Levels 1-2 *Institute of Air Navigation, Southern Branch*

AIRCRAFT CONSTRUCTION AND SYSTEMS

I. Aircraft construction

1. Answer the questions:
-What types of aircraft can you name?
-What parts of aircraft can you name?
-How can aircraft be classified?

2. Read and translate the text using the vocabulary:

The main parts of an aircraft are the **fuselage, the power plant, the wings, the tail unit (or empennage) and the landing gear (or undercarriage).**

The fuselage is the body of the aircraft. It consists of the **nose, the cockpit, the cabins (or the passenger compartments), the cargo compartments and the tail.**

Many types of aircraft are two-decked. The lower deck is intended for baggage, commercial cargoes and the aircraft equipment. The hold is the cargo compartment in the belly of the aircraft. The upper deck houses the crew and passengers.

The windscreen is located in the nose part of the aircraft and windows and doors are arranged along the fuselage.

The power plant provides power for flight, makes direct and reverse thrust and provides acceptable speed for the aircraft. It contains systems which are used for correct and reliable engine operation.

There is also an auxiliary power unit (APU) in the aircraft. It supplies aircraft with alternate electric power in case of generators cut off, provides main engines start, ventilates, cools and heats the air in the cabins.

The wings provide lift for flying and support aircraft in the air. The main parts of the wing are: the central part of the wing, leading edge, trailing edge, spoilers, wing tip, flaps, slats and ailerons. Fuel is mainly stored in wings.

The tail unit or empennage provides the necessary stability in flight. It consists of the fin, the stabilizer, the rudder and elevator.

The landing gear or **undercarriage** supports the plane on the ground and is used while taxiing. There is a retractable type of landing gear in all the modern aircraft. Crews lower them before landing and retract after take-off. There is also a strut with a shock absorber, the main gear, the nose gear, the wheels with tyres, the retracting and lowering mechanism and brakes.

There are many types of engines in use: turbofan engines, turboprop engines, jet engines and piston engines. A turbofan engine is a power plant in modern aircraft.

Freighters AN-12, 24, 26 and helicopter MI-8 are equipped with turboprop engines. Small aircraft, equipped with piston engines, such as AN-2, Cessna are not

equipped with powerful de-icing system and airborne radar, that's why they are prohibited to enter thunderstorm activity areas.

The aircraft performance includes technical data, dimensions and the main flying characteristics.

Aircraft can be classified in some different ways. Firstly, there are civil and military aircraft. Both civil and military aircraft can be used as passenger, cargo, special and test-flight aircraft. They can also be classified as wide-body and narrow-body ones. For example, in Russia the IL-86 and IL-96 are wide-body aircraft. Aircraft can be heavy taking into consideration the wake turbulence. We can also say that there are commercial and state aircraft.

2. In two groups fill in the table with aircraft construction words and phrases:

Aircraft	Fuselage	Wing	Tail unit	Landing gear

Compare your tables. Which group has produced more ideas?
Check, confirm, clarify the details and together make the table as complete as possible.

3. Read the text once again. Answer the following questions:

1. What are the main parts of an aircraft ?
2. What is the fuselage and what does it consist of ?
3. What is the hold and where is it in the aircraft ?
4. The windscreen is located in the tail of the aircraft, isnt' it ?
5. What provides lift for flying ?
6. What are the functions of the APU ?
7. What provides stability in flight ?
8. Do the landing gear support the plane in the air or on the ground ?
9. What types of engines do you know ?
10. Are there any restrictions for aircraft, equipped with piston engine ?
11. How can aircraft be classified ?

4. Fill in the gaps with the appropriate word/words: