ABSTRACT

MUHAMMAD JAKA PRATAMA, *The Design Of Heat Exchanger On Air Conditioner Split System With Capacity Of Water 50 Liter At Temperature Of 58^{o}C, Thesis*, Jakarta : *January* 2016.

Using air conditioners and water heater separately is not economical. The cost spent for both devices will be higher especially for the daily operational cost. Therefore, The purpose of this thesis is to utilize the heat-waste from the AC's condenser that is just wasted away to the environment. Decreasing the heat-waste produced by the condenser could reduce the consumption of the electricity and lead to the energy saving and reduce the global warming effect.

This research has been done for three months started on October until December 2015 and located in AC repair shop of Harapan Jaya Teknik. *The main data used for this thesis are the temperature of the input water, output water and surface copper pipe in the heat exchanger. The supporting data are taken from the temperature of the output of evaporator, pressure system and flow system. The temperature data acquisition is done in the three different pressure of refrigerant, the pressure on 70, 75 and 80 psi. Those three pressure show the attainment of the hot water temperature produced (output water), and the attainment process of comfortable room conditions.*

The result of the research shows that this water heating system is affected by the pressure of refrigerant. The pressure on 80 psi results 58^{O}C of water temperature in 120 minutes while the pressure on 70 psi needs 165 minutes for gaining the water temperature at 58^{O}C.

Keyword : Air Conditioner Split, heat exchanger, water heater, energy saver, global warming.