

## **ENSURING FLIGHT SAFETY**

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### **Designing**

In static tests, the fuselage and wing are loaded to such an extent that the aircraft almost folds in half and withstands. Also, any model of the aircraft is blown with super-strong air flows, subjected to shock loads. If it is not possible to break the plane to certain loads, then the plane is durable.

### **Weather radar**

Each airliner has a weather radar installed. The microwaves that it emits are reflected from water droplets, as a result, with insufficient visibility or at night, clouds can be seen.

### **Lightning strike**

It is dangerous here if a spark occurs in the fuel system. People and electronics may also be affected by the discharge. To do this, lightning rods are placed on the wings, antistatic components are added to the paint. If carbon fiber composite materials are present, conductive cores are introduced into them. Sensitive systems are shielded, that is, protected from the accompanying electromagnetic pulse [1].

### **Types of checks**

There are quite a lot of checks in aviation, which makes the flight even safer. Every eight to 10 weeks, airplanes need what is known as the A Check. In this process, technicians change filters, check, and lubricate critical systems. They also give a detailed inspection of all the emergency equipment. Meanwhile, there used to be a B Check. Operators have phased out these Checks and merged them into the A Checks. The B Check used to be made every six to

eight months. It took up to 180 labor hours and could be completed within one to three days at an airport hangar. The C Check happens every 18 months to two years. It takes three weeks. Interestingly, during the D-check, the aircraft is completely disassembled into components, parts, equipment. All parts are checked and, if necessary, replaced with new ones. Power elements undergo “non-destructive testing” to find, for example, micro-cracks. For example, capillary flaw detection: A special ultraviolet paint is applied to the surface and it penetrates into micro-cracks, where they are, the remains of the liquid are removed and shone with ultraviolet light or a special developing mixture is applied. So, it is possible to detect a micro-crack up to 1/100 of a millimeter.

### **Why is hard touch better?**

When landing on a wet strip, pilots use a harder touch. It is safer to "drop" the plane onto the runway a little, although it is not so pleasant for passengers. This will not only reduce the chance of slipping during contact or separation, but also allow the automation to work more accurately. In addition, the "confident touch" dissipates some of the aircraft's energy, and a shorter runway length is required to extinguish the remaining one [2].

We can conclude that thanks to the careful work of airlines and airports, air transport is one of the safest.

### **References**

1. How aircraft maintenance checks differ [Electronic resource]. – Mode of access: <https://newsakmi.com/travel-news/from-a-to-d-how-aircraft-maintenance-checks-differ/>. – Date of access: 11.04.2023.

2 .Как готовят самолеты к вылету? [Electronic resource]. – Mode of access: <https://www.somasoftware.com/en/maintenance-from-a-to-d-/>. – Date of access: 25.03.2023.