ABSTRACT

Single piston pump is a pump which consists of a piston that is used to pump water, so the pressure difference in the pump system and convert into an energy.This study titled is tracking output system linear single piston pump with control composition of pump reservoir. The purpose of this study is to reconstruct the equations of system of single piston pump and build a single piston pump control equation to it's reservoir. The method had been use is a numerical method of Runge-Kutta and tracking control of linear system equations. Based on the objectives to be achieved earlier, this research focuses on the design of control of the upper reservoir of a single piston pump, so it is expected that a certain condition that is optimal from the upper reservoir can produce pressure differences more optimal on the system, which is expected to influence with lots of energy generated from the system. The result of the control of this system is the value of the control variable (A_u), which is 52 m^2. That is an average value from A_u with interval 47 m^2 to 75 m^2. The energy that being produced from this system for 600 seconds is 5.500.175 J.

Keywords*: single piston pump, tracking control of linear system equations, Runge-Kutta*