

**LAPPING MACHINE WITH ARDUINO FOR OVERHAUL
HYDRAULIC PUMP AT SMALL HYDRAULIC EXCAVATOR KOMATSU**

By

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STATEMENT BY THE AUTHOR

I here by 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

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Hydraulic excavators are generally used in the construction, forestry, agricultural and mining sectors for activities such as land clearing, cut & fill in road, bridge, and dam construction, spreading material in road construction, maintenance, pipe installation, canalling, loading onto trucks, and as a rock breaker/building. The treatment that is considered good is the treatment that produces the minimum possible down time but of course with the lowest possible maintenance cost. About 70% of damage to hydraulic equipment is caused by problems in maintenance and in the selection of hydraulic oil.

During the hydraulic pump overhaul work there are several work processes including the lapping cylinder block process with valve plate which takes a long time of about 16 hours this is because the lapping process is done manually by a mechanic. The lapping machine with arduino that is installed & operated properly in the hydraulic pump overhaul process can reduce lead time in the lapping process to be faster and more precise than the manual methode. The result lapping machine can reduce much lead time from 16 hours become about 15 minutes and Its also can saving cost about 130 million IDR/years or 93% more efficient than manual lapping.

Keywords : Lapping Machine, Excavator, Overhaul, Hydraulic Pump, Piston Pump, Arduino

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DEDICATION

This study is wholeheartedly dedicated to my beloved wife and children, who have been our source of inspiration and gave me strength when I thought of giving up and I dedicated this research for UT School & PT United Tractors Tbk. Cabang Banjarmasin

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