MAIN CAUSES OF ENGINE FAILURE: IMPACT AND PREVENTIVE MEASURES

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According to international safety statistics, there are about 25 incidents a year involving a jet engine failing either in flight or on the ground. That translates into less than one for every million flights worldwide. The overwhelming majority of such occurrences ends without incident because crews are trained on simulators to handle the loss of an engine [1].

Engine failures can be caused by mechanical problems in the engine itself, such as damage to portions of the turbine or oil leaks, as well as damage outside the engine such as fuel pump problems or fuel contamination. A turbine engine failure can also be caused by entirely external factors, such as volcanic ash, bird strikes or weather conditions like precipitation or icing. Weather risks such as these can sometimes be countered through the usage of supplementary ignition or anti-icing systems [2].

The task of preventing engine failures can be divided into two broad areas: maintenance and operation. What really stands out in so many accident investigations resulting from engine failure is that pilots and maintenance personnel fail to follow established procedures. These can include conducting a very thorough engine run-up after maintenance and checking for leaks or can be as simple as ensuring there's oil in the crankcase [3]. But one of the most valuable and easiest ways to help prevent an engine failure is to closely monitor the engine parameters reported by the aircraft's instrumentation. While aircraft engines are now more reliable than they have ever been, failures do occur. Often there are signs of impending trouble, which, if addressed early on, could prevent malfunctions or complete failure. While safety is the first concern, the economy should also stimulate your interest in preventing costly malfunctions by following all recommended maintenance and operational procedures.

High engine reliability can be attributed to the fact that after many, many years of experience, aircraft engine manufacturers and aviation professionals know what makes an engine reliable and have shared this information in technical data readily available to everyone.

References

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