

**MONITORING OF THERMOSTAT PERFORMANCE IN HEAVY  
EQUIPMENT DIESEL ENGINE COOLING SYSTEM USING AN  
ULTRASONIC FLOW METER**

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### STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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## ABSTRACT

### MONITORING OF THERMOSTAT PERFORMANCE IN HEAVY EQUIPMENT DIESEL ENGINE COOLING SYSTEM USING AN ULTRASONIC FLOW METER

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Heavy equipment is a production equipment, where most of the heavy equipment uses diesel engines as the main power source. Heavy equipment damage is something that is avoided by heavy equipment owners. One of the damage that often occurs in diesel engines is the overheat condition of the diesel engine. One reason is the failure of the work of the thermostat. Diagnosis of the thermostat when a problem occurs in the diesel engine cooling system requires a long time. This study aims to determine the condition of the coolant flow rate and monitor thermostat performance without component overloading, so that machine breakdown time can be minimized. This research was conducted by developing an ultrasonic flow meter that is used as a coolant flow rate monitoring tool on the diesel engine cooling system. The results showed a significant relationship between the coolant flow rate and the performance of the thermostat. From this research it is known that when the thermostat conditions are normal, then when the coolant reaches temperature 80 it will be detected that the coolant flow rate from the engine block to the radiator increases significantly.

*Keywords: ultrasonic flow meter, thermostat, cooling system, diesel engine, heavy equipment.*

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## **DEDICATION**

I dedicated this research for My Family & UT School – PT United Tractors Tbk.

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