the correct word for each blank.**

1 **flight deck/instrument panel**

**A** Check the \_\_\_\_\_\_\_\_\_\_\_\_\_to verify our heading *(курс).*

**В** The co-pilot left the\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to inform the crew of the route change.

2 **pedestal** *(пульт)/***center stick**

**A**  Both the pilot and co-pilot can reach controls on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**В** This aircraft has a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to control its movement.

3 **overhead panel/windshield**

**A**  The de-icing control is located on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**В** We couldn't see anything through the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because of the heavy clouds.

# UNIT 3 FLIGHT INSTRUMENTS

****

1.5.1 Illustration “Cockpit Front View: Location of Flight Instruments”

**The layout of the Basic Six follows the T Arrangement.**

ATTITUDE INDICATOR - This unit is reliable through 60 degrees of climb and dive.

HEADING INDICATOR - This unit is reliable through 55 degrees of climb and dive.

AIRSPEED INDICATOR - Speeds appear in knots per hour.

ALTIMETER - The short needle indicates thousands of feet. The long needle indicates hundreds of feet.

VERTICAL SPEED INDICATOR - This unit indicates rate of climb or descent up to 2000 feet per minute.

COURSE DEVIATION INDICATOR - The programmed sensitivity is 5 nautical miles.

TURN COORDINATOR - Model V-56C uses a 2-minute turn rate instrument.

SINGLE-NEEDLE RADIO MAGNETIC INDICATOR - Model V-56C uses a single-needle instrument to indicate direction.

MAGNETIC COMPASS

**Study the words:**

airspeed indicator – индикатор воздушной скорости

altimeter – альтиметр, высотомер

attitude indicator - индикатор положения (ЛА)

course deviation indicator - индикатор бокового уклонения (сноса, скольжения)

heading indicator - индикатор курса

magnetic compass - магнитный компас

needle - стрелка (компаса, измерительного прибора, часов)

programmed sensitivity - чувствительность; разрешающая способность

rate of climb or descent up – скорость набора высоты

reliable - надёжный

single-needle radio magnetic indicator – однострелочный индикатор автономной радионавигационной системы ЛА

turn coordinator – указатель поворота

unit - агрегат, блок, секция, узел, элемент

vertical speed indicator - указатель скорости набора высоты; вариометр

**Единицы скорости и расстояния:**

foot-feet - фут (единица длины; = 30,48 см)

knot - узел (единица скорости, используемая в навигации = 1,87 км в час)

nautical mile - морская миля (= 1853,6 м)

**1 Answer the questions.**

1 What is the name for the primary flight instruments?

2 What are some important primary flight instruments?

**2 Read the manual on flight instruments. Then, choose the correct answers.**

1 What is the purpose of the manual?

A to specify when to replace flight instruments

В to describe common flight instrument errors

С to list technical details of flight instruments

D to show where flight instruments are located

2 Which of the following statements is NOT true?

A The aircraft has a single-needle radio magnetic indicator.

В The heading indicator is reliable through a set degree of climb.

С The course deviation indicator has a programmed sensitivity.

D The plane does not have a magnetic compass.

3 Which instrument indicates a plane's direction?

A airspeed indicator

В radio magnetic indicator

С course deviation indicator

D attitude indicator

**3 Match the words (1-8) with the definitions (A-H).**

|  |  |  |  |
| --- | --- | --- | --- |
|  | \_\_ altimeter |  | a flight instrument that shows a plane's speed |
|  | \_\_ Basic Six |  | a flight instrument that shows a plane's position relative to its course |
|  | \_\_ turn coordinator |  | a flight instrument that shows a plane's direction relative to magnetic north |
|  | \_\_ airspeed indicator |  | a flight instrument that shows a plane's altitude |
|  | \_\_ heading indicator |  | a flight instrument that uses radio and magnetic information to show a plane's direction |
|  | \_\_magnetic compass |  | flight instruments that make up the standard flight panel |
|  | \_\_ radio magnetic indicator |  | a flight instrument that shows how fast and in what direction a plane is turning |
|  | \_\_ course deviation indicator |  | a flight instrument that shows a plane's direction relative to magnetic north during level flight |

**4 Read the sentence pair. Choose where the words best fit the blanks.**

**1. vertical speed indicator / T arrangement**

A In the\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the altimeter is below the plane/the airspeed indicator.

В According to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ was climbing very fast.

**2 flight instruments / attitude indicator**

A During bad weather, pilots navigate using \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

В The pilot kept the aircraft level with the horizon by keeping his eye on the\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**5** **Translate from Russian into English:**

1. На приборной доске установлены основные приборы навигации: индикатор воздушной скорости, высотомер, индикатор курса, магнитный компас, индикатор положения, индикатор бокового уклонения, указатель скорости набора высоты, указатель поворота, однострелочный индикатор автономной радионавигационной системы ЛА.

2. Кабина экипажа расположена в передней части самолета. В ней расположены приборная доска (панель), центральный пульт, штурвал, боковая ручка управления, рычаг останова двигателя, педали руля направления.

# UNIT 4 RADIO COMMUNICATION

**Radio communication** is a vital part of every mission. A delay or miscommunication can be the difference between life and death. As a result, **radio operators** use code words to avoid errors and express information quickly. For example, the **phonetic alphabet** uses the word "Charlie" to represent the letter "C". This prevents the letter "C" from being misunderstood as a "B" or "D".

**Prowords** provide quick ways to communicate longer messages. **"Roger", "over", "say again"** and **"wilco"** are common prowords that shorten communications. Still, some prowords are intentionally longer. For example, **"affirmative"** and **"negative"** are easier to understand through a weak radio **connection** than "yes" and "no."

**Study the words:**

radio operator – бортрадист (радиооператор)

radio communication - радиосвязь

affirmative - положительный, утвердительный

code word - кодовое слово

delay - задержка

intentionally - нарочно, умышленно, намеренно

mission - 1) полёт 2) (боевая) задача; задание

negative - отрицательный, негативный

phonetic alphabet - фонетический алфавит

to prevent - предотвращать, предупреждать, мешать, препятствовать

proword - условное слово

to shorten - укорачивать; сокращать

to avoid errors – избегать ошибок

vital - важный, насущный

weak - слабый

**Phonetic Aviation Alphabet**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Letter** | **Word** | **Spoken** | **Letter** | **Word** | **Spoken** |
| A | Alfa | Al fah | N | November | No vem ber |
| В | Bravo | Brah voh | O | Oscar | Oss cah |
| С | Charlie | Char lee | P | Papa | Pah pah |
| D | Delta | Dell tah | Q | Quebec | Keh beck |
| E | Echo | Eck oh | R | Romeo | Row me oh |
| F | Foxtrot | Foks trot | S | Sierra | See air rah |
| G | Golf | Golf | T | Tango | Tang go |
| H | Hotel | Ho tell | U | Uniform | You nee form |
| 1 | India | In dee ah | V | Victor | Vik tah |
| J | Juliett | Jew lee ett | W | Whiskey | Wiss key |
| К | Kilo | Key loh | X | Xray | Ecks ray |
| L | Lima | Lee mah | Y | Yankee | Yang key |
| M | Mike | Mike | Z | Zulu | Zoo loo |

**Good Communicators Make Safe Aviators**

**Follow** these **ICAO guidelines** when communicating by radio:

* Always use **established** ICAO **prowords** such as "roger" and "wilco" for **consistency** of communication.
* Don't say "yes" and "no" in radio communications. "Affirmative" and "negative" are much clearer. Also, "can't" **sounds** very **similar** to "can." Use "**unable**" instead to avoid confusion.
* Remember to spell call signs using the aviation phonetic alphabet. Similar-sounding letters like "B" and "D" are easily confused. Use "Bravo" and "Delta" instead.
* Quick communication is especially important in emergencies. Use "pan" for urgent situations and reserve "mayday" for true emergencies. This saves time and prevents false alarms.

**Study the words:**

call signs - позывной сигнал

confusion - путаница

consistency of communication – логичность связи

emergency - критическое положение; авария

established - установленный

false alarm - сигнал ложной тревоги

guideline - инструкция

ICAO (International Civil Aviation Organization) ИКАО - Международная организация гражданской авиации

instead - вместо

similar - сходный; похожий

to follow - следовать

to sound - звучать

unable - неспособный

urgent - срочный, неотложный

**1. Answer the questions.**

1 How is talking on an airplane's radio different from usual communication?

2 How would a pilot say ***О W*** using the phonetic alphabet?

**2. Read the poster on radio communication. Then, mark the following statements as true (T) or false (F).**

1 \_\_\_\_ The guidelines recommend that pilots use "yes" instead of affirmative" because it is shorter.

2 \_\_\_\_ The poster encourages aviators to create new prowords.

3 \_\_\_\_ Using the proper words for emergencies prevents false alarms.

**3 Match the words (1-6) with the definitions (A-F).**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | \_\_\_ pan | A | a proword meaning "no" |
| 2 | \_\_\_ wilco | В | a code that identifies an aircraft |
| 3 | \_\_\_ callsign | С | a proword indicating urgency |
| 4 | \_\_\_ unable | D | a proword meaning the speaker will comply |
| 5 | \_\_\_ negative | E | a proword meaning "yes" |
| 6 | \_\_\_ affirmative | F | not having the ability to comply with instructions! |

**4 Read the sentence pair. Choose where the words best fit the blanks.**

**1. mayday/roger**

A.The pilot said “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_” to indicate that he received the message.

В. Prepare to send help when you hear the call “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”.

**2. ICAO / phonetic alphabet**

A. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ creates guidelines for communicating by radio.

В. New pilots must learn to use the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when speaking.

|  |  |
| --- | --- |
| **COMMON PROWORDS** | |
| **PROWORDS** | **MEANING** |
| Acknowledge | Let me know that you received this message. |
| Affirmative | Yes - Permission granted - You are correct |
| Negative | No - Permission denied - You are incorrect |
| Say again | I did not hear that; repeat the message |
| Over | I have finished this part of the message; I expect a response |
| Roger | I received and understood your message |
| Wilco | I will comply with that order |
| Stand by | Wait for instructions or more information |
| Go ahead | You may begin your message now |

**5 Complete the communications with the prowords below.**

***say again wilco roger over affirmative negative***

Pilot: Tower, this is HC-15. What heading should we take? (1) \_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Control Tower: HC-15, take heading zero one seven.

Pilot: (2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ tower, I missed that. Did you say heading zero seven?

Tower: (3) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , HC-15.1 say again, heading zero one seven.

Pilot: (4) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that, Tower, zero one seven. Are we cleared to land?

Tower: (5) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .You are cleared for runway one seven. Reduce speed to 300.

Pilot: (6) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Reducing speed now.

**6 Complete the word or phrase that is similar in meaning to the underlined part.**

1 Pilots must repeat themselves often when there is a poor ***link between radios***.

c \_ \_ \_e \_ \_ \_o\_

2 Use ***sets of words that represent common messages*** when speaking on the radio.

\_ \_o\_ \_ r \_ s

3 "Tango" means "T" in ***the set of words that represent letters***.

\_h\_ \_ e \_ \_ c \_l \_ h \_ \_ e\_

4 ***The transfer of information*** between airmen is needed to organize takeoffs and landings.

\_ a \_ \_ \_ c \_ \_ \_ u \_ \_ \_ a \_ i \_ n

# Unit 5 AIR TRAFFIC СОNTROL (ATC) 1

**Attn: Glenview Airport seeks АТС controller**

Glenview Airport **air traffic control facility seeks** a new **controller**. This individual will work in the **local control** **office**. **Applicants** must have **significant experience** in piloting and/or **air traffic control**, though some training will be provided. Position will start as soon as the selected applicant passes a **qualifying exam**. **Responsibilities** include:

* **directing** aircraft in landing and takeoff
* providing **clearance delivery** and **maintaining** **minimum** **separation** on **runways**
* studying **radar** **to stay up-to-date** with **local air** **traffic**
* **noting** aircraft positions and directing pilots to maintain minimum **vertical separation, lateral separation,** and **longitudinal separation**
* **drafting** **NOTAMs** to provide local pilots with informational **advisories**
* maintaining airport and airspace **safety** at all times
* preventing **collisions** and other aircraft **accidents**

**To apply**, send a **resume** and three **references** to [adams4@glenviewair.com](mailto:adams4@glenviewair.com).

**Study the words:**

accident - катастрофа; авария

advisory - информационное сообщение, сводка, предупреждение об опасности

air traffic control facility - авиадиспетчерская служба ,управление воздушным движением

applicant - кандидат, кандидатура, претендент; соискатель

clearance delivery - диспетчерское разрешение на полёт по маршруту

collision - столкновение

controller - диспетчер

drafting - составление (сводок, таблиц)

lateral separation - поперечное эшелонирование;

local air traffic – местное воздушное сообщение

local control office - пункт управления посадкой и взлётом

longitudinal separation - интервал продольного эшелонирования

maintain minimum separation - удерживать минимальное эшелонирование

NOTAM (Notices to Airmen) - инструкция пилоту

qualifying exam - квалификационный экзамен

radar (Radio Detecting And Ranging) - радиолокатор, радар

references - рекомендация; поручительство

responsibility- ответственность

runway - взлётно-посадочная полоса, ВПП

safety - безопасность

significant - значительный, важный, существенный

to apply - обращаться с просьбой, (письменным) заявлением

to direct - управлять

to note – обозначать, отмечать; указывать

to seek (sought) - искать

to stay up-to-date - следить

vertical separation - интервал вертикального эшелонирования

**1 Answer the questions.**

1 Who is responsible for air traffic control?

2 What are two different types of separation?

**2 Read the job description. Then, choose the correct answers.**

1 What must an applicant do before starting position?

A. take a training course

В. read a radar display

С. Draft a NOTAM

D. pass an exam

2 What is the purpose of a NOTAM?

A. to provide radar updates

В. to prevent collisions

С. to pass on information

D. to ensure lateral separation

3 Which of the following is NOT a responsibility of the listed position?

A. advising controllers

В. directing aircraft

С. maintaining separation

D. drafting NOTAMs

**3 Write a word that is similar in meaning the underlined part.**

1 Having a lot of aircraft flying in a region can keep an air traffic controller very busy.

\_ \_r \_ \_a \_ f\_ \_

2 The local controller wrote an advisory about the closed runway.

\_ \_ T \_ \_

3 АТС must always ensure that the smallest acceptable separation exists between two planes. \_ i \_ \_m \_ \_

4 The new controller wasn't sure how to give instructions to a plane that needed to land. \_ \_ r \_ \_ \_

5 Make sure that the aircraft maintain different elevations.

\_ \_ \_ t \_ \_ \_ \_e \_ \_ \_ \_ t\_ \_n

1. **Read the sentence pair. Choose where the words best fit the blanks.**
2. ***longitudinal/lateral***

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_ separation means that two planes flying parallel routes maintain horizontal distance.

В \_\_\_\_\_\_\_\_\_\_\_\_\_\_ separation is used when two planes are flying the same route without any other type of separation.

2. ***controller/air traffic control***

A The new \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ starts work on Monday.

В. Working in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can be extremely stressful.

**3 *radar/local control***

A. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ controls planes that are landing, taking off, and taxiing.

В. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ tracks the positions of aircraft.

4 ***clearance delivery/collisions***

A. Controllers work to prevent \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at airports.

В. A controller always has to provide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ before a plane can land.

**5 Translate from Russian into English:**

1. Организация воздушным движением (ОВД) — обеспечивает порядок и безопасность полетов воздушных судов в воздушном пространстве и обмен информацией между авиадиспетчерами и экипажами воздушных судов с использованием средств радиосвязи, аэронавигации и ЭВМ.

# Unit 6 AIR TRAFFIC CONTROL 2

A military **airfield** is a **hectic** and dangerous place. Aircraft loaded with weapons and **troops** take off and land at high speeds. Someone must direct aircraft to **avoid accidents**. This is the job of an **Air Traffic Controller (ATC).** An ATC **plots positions** of aircraft on radar. They **compute altitudes** and **airspeeds** of **incoming** planes. They constantly **relay** information to pilots in the air and pilots **taxiing** on the ground. This **maintains** clear **runways** and **taxiways** in order to avoid **collision**s. ATCs must be able to **handle incredible** **stress.** Because their job is so critical, they receive training in order to become **certified.**

**Study the words:**

military airfield – военный аэродром

hectic place – беспокойное место

troops - войска, воинские части

avoid accidents – избегать аварий

Air Traffic Controller (ATC) - авиадиспетчер

plot positions - прокладывать курс

compute altitude – вычилять высоту

incoming – прилетающий, прибывающий

relay information - передавать информацию

taxiing - рулёжка, выруливание

maintain - поддерживать, сохранять

runway – ВПП

taxiways - полоса; рулежная дорожка

collision – столкновение

handle stress – справляться со стрессом

incredible – немыслимый

become certified – получить свидетельство

**1. Read and complete the list of ATC responsibilities and qualifications.**

|  |  |
| --- | --- |
| Responsibilities | 1 Direct |
|  | 2 Compute |
|  | 3 Relay |
| Qualifications | 1 Be |
|  | 2.Receive |
|  | 3 Handle |

**2 Choose the correct word for each blank.**

1. *direct/plot*

A. ATCs \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ pilots during take off.

B. ATCs \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ each aircraft's position.

2. *certify/maintain*

A. ATCs \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ an organized airfield.

B. ATCs pass tests to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that they are qualified.

3. *relay/taxi*

A. Pilots \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ planes on the ground.

B. ATCs \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ information to pilots.

**3 Match the definitions (A-G) to the correct words (1-7).**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | \_\_ stress | A | a surface for landing and taking off |
| 2 | \_\_ compute | B | physical, mental, or emotional strain |
| 3 | \_\_ altitude | C | a measurement of height |
| 4 | \_\_ airspeed | D | the speed of an aircraft in moving air |
| 5 | \_\_ATC | E | to find answers through calculation |
| 6 | \_\_ airfield | F | a person who directs aircraft |
| 7 | \_\_ runway | G | an area with multiple runways |

# UNIT 7 DISTANCE AND SPEED

**TYPES OF AIRSPEED**

There are many types of **airspeed**. Remember that **indicated airspeed** is what your instrument reads. **Calibrated airspeed** is corrected for errors and is more accurate. **True airspeed** and **equivalent airspeed** are also different. True airspeed refers to the air around of the aircraft. Equivalent airspeed refers to the air at sea level. **Groundspeed** is speed relative to the ground. Always know which type of airspeed you are using.

Be aware of different units of measurement. A **knot** measures speed. A **nautical mile** measures distance. Some places use **mph** (miles per hour) and others use **kph** (kilometers per hour). Always **indicate** your units of measurement.

**Study the words:**

indicated airspeed - индикаторная скорость воздушного потока

calibrated airspeed - приборная скорость

true airspeed - истинная воздушная скорость

equivalent airspeed - индикаторная воздушная скорость

groundspeed - путевая скорость *(скорость воздушного судна относительно земли)*

indicate – указывать

**1 Answer the questions.**

1 What are some measures of speed?

2 What unit is air distance measured in?

**2 Read the chapter on airspeed. Then, choose the correct answers.**

1 What is the main purpose of this chapter?

A to explain how pilots measure airspeed

В to describe different types of airspeed

С to help a pilot calculate airspeed

D to compare different airspeed instruments

2 Which of the following is often inaccurate because it is not corrected for errors?

A calibrated airspeed

В groundspeed

С true airspeed

D indicated airspeed

3 Which of these is NOT explained in the chapter?

A different types of airspeed

В different instruments for reading airspeed

С the difference between indicated airspeed and calibrated airspeed

D different units used to measure airspeed

**3 Fill in the blanks with the words and phrases from the word bank.**

**Airspeed groundspeed knot nautical mile true airspeed equivalent airspeed**

1. The pilot measured his aircraft's speed based on one nautical mile per hour, or one \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. The pilot had to decide which type of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to measure.
3. 1,852 meters is the same as one \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. The co-pilot measured \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to see how fast the plane was moving in relation to the ground.
5. Pilot Rogers used \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to see how fast his craft would be flying at sea level.
6. Pilot Stevens measured \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ based on the air immediately around his aircraft.

**4 Read the sentence pair. Choose where the words best fit the blanks.**

1 **indicated / calibrated**

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ airspeed is usually accurate because it is corrected for errors.

В \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ airspeed is not always accurate because it is not corrected for errors.

2 **mph / kph**

A A measurement that is based on miles is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

В A measurement that uses kilometers is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**5 Translate from Russian into English:**

1. Относительно земли самолёт перемещается с так называемой путевой скоростью
2. Истинная скорость используется не для безопасного пилотирования самолёта, а для навигации.
3. Приборная скорость – скорость, которую показывает указатель скорости
4. При пилотировании и навигации самолетов различают следующие скорости полета: истинную воздушную, путевую, вертикальную, относительную истинную воздушную скорость, приборную скорость, индикаторную земную скорость, индикаторную скорость.
5. Самый первый гражданский самолёт «Илья Муромец» имел скорость полёта всего лишь в 105 километров в час.
6. Скорость пассажирских самолётов превысила рубеж в 800 километров в час.
7. При отсутствии ветра истинная скорость совпадает с путевой скоростью — скоростью движения самолета относительно земли.

# UNIT 8 **TYPES OF AIRLINERS**

**Airliners: Big and Small**

If you plan to fly for an airline, you'll probably pilot one of two types of **civil aircraft**. One type is a **narrow-body airliner**. These planes have a cabin width of three to four meters and one passenger **aisle**. They are **regional airliners**, also known as **feederliners**. **Regional jets** are similar. The only difference is that they have jet engines instead of turboprops. The smallest narrow-body airliners, **commuterliners**, seat fewer than twenty passengers.

The other major type of civil aircraft is the **wide-body airliner**. Multiple **turbofan** engines **power** these large planes. They have a cabin width of five to seven meters and twin passenger aisles. The seats in wide-body airliners are often separated into **multiple** **cabin classes.**

**Study the words:**

civil aircraft – гражданское воздушное судно

narrow-body airliner – узкофюзеляжный ЛА

wide-body airliner – широкофюзеляжный ЛА

aisle [aɪl] – проход

regional airliners - пассажирский самолёт местных воздушных линий

feederliners - самолёт местных воздушных линий

jets - реактивный самолёт

commuterliner - самолёт местных воздушных линий

turbofan engines [ˈtɜːbəfæn ˈenʤɪn] - турбореактивный двухконтурный двигатель

power - приводить в движение

multiple - разнообразный, различный

cabin class – класс салона

**1 Answer the questions.**

1 What are some types of airliners?

2 What are some different engines that power a plane?

**2 Read the magazine article on types of airliners. Then, mark the following statements as true (T) or false (F).**

1. \_\_\_\_ Feederliners seat fewer passengers than commuterliners.
2. \_\_\_\_ Commuterliners have a single aisle for passengers.
3. \_\_\_\_ A wide-body airliner has multiple aisles, classes, and turbofan engines.

**3 Match the words (1-6) with the definitions (A-F).**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | \_ turboprop |  | a turbine engine that propels an aircraft by driving a fan |
| 2 | \_ turbofan |  | a category of aircraft seats based on price and services |
| 3 | \_ cabin class |  | a passenger aircraft with two passenger aisles and a cabin width of 5 to 7 meters |
| 4 | \_ wide-body airliner |  | an aircraft intended for non-military uses |
| 5 | \_ narrow-body airliner |  | a passenger aircraft with one passenger aisle and a cabin width of 3 to 4 meters |
| 6 | \_civil aircraft |  | a turbine engine that propels an aircraft by driving a propeller |

**4 Read the sentence pair. Choose where the words best fit the blanks.**

**1 commuterliners / feederliners**

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_ can carry twenty passengers or less.

В \_\_\_\_\_\_\_\_\_\_\_\_\_\_ vary in size, but none carry more than 100 passengers.

**2 regional jet / regional airliner**

A The turboprop on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_failed.

В A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ has a turbofan, not propellers.

|  |  |  |  |
| --- | --- | --- | --- |
| ВРЕМЕНА | PRESENT | PAST | FUTURE |
| Вспомогательные глаголы | do / don’t  does /doesn’t | Did  Didn’t | Shall (shan’t)  Will (won’t) |
| МАРКЕРЫ | always - всегда  often - часто  usually - обычно  sometimes - иногда  regularly - постоянно  seldom - изредка  rarely - редко  occasionally - время от времени  from time to time - от времени  never никогда  every day/week/month/ year - (каждый день / неделю /месяц / год),  on Mondays - по понедельникам  at the weekend/ at weekends –  в выходные дни | yesterday - вчера  the day before yesterday - позавчера  last year, month, week - в прошлом году, месяце, неделе  ago - тому назад  an hour ago - час назад  a long time ago - давно  at six o’clock - в шесть часов  the other day - на днях  last Monday -в прошлый понедельник  in 2017 - в 2017 году  during the war - во время войны  when I was nine - когда мне было девять  once - когда-то, некогда; однажды  What time …? во сколько? | tomorrow - завтра  the day after tomorrow - послезавтра  tonight - сегодня вечером,  next year, month, week - в следующем году месяце, неделе,  in a moment - сейчас, через минуту  in a fortnight – через две недели  in five days (hours) - через 5 дней (часов),  I hope - надеюсь  I think - думаю  probably - возможно  certainly - конечно  definitely - бесспорно, непременно  soon - скоро |
| POSITIVE | Every morning I start work at 8.30.  He always climbs to the top. | We walked yesterday.  They ran in the park 2 days ago. | .  They will buy a car in 2 years. |
| NEGATIVE | I don’t start work at 8.30 every morning  He doesn’t always climb to the top. | We didn’t walk yesterday.  They didn’t run in the park 2 days ago. | They will not (won’t) buy a car in 2 years.  I (we) shall not (shan’t) visit her in a fortnight. |
| QUESTION | Do you start work at 8.30 every morning?  Does he always climb to the top? | Did you walk?  Did they run in the park two days ago? | Will you visit her in a fortnight?  Will they buy a car in 2 years? |

***MODULE TEST 1***

**Task 1. Choose the correct variant.**

1. \_\_\_\_\_\_it \_\_\_\_\_\_ a keyboard?
2. Does/have
3. Is/having
4. Did/had
5. Had/had
6. When you\_\_\_\_\_\_\_\_\_\_\_ shopping, click "proceed to checkout". Then, you \_\_\_\_\_\_\_\_\_\_\_an invoice by email.
7. has finished/ will receive
8. have finished/ will receive
9. will finish/ will receive
10. will finish/ receive
11. “We \_\_\_\_\_\_\_\_\_\_new website security features. We\_\_\_\_\_\_\_ a virtual private network with a firewall which\_\_\_\_\_\_ stop cyber-attacks on the network perimeter”, said IT Director
12. are developing /will have /will help
13. develop/have/ will help
14. are developing/ are having/will help
15. developed/ will have /will help
16. I\_\_\_\_\_\_ you while I\_\_\_\_\_\_home on the bus.
17. will call /will go
18. call/ will go
19. will call/ go
20. will call /am going
21. A few years from now the quantity of information available \_\_\_\_\_\_\_\_ enormously.
22. will increase
23. will be increasing
24. will have increased
25. will have been increasing
26. A few years from now people\_\_\_\_\_\_\_\_\_ a device that\_\_\_\_\_\_ animated 3-D computer graphics onto the equipment under repair.
27. will be wearing/ projects
28. will be wearing/ project
29. have worn/ will project
30. will have worn/ will project
31. Don't worry.\_\_\_\_\_\_ you \_\_\_\_\_the cable connections?
32. Did/find
33. Have/ found
34. Do/find
35. Are/finding
36. The solar battery\_\_\_\_\_\_\_\_ the energy of sun rays directly into electric energy.
37. is converting
38. convert
39. converts
40. converted
41. How long\_\_\_\_\_ you \_\_\_\_\_\_\_the iPad?
42. Have/had
43. Have/ been having
44. Did/have
45. Do/have
46. Who \_\_\_\_\_\_\_the electric light bulb in 1879?
47. invented
48. had invented
49. did invent
50. has invented
51. The engineers\_\_\_\_\_\_\_ the wires to the devices when I \_\_\_\_\_\_\_ in.
52. were attaching/ come
53. attached/ came
54. were attaching/ came
55. attached/ was coming
56. A: Where is Jackie today? \_\_\_\_ you \_\_\_\_\_?

B: Yes. She\_\_\_\_\_\_\_\_ on a training course today. She\_\_\_\_\_ about the new database system.

1. Did / know/ is / is learning
2. Do/ know/ is / is learning
3. Do / know/ was / is learning
4. Do / know/is/ learnt
5. A: \_\_\_\_\_\_you \_\_\_\_\_\_your antivirus software recently?

B: Yes, I\_\_\_\_\_\_\_. I \_\_\_\_\_\_\_it last week.

1. Have/ updated/ did/did
2. Did/ updated/ have/did
3. Did/ update/ did/did
4. Have/ updated/ have/did
5. The code behind most web pages \_\_\_\_\_\_ HTML (hypertext markup language), which\_\_\_\_\_\_\_ of commands called tags.
6. is/ consists
7. is/ consist
8. is/will consist
9. is/ consisted
10. Maxwell\_\_\_\_\_\_\_\_forward his theory that the velocity of electric waves in air should be equal.
11. put
12. puts
13. had put
14. will put
15. The Role-playing game (RPG)genre \_\_\_\_\_\_\_strong throughout the entire history of console and PC gaming.
16. had remained
17. has remained
18. remained
19. have remaining
20. We\_\_\_\_\_\_\_ this experiment for two hours before you\_\_\_\_\_\_\_\_**.**
21. have been conducting/ came
22. were conducting/ came
23. conducted/ came
24. had been conducting/ came
25. We \_\_\_\_\_\_\_\_\_\_our experiments by the end of the week.
26. will complete
27. will be completing
28. will have completed
29. will have been completing
30. Cheap PCs \_\_\_\_\_\_\_\_\_ data fast enough to support high-end games.
31. don't process
32. doesn’t process
33. process
34. processes
35. What \_\_\_\_\_\_\_ digital TV \_\_\_\_\_ ?
36. did/provide
37. does/provide
38. is/providing
39. do/provide
40. \_\_\_\_\_\_\_digital TV \_\_\_\_\_\_\_\_ broadcasters to deliver more channels?
41. Does/ allows
42. Does/ allow
43. Did /allow
44. Is/allowing
45. How old \_\_\_\_\_\_\_ the hacker that \_\_\_\_\_\_\_\_\_ into the US defense computer in 1989?
46. was /broke
47. was /breaking
48. is/ breaks
49. was/ had broken
50. Skype on the surface\_\_\_\_\_\_ like software that\_\_\_\_\_ you make free phone calls over the Internet - which it\_\_\_\_\_\_\_.
51. looked/ lets/did
52. look/let/do
53. looks /lets/ does
54. looks/let/\_\_\_\_
55. The toolbar\_\_\_\_\_\_\_ all the navigation icons, which \_\_\_\_\_you go back one page or go forward one page.
56. show/let
57. shows/ let
58. shows/lets
59. show/lets
60. How long\_\_\_\_\_ broadband\_\_\_\_\_\_? Since the late 1990s.
61. had/ existed
62. had been/ existed
63. has/ existed
64. had been/ existing
65. How much\_\_\_\_\_\_\_\_ broadband access\_\_\_\_\_\_\_? It\_\_\_\_\_\_ on which company you choose.
66. does/ cost/ depends
67. do/cost/depends
68. does/ costs/ depends
69. do/cost/depend
70. I \_\_\_\_\_\_\_\_\_the photocopier and \_\_\_\_\_\_\_\_\_\_\_ the plug.
71. turn off/ pull out
72. turned off/ pulled out
73. turned off/ pull out
74. will turn off /pull out
75. It \_\_\_\_\_\_\_ heavily and the rivers \_\_\_\_\_\_\_\_.
76. rained/ were rising
77. was raining/rose
78. was raining/ were rising
79. rained/rose
80. The manager \_\_\_\_\_the police officer that Jason\_\_\_\_\_\_\_\_ for him for two years at that point.
81. told /had been working
82. told/ has been working
83. told/ was working
84. told/ worked
85. iPods \_\_\_\_\_\_\_ a huge success and Apple \_\_\_\_\_\_\_more than 500 million of them around the world.
86. are/sold
87. are/ has sold
88. were/has sold
89. were/sold

**5 Translate from Russian into English:**

1. Самолеты классифицируются по назначению; скорости; числу двигателей; типу двигателей; типу шасси; массе; числу крыльев; размеру фюзеляжа; типу управления; форме взлета.
2. Все самолеты деялся на два крупных вида: военные и гражданские.
3. Широкофюзеляжные самолеты отличаются крупными габаритами, они разрабатываются для перелетов на средние и большие дистанции (некоторые модели преодолевают маршруты протяженностью до 11 000 км). Такие самолеты, как, например, Boeing 747 и А380 имеют две палубы.
4. Узкофюзеляжные лайнеры используются, как правило, для маршрутов малой или средней протяженности. Диаметр фюзеляжа чаще всего не превышает 4-х метров.
5. Региональные воздушные суда перевозят до 100 пассажиров на расстояния, не превышающие 2-3 тыс. км. Примечательно, что могут использоваться как турбовинтовые, так и реактивные двигатели.
6. Местные воздушные суда преодолевают за раз маршруты протяженностью не более 1000 км, в салоне предусмотрено максимум 20 мест.

# UNIT 9 **PARTS OF AIRPORT**

**Welcome to Brighton International Airport!**

***Employee****s must read and* ***adhere*** *to the following rules:*

1 Use employee **hallways** to reach **terminals** and **gates**.

2 Employees need ID badges to enter **customs**.

3 Show ID badges to pass **security checkpoints**.

4 Employees must have Level-M security clearance to enter the **control tower**.

5 Remember, the **runway** and **taxiway** are **restricted** areas. (This doesn't apply to ground controllers and mechanics).

6 All employees must **sign in** when entering the **hangar**.

7 No smoking or open flames near the **fuel depot**.

8 Keep **concourses** clean by disposing of all trash.

*Brighton International thanks you for your co-operation. Your compliance ensures a safer work environment for all!*

**Study the words:**

employee - сотрудник; служащий

adhere to - придерживаться чего-л

hallway – проход

gate - гейт, выход на посадку (в аэропорту)

ID *(от identification)* – идентификация

customs – таможня

security checkpoint - КПП службы безопасности

control tower - командно-диспетчерский пункт (КДП)

restricted - "для служебного пользования" , закрытый

restricted area - режимная зона

sign in – регистрироваться

fuel depot - склад горючего

concourses – вестибюль

compliance - соблюдение установленных требований

**1 Answer the questions.**

1 Which part of an airport does the airplane land on?

2 Where do passengers wait to board their flight?

**2 Read the employee sign. Then, choose the correct answers.**

1 What is the purpose of the sign?

A to inform employees of emergency procedures

В to direct passengers to their flights

С to inform employees of airport policies

D to prevent passengers from entering secured areas

2 Which of the following is NOT stated on the poster?

A Show ID badge to pass security.

В Keep flames away from fuel depot.

С Keeps concourses clean.

D Employees need security clearance to enter customs.

3 Which area requires employees to sign in?

A the hangar

В the fuel depot

С customs

D the control tower

**3 Match the words (1-6) with the definitions (A-F).**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | \_ concourse | A | an area where luggage from foreign destinations is checked |
| 2 | \_ customs | В | a part of a terminal that contains gates |
| 3 | \_ control tower | С | a road that connects part of a runway |
| 4 | \_ restricted | D | not open to the general public |
| 5 | \_ taxiway | E | a place where passengers get off or on a plan |
| 6 | \_ terminal | F | a building in which employees direct air traffic |

**4 Fill in the blanks with the correct words and phrases from the word bank.**

***security checkpoint gate hangar fuel depot***

1 Passengers have to go through the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ before boarding the plane.

2 The plane is stopping at the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to get more gas.

3 The people are waiting at their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to board their plane.

4 The airline moved the damaged airplane to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**5 Translate from Russian into English:**

1. В состав аэропорта входят аэродром, служебно-техническая территория, КДП, склады горюче-смазочных материалов, таможенная служба и пр.
2. Части аэропорта – это магазин беспошлинной торговли, зал ожидания, выход

на посадку.

1. Воздушное судно осуществляет взлет и посадку на ВПП.
2. Я бы хотел зарезервировать один билет до Лондона. Сколько он стоит?
3. Вам необходим билет в один конец или в туда и обратно?
4. – Сколько стоит билет туда и обратно? – 1000 долларов. Как будете оплачивать: наличными или картой? – Вот моя карта.
5. – Место у прохода или у окна? – У окна, пожалуйста
6. У Вас есть ручная кладь?

# UNIT 10 **PEOPLE IN AN AIRPORT**

**Employment Opportunities**

*Thank you for your interest! We are looking to fill the following positions:*

**Glendale Airport Positions:**

• **Airplane mechanic:** Mechanics' responsibilities include checking and solving maintenance issues in planes.

• **Ground controller:** This employee controls air traffic on the taxiways.

• **Customs agent:** Customs agents check goods entering or leaving the country.

• **Security Personnel:** Employee is responsible for monitoring flight passengers and their luggage. (Security screens passengers separately from **pilots, co-pilots,** **and flight attendants**). This person also works as a **screener** when needed.

**Global Air Positions:**

• **Ticket agent:** Ticket agents are responsible for helping customers schedule flights. Ticket agents also greet customers and solve booking issues.

• **Cargo handler:** Cargo handlers load passengers' luggage onto the plane. Candidates must be able to lift fifty pounds.

Send a resume and cover letter to [hrrecruiters@globalair.net](mailto:hrrecruiters@globalair.net)

**Study the words:**

position – должность

responsibility -ответственность

ground controller - наземный диспетчер

air traffic - движение воздушного транспорта

customs agent - сотрудник таможни

Security Personnel - сотрудники служб безопасности

screener - сотрудник досмотра

to screen - проводить досмотр

ticket agent - кассир

schedule flights – зд.:выбирать рейс

booking – бронирование

cargo handler - оператор по обработке багажа/груза

cover letter - сопроводительное письмо

**1 Answer the questions.**

1 Who assists passengers during a flight?

2 Who handles passengers' luggage?

**2 Read the employment opportunities section. Then, mark the following statements as true (T) or false (F).**

1 \_ Ground controllers schedule aircraft maintenance.

2 Security personnel screens employees with passengers.

3 Cargo handlers take care of people's luggage.

**3 Write a word that is similar in meaning to the underlined part.**

1 The employee who booked my flight charged me the wrong amount.

T \_\_ ck \_ \_ \_g\_ nt

2 Because the pilot got sick, the pilot who is second-in-command had to take over.

\_ \_- p \_ lо \_

3 The person who loads the luggage onto the plane accidentally tore the bag.

ca \_ \_о \_ an \_l \_ r

4 The woman asked the employee who is assisting the passengers to bring her a pillow.

fl \_ \_h\_ a \_ \_ end \_ \_t

5 The person who directs flights for take-off and landing sent the plane to the other side of the runway.

g \_ou \_ \_ co\_ t \_ \_ ll \_ r

6 The person who is trained to fly an aircraft was fifteen minutes late.

\_ il \_ \_

**4 Match the words (1-4) with the definitions (A-D).**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | \_ screener |  | a person who ensures that planes run properly |
| 2 | \_ mechanic |  | a person who checks goods leaving/entering a country |
| 3 | \_ customs agent |  | a person who checks passengers' luggage |
| 4 | \_security personnel |  | a person who ensures airports/airplanes are safe |

**5 Translate from Russian into English:**

1. В аэропорту работают летчики и бортпроводники, кассиры, работники на досмотре пассажиров и багажа, паспортный контроль, таможенники, диспетчера, авиатехники, грузчики, IT- специалисты, охранники, служба безопасности, пожарники, медики.
2. В детстве девочки мечтают стать стюардессами, а мальчики пилотами. Но эти профессии связаны с риском для жизни.
3. В аэропортах разных городов России достаточно вакансий на любой вкус.
4. Ни один аэропорт не обходится без службы безопасности. Здесь нужны самые разнообразные специалисты: от тех, кто досматривает багаж и пассажиров до инженера противопожарных система и грамотного IT- специалиста.

# Unit 11 PRE-FLIGHT CHECK

**Pre-flight check notes**

**Pilot:**  Andrea Graham **Co-pilot:** Henry McMullen

**Flight:** SkyBus 357, departing Charlesville 3:17 pm Monday, October 29,

**arriving** Glenview at 6:09 pm Monday, October 29

**Pre-flight** **check completed (time):** 1:45 pm Monday, October 29

Types of checks completed: **cockpit check, emergency equipment check, walk-around, tire check.**

Additional notes by pilot: Aircraft interior is in good condition, including all emergency safety devices and cockpit instruments. However, several **external** problems became clear during the walk-around. General **wear** is notable, such as **scratches** and minor **dents** on the aircraft's surface. More serious examples of **surface damage** were also visible. One **fan blade** on the turbojet is slightly bent. This problem was not noted in the aircraft's **log book** and is probably recent. The bent fan blade could become dangerous if the bend grows more **excessive.** Immediate **maintenance** is suggested to avoid future problems.

**Study the words:**

pre-flight check - пpедполетный осмотp

emergency equipment check – осмотр аварийного оборудования

walk-around check - наружный осмотр ВС

tire check – осмотр шасси

external - внешний, наружный

wear – изнашивание

dent - вмятина

scratch – царапина

fan blade – лопатка компрессора

turbojet - турбореактивный двигатель

log book – бортовой журнал

bent - искривление

**1. Before you read the passage, talk about these questions.**

1 What are some checks that an aircraft's crew must perform before takeoff?

2 Where does the pilot keep a record of flight checks, repairs, and maintenance?

**2. Read the pre-flight check notes. Then, choose the correct answers.**

1. What is the purpose of the notes?

A to assess the aircraft's condition

В to examine recent repairs

С to report an equipment failure

D to explain the cause of an incident

2 Which of the following is NOT in good condition?

A the cockpit instruments

В the emergency equipment

С the log book

D the turbojet

3 What does the pilot recommend?

A updating the log book

В replacing the tires

С repairing the fan blade

D examining the surface again

3. Write a word that is similar in meaning to the underlined part.

1 The damage to the plane's wingtip was more than what is acceptable.

\_ \_ c\_ s \_ \_ \_ e

2 Many checks must be performed before the aircraft takes off.

\_ r \_ - f \_ \_ \_ \_ t

3 It is very important to perform consistent upkeep on an aircraft to avoid future problem. m \_ \_ n \_ \_ \_ a \_ \_ \_

4 The damage was mostly on the outside of the aircraft.

\_ x \_ \_ \_ \_ \_ l

5 The propeller showed signs of damage due the age. \_ \_ a \_

6 The co-pilot forgot to write down the maintenance in the aircraft record.

\_ o \_ b \_ \_ \_

**4 Read the sentence pair. Choose where the words best fit the blanks.**

**1 *surface damage / fan blade***

A The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is part of a plane's propeller.

В Scratching is an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2 ***tire check / cockpit check***

A Perform a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on the front landing gear.

В A \_\_\_\_\_\_\_\_\_\_\_\_\_\_ includes checking the flight instruments.

3 ***emergency equipment check / walk-around***

A The co-pilot completed a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_ to assess damage to the wings.

В Crew members entered the cabin to complete their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**5 Translate from Russian into English:**

1. Перед полетом авиационный техник докладывает пилоту о предполётном осмотре.
2. В предполётный осмотр входит осмотр аварийного оборудования, наружный осмотр ВС, осмотр шасси, внешний осмотр.
3. Перед осмотром материальной части командир самолета обязан просмотреть бортовой журнал, проверить, устранены ли дефекты, выявленные в предыдущем полете, ознакомиться с работами, проведенными техническим составом на самолете.
4. Перед полетом планера необходимо осмотреть крылья, закрылки, элерон и проверить, нет ли повреждения обшивки.

# Unit 12 TAXIING

Pilots often **assume** that taxiing is the easiest part of their journey. Actually, learning to taxi requires extreme care. The pilot must **steer the aircraft** and follow **airport markings**, but there are other responsibilities as well.

Always be aware of an aircraft's speed and how the aircraft is moving. Is the aircraft moving **due to** its own power or **external power**? In the case of **push-back**, a **tug** pushes the aircraft. In other cases, an **airport vehicle** might **tow** the aircraft. When the aircraft is moving on its own, the pilot must **consider thrust**. Thrust causes **forward movement**. Note that **fuel efficiency** is lower when thrust is used on the ground. Therefore, use it **sparingly** while taxiing. Perform checks immediately once the aircraft begins taxiing on its own power. Complete **a brake** check first. Then check that the **tiller wheel** and the nosewheel are working properly.

**Study the words:**

assume - допускать, предполагать

steer the aircraft - управлять воздушным судном (при рулении)

airport markings - маркировка аэропорта

due to - благодаря; вследствие; в результате; из-за

external power - внешний источник питания

push-back - буксировка ВС хвостом вперёд от аэровокзала

tug – буксировщик

airport vehicle

tow – буксировать

thrust – тяга

forward movement - движение вперёд

fuel efficiency - топливная эффективность, топливная экономичность

sparingly - экономно

brake - тормоз, тормозное устройство

tiller wheel – штурвал управления передней стойкой

nosewheel – передняя управляемая стойка шасси

**1 Answer the questions.**

1 What helps a pilot navigate on the ground after the airplane has landed?

2 What is one way an airplane is moved into position without the help of a pilot?

**2 Read the chapter from a pilot's guide. Then, choose the correct answers.**

1 What is the main idea of this chapter?

A the dangers of collisions while taxiing

В the importance of following АТС instructions

С the responsibilities of pilots while taxiing

D the steps of pushing-back and taxiing

2 Which of the following is NOT a way for external power to move an aircraft?

A towing

В thrust

С using a tug

D push-back

3 When should a pilot perform a brake check?

A when the aircraft is attached to a tug

В when the controller gives clearance

С every time the pilot uses reverse thrust

D when the aircraft moves under its own power

**3 Fill in the blanks with the correct words from the word bank.**

**Efficiency steer taxi thrust tow nosewheel**

1 The pilot didn't ….. very carefully and almost caused a collision.

2 Learning to …… can be complicated because there are many checks to perform.

3 The aircraft burned off fuel fast; it had low fuel …….

4 One part of an aircraft that a pilot uses to steer is the ………..

5 Find someone to ……the aircraft over to maintenance.

6 The pilot used ….. . to make the aircraft move more quickly.

**4. Read the sentence pair. Choose where the words best fit the blanks.**

**1 tiller wheel / brake check**

A It’s important to complete a …… taxiing before takeoff.

В The is used for steering.

**2 airport marking / tug**

A We need a ….. to move this aircraft.

В The …… . was unclear because of ice on the runway.

**3 thrust / push-back**

A …… can be used on the ground or in the air.

B ……is a way to move an aircraft away from its gate using external power.

**5 Translate from Russian into English:**

1. Рулежка (маневрирование) самолета, движущегося по аэродрому, осуществляется за счет силы тяги двигателя.
2. Перед взлетом запускаются и прогреваются двигатели самолета, самолет трогается в указанном направлении, затем в соответствии с указаниями диспетчера самолет едет по рулежной полосе (taxiway).
3. Перед выездом на взлетно-посадочную полосу (ВПП) обычно производится остановка, пилоты самолета ожидает разрешения диспетчеров на произведение взлета.

# UNIT 13 JOBS: MAINTENANCE

**In combat**, a flight crew's lives depend on their aircraft. A **mechanical failure** could mean death, so military aircraft require regular **maintenance** to keep them functional and in good condition. Before and after every flight, maintenance personnel perform **preventative inspections.** This assures that aircraft **are fully mission capable (FMC)**. They check even aspect of the aircraft from **fuel** levels to **hydraulic fluid**. If they find a problem, it must be **repaired** before **clearing** the aircraft for flight.

Aircraft maintenance is a great responsibility. It requires mechanical and electrical knowledge. Maintenance personnel also receive special training from expert mechanics before and during every **deployment**. Pilots may get all the glory, but they would have no aircraft without skilled maintenance crews on the ground.

**Study the words:**

in combat – в бою

mechanical failure - механическая неисправность, механический отказ

perform preventative inspections – выполнять профилактический осмотр

fully mission capable (FMC)- в полной боеготовности

hydraulic fluid - жидкость для гидравлической системы

clear - одобрять, разрешать

deployment - дислоцирование; базирование

**1. Read, listen, and mark the statements as true (T) or false (F). Correct the false statements.**

1. Maintenance personnel check aircraft before and after every flight. \_\_\_

2 Maintenance personnel repair problems during flights. \_\_\_\_\_\_

3 Maintenance personnel receive training before deployment. \_\_\_\_\_\_

**2. Complete the word with the same meaning as the underlined part.**

1. What is the *state* of that MH-60? \_o \_ \_ \_ t \_ \_ n

2. The aircraft failed an *evaluation*. i\_ \_p \_ \_t \_ \_ \_

3. Is that rotor *working properly*? f\_ \_c \_ \_ \_n \_ l

4. The rudder needs to be *fixed. \_* e \_ \_ i \_ e \_

**3. Complete the sentences with the terms below.**

***fully mission capable preventative maintenance hydraulic fluid fuel***

1. Aircraft that are not \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will not be cleared for flight.

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ allows pilots to adjust flaps without struggling.

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ inspections ensure that problems are fixed before a flight.

4. Tankers provide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in-flight.

5. Good \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ prevents accidents.

# UNIT 14 JOBS: PARARESCUE

"That others may live": that is the **motto** of the Air Force's Special Operations **pararescue** technicians.

These highly-trained experts, known as **PJs**, conduct personnel recovery operations in combat zones. They often put their own lives at risk. They also perform **search and rescue (SAR)** operations for civilians.

No matter where someone is lost, PJs can reach them. They are even **proficient** in **scuba** diving for underwater operations. Often, troops needing rescue are also **injured**. For that reason, PJs are also excellent **paramedics**. They can **treat** battle wounds and provide **CPR**.

But PJs must be in excellent physical condition. Before becoming a PJ, airmen must pass a difficult test. Only the strongest airmen pass the **Physical Ability and Stamina Test (PAST)**.

**Study the words:**

Pararescue - спасательная операция с выброской парашютистов

motto - девиз, лозунг

technician [tek'nɪʃ(ə)n] – специалист

PJ (Pararescueman) - парашютист аварийно-спасательной службы

search and rescue (SAR) operations - поисково-спасательная операция

proficient [prə'fɪʃ(ə)nt] - опытный, умелый

scuba ['skuːbə] (self-contained underwater breathing apparatus) – акваланг

injured ['ɪnʤəd] – раненый

paramedics - парамедики, спасатели

treat – лечить

CPR (cardiopulmonary resuscitation) - искусственное дыхание

Pass Physical Ability and Stamina Test (PAST) – сдать экзамен на физические возможности и выносливость

**1 Read, listen, and choose the correct answers.**

1. What is the main responsibility of a pararescue technician?

A. engaging in combat

B. providing CPR training

C. conducting personnel recovery

2. What type of actions are PJs NOT trained for?

A. underwater rescues

B. treating injuries

C. flying aircraft

3. What can you infer about PJs?

A. They only conduct military rescues.

B. They must be stronger than most airmen.

C. They can provide long-term medical care.

**2. Match the definitions (A-E) to the correct words (1-5).**

|  |  |  |  |
| --- | --- | --- | --- |
|  | \_\_ pararescue | A | being seriously hurt |
|  | \_\_ paramedic | B | a person trained to treat injuries |
|  | \_\_ PJ | C | a person who conducts difficult personnel recovery missions |
|  | \_\_ proficient | D | the practice of recovering personnel with the use of aircraft |
|  | \_\_ injured | E | being very good at something |

# UNIT 15 JOBS: WEATHER

Enemy fire isn't the only threat that can bring down an aircraft. Poor weather conditions cause crashes as well. But accurate **forecasts** can avoid such accidents. For that reason, the Air Force needs Weather airmen.

Weather Officers have a college degree in **meteorology.** Enlisted weather personnel attend courses to learn the basics of **analyzing** and **predicting** weather patterns.

Both officers and enlisted weather personnel deploy to a hub for extended training. At a **hub,** Weather airmen use **computer models** to study activity in the **atmosphere.** Their predictions help leadership plan missions. If they recognize dangerous conditions, such as high **wind speeds,** they can **recommend** that leadership **ground** all flights. In this way, Weather Personnel keep aircraft and airmen safe without even firing a weapon.

Weather presents several threats to aircrews. **Lightning** in **thunderstorms** can disable electrical systems. **Clouds, fog, snow, hail** and rain can limit visibility. **Wind gusts** can cause **turbulence**. And **icing** in cold weather can **prevent** pilots from **maneuvering**.

But these different threats are formed by the same factors: temperature and atmospheric **pressure**. Temperature not only creates wind, but also influences **precipitation.** Pressure changes wind speeds and direction.

Studying those factors helps weather personnel predict how different weather fronts will **interact.**

**Study the words:**

forecast - предсказание; прогноз

Weather airmen (Weather airmen) - офицер метеослужбы; офицер-метеоролог

enlisted – срочнослужащий

deploy to a hub – разворачивают станцию

mission – вылет

leadership – руководство

ground - заставить приземлиться; запрещать полёты; приземляться

fire a weapon — стрелять из оружия

lightning - молния

disable – вывести из строя

maneuvering – управление

precipitation - выпадение осадков

**1. Read, listen, and answer the questions.**

1. What is a requirement to be a Weather Officer?

2. What do Weather airmen learn in a hub?

3. When will Weather airmen ground aircraft?

**2. Choose the correct word for each blank.**

1. *forecast/ meteorology*

A. All weather airmen learn about \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

B. Officer Blake's \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ predicts heavy rain.

2. *analyze/predict*

A. .\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ these numbers and look for a pattern.

B. No airman can \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ exactly what will happen.

3. *recommended/grounded*

A. Lt. Peters \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that no flights take off until the storm ends.

B. Col. Anderson \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ all aircraft because of the strong wind.

**3. Match the definitions (A-D) to the correct words or phrases (1-4).**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | hub | A. | a visual representation of data patterns |
| 2 | atmosphere | B. | one of eight USAF weather forecasting stations |
| 3 | wind speed | C. | the speed of moving air |
| 4 | computer model | D. | the gases that surround the Earth |

**4. Match the weather occurrence (1-4) to the impact it has on aircraft (A-D).**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | wind gusts |  | A sudden altitude changes |
| 2 | lightning |  | B loss of control |
| 3 | icing |  | C limited visual range |
| 4 | fog |  | D damaged electric systems |

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