

Exercise 2. Read and translate the text using the vocabulary from exercise 1.

## Wing

The wing is the principal structural unit of the airplane. The function of the wing is to provide lift and to support the airplane in the air. The wing has a leading edge, trailing edge, tips and a root. The leading edge is the front edge of the wing, the trailing edge is opposite to the leading edge and all movable parts of the wing are attached to them. Tips are outer ends of the outboard panels. The wing is attached to the fuselage at the root.

Some terms which refer to the wing are: chord and span. The chord is the distance from the leading edge to the trailing edge of the wing. The span is the length of the wing from the tip on one side to the tip on the other side.

The shape of the wing may be rectangular, triangular, elliptical and swept back. The amount of the sweepback angle depends upon the type of the airplane and its design. The sweepback angle is the angle between the wing and a perpendicular to the longitudinal axis of the airplane. High-speed jet aircraft have a greater sweepback angle. The dihedral angle is the angle between the wing and a horizontal plane. The angle of attack is the angle between the chord of the wing and the direction of the relative wind. When an airplane's angle of attack is so steep that the airflow over the upper surface of the wing breaks, lift is lost and drag increases. The angle of incidence is the angle between the longitudinal axis of the airplane and the chord of the wing. It is measured by the angle at which the wing is attached to the fuselage. The angle of incidence is fixed. It cannot be changed by the pilot.

The position of the wing may vary. The airplane may have a parasol, high-wing, mid-wing and low-wing construction.

The airplanes may be divided according to the number of wings into monoplanes, biplanes. Monoplanes have one wing, biplanes have two wings one above the other.

The main structural member of the wing is the wing spar or beam. It runs along the length of the wing from the fuselage to the tip of the wing. Some designs have one spar and some have two. They are mostly made of metal. It depends on the construction. The wing with

many spars is called a multispar wing. The function of the spar is to carry the main air load.

Stringers go parallel to the spars and between them. They reinforce a wing construction. Spars and stringers are called spanwise members.

The ribs are attached to the spars. They run from the leading edge to the trailing edge and are called cord-wise members. The ribs provide the shape of the wing and carry the loads.

The skin covers the wing. In case the skin carries the load it is called a stressed skin construction. Such construction consists of two thin metal sheets with a honeycomb core between them. The skin is supported by the stringers. They go parallel and between the spars and reinforce the skin.

The aeroplane wing does not consist of one single piece from one wing tip to the other, as the manufacture and assembly of such a wing is difficult. Usually the wing consists of three main sections. They are: the center section (or center panel) which extends across the fuselage and projects outward at each side, and the outer main planes (or outer panels). The center panel may be an integral part of the fuselage or it may be a separate unit. When it is a separate unit it fits so snugly to the fuselage as if they are one unit. The outer panels are subdivided further into their respective components, such as main planes proper, ailerons, flaps and wing tips. The wing tips are small units bolted to the outer end of the outboard panel. This construction provides an easy method of correcting damage.

The aileron construction is similar to the wing construction. The wing flaps are large airfoils hinged to the trailing edge of the wing. There are four types of flaps: plain flaps, split trailing edge flaps, slotted flaps, and Fowler flaps.

The wing may be made of wood, fabric, metal or composite material which depends on the design of the airplane.

Exercise 3. Match Ukrainian - English equivalents.

- 1) підйомна сила
- 2) неперезнає промова
- 3) хопіа
- a) longitudinal axis
- b) aileron
- c) flap