Journal of Energy Conversion, Vol. **2,** No. **1-2 (2011)**

Effect of Change the thermodynamic parameters of inlet air to TF30 turbo fan engine compressor using exergy analysis

Saeed Fathollahi[1,*], Sayed Arash Sayed Shamas Taleghani[2]

[1] Department of Mechanical Engineering, Dezful Branch, Islamic Azad University, Dezful, Iran

[2] Institute of Aerospace, Ministry of Science, Research and Technology, Tehran, Iran

Received: March 2017, Revised: May 2017, Accept: June 2017

[Downloaded from jeed.dezful.iau.ir on 2026-11-09]

[DOR: 20.1001.1.20089813.1390.2.1.6.2]

Abstract

The fundamental purpose of exergy analysis, determining the location and amount of irreversibilities in different thermodynamic processes and factors affecting the production is the irreversibilities. The purpose of this study is to analysis the exergy efficiency, exergy destroyed rate and entropy production rate in TF30 turbofan engine compressor. Therefore, mass and energy balances were performed on a turbofan engine compressor. Using thermodynamic relations, physical exergy rate of input and output was calculated. Using the calculations obtained and calculate the compressor work rate, efficiency and exergy loss rate and entropy generation rate of turbofan engine compressor were calculated. For exergy analysis of compressor, changes in temperature and air velocity input was done. The following, using FORTRAN software was observed when compressor inlet temperature and velocity increases, exergy destroyed rate and entropy production rate increases. Finally, results are presented for comparative charts.

[*]**Corresponding author:** saeedfathollahi@gmail.com

Keywords: Exergy, turbofan, compressor.

Please cite this article as:

S. Fathollahi, S. A. S. Shamas Taleghani, Effect of Change the thermodynamic parameters of inlet air to TF30 turbofan engine compressor Using Exergy Analysis. Journal of Energy Conversion, 2(1-2) (2011) 1-10 [In Persian]