ABSTRAK

Engine merupakan bagian terpenting dari pesawat terbang untuk menghasilkan gaya dorong. *Engine* harus selalu diperiksa kinerjanya dengan memperhatikan parameter-parameter kelayakan dan melakukan pemeliharaan untuk menjaga kondisi *engine* agar layak digunakan. Parameter yang paling penting dari *engine* adalah *thrust* atau nilai gaya dorong yang merupakan parameter terpenting untuk menerbangkan sebuah pesawat terbang. Namun berdasarkan data laporan dari hasil sub unit dinas *engine services* yaitu unit *test cell*, bahwa beberapa hasil maintenance yang dilakukan di dinas *engine services* menunjukkan hasil yang kurang maksimal pada *engine* CFM56-3C dikarenakan salah satu penyebabnya adalah nilai gaya dorong (*thrust*) yang tidak sesuai. Besaran nilai gaya dorong itu sendiri dapat dipengaruhi oleh berbagai hal, diantaranya nilai *engine pressure ratio* (EPR) dan *exhaust gas temperature* (EGT). Berdasarkan uraian yang telah dijelaskan, maka dilakukan penelitian pengaruh nilai *engine pressure ratio* (EPR) dan nilai *exhaust gas temperature* (EGT) terhadap nilai gaya dorong dengan tujuan mengetahui secara pasti nilai dari EPR, EGT, dan gaya dorong dari kelima *engine* yang diuji serta mengetahui pengaruh antara nilai engine pressure ratio (EPR) dan exhaust gas temperature (EGT) dan korelasinya terhadap nilai gaya dorong pada engine CFM56-3C menggunakan analisis regresi linear berganda. Dari hasil analisis data menggunakan SPSS 22 didapatkan hasil nilai EPR dan EGT secara parsial berpengaruh secara positif dan signifikan terhadap nilai gaya dorong pada engine yang diuji. Semakin tinggi nilai EPR dan EGT, semakin tinggi pula nilai gaya dorong. Nilai EPR dan EGT secara simultan berpengaruh signifikan terhadap nilai gaya dorong pada engine yang diuji. Nilai EPR dan EGT berpengaruh sebesar 57,5% terhadap nilai gaya dorong dan 42,5% sisanya dipengaruhi oleh variabel lain yang tidak dibahas dalam penelitian ini seperti putaran poros N1, putaran poros N2, dan lain-lain.

Kata Kunci: *Engine Pressure Ratio, Exhaust Gas Temperature*, Gaya Dorong, SPSS 22, CFM56-3C.

Analysis of the effect of engine pressure ratio and exhaust gas temperature on the thrust of the cfm56-3c engine using multiple linear regression analysis

ABSTRACT

The engine is the most important part of an airplane to generate thrust. The engine performance must always be checked by taking into account the feasibility parameters and carrying out maintenance to maintain the condition of the engine so that it is suitable for use. The most important parameter of the engine is the thrust or thrust value which is the most important parameter for flying an airplane. However, based on report data from the results of the engine services service sub unit, namely the test cell unit, that some of the results of maintenance carried out in the engine services service showed less than optimal results on the CFM56-3C engine because one of the causes was the inappropriate value of thrust. . The value of the thrust itself can be influenced by various things, including the value of the engine pressure ratio (EPR) and exhaust gas temperature (EGT). Based on the description that has been explained, a research was carried out on the effect of the engine pressure ratio (EPR) value and the exhaust gas temperature (EGT) value on the thrust value with the aim of knowing exactly the values of the EPR, EGT, and thrust of the five engines tested and knowing the effect of the value of the engine pressure ratio (EPR) and exhaust gas temperature (EGT) and its correlation to the value of thrust on the CFM56-3C engine using multiple linear regression analysis. From the results of data analysis using SPSS 22, it was found that the EPR and EGT values partially had a positive and significant effect on the thrust value on the engine being tested. The higher the EPR and EGT values, the higher the thrust value. The EPR and EGT values simultaneously have a significant effect on the thrust value on the engine being tested. The EPR and EGT values have an effect of 57.5% on the thrust value and the remaining 42.5% is influenced by other variables not discussed in this study such as N1 axle rotation, N2 axle rotation, and others.

Keywords: *Engine Pressure Ratio, Exhaust Gas Temperature, Thrust,* SPSS 22, CFM56-3C