

THE BENCH TESTS OF EFFECT OF THE MODIFIED LUBRICANTS TO THE POWERPLANT PERFORMANCE

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Abstract: Today there are four-stroke piston internal combustion engines wide use in the general aviation. Different types of oil are used to improve the characteristics of these engines by reducing of friction in the cylinders. This paper is devoted to method of increasing of engine performance by using of tribological additives “Komol” that should reduce the coefficient of friction.

The ground tests of additives effectiveness were made during this research. The conversion Subaru EJ-25 engine, which been dismantled from the “Shmel” plane and installed on the specialized bench, was used for this research. The loading of the engine was made by changing the pitch angle of the propeller blades at intervals of 3 degrees.

Research was carried out in two stages: the engine is running on the normal oil and the engine is running on the modified oil after two hours operating time.

The parameters of torque and acoustic were controlled during the test by using the strain gauge and sound lever meter.

The measurement results showed an improvement of the powerplant performance. The average power increasing was about 8.5% after additives using. The decreasing tendency in mechanical noise hasn't been determined during the test because sound of periodical processes increased very high.

Our research showed the real efficacy of the oil additives to improve the performance of aircrafts.