

ABSTRACT

Mufflers are commonly used to reduce the level of noise produced by the combustion engine. However, the performance of the muffler has a problem in a very limited work space. The transmission loss value produced by the muffler is very dependent on the work space provided. Genetic algorithm is a stochastic global search method that can predict the best transmission loss value from the muffler design by optimizing the muffler design. In this case, the matrix transfer method is used to find the transmission loss equation produced by the muffler design with a double expansion chamber. MATLAB software is used to perform the optimization process using the genetic algorithm method in finding the muffler design that produces the maximum transmission loss. From the simulation results, the design produced after optimization process is able to provide a transmission loss value of 22.24 dB, where the value is the maximum value that can be produced by the double expansion chamber muffler.

Keyword: muffler, transfer matrix, genetic algorithm, transmission loss, matlab.