HUMAN ENGINEERING

ERGONOMICS APPROACHES ON QUALITY CONTROL OF NONCONFORMING PRODUCT
(Case Study at PT. Hitachi Construction Machinery Indonesia)

FINAL REPORT

This is Submitted to Fulfill Prerequirement of Industrial Engineer of International S-1 Program

Written by

ROBERTO GANIS HASCARIYO

01 14 02932

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APPROVAL

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Title:

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Written by:
ROBERTO GANIS HASCARIYO
(Student's Number : 01 14 02932)

Has been Examined and Approved
date : January 20, 2005

Adviser,

L. Triani Dewi, S.T., M.T.

Co Adviser,

D.M. Ratna T.D., S.Si, M.T.

Examiners:

Chairman,

L. Triani Dewi, S.T., M.T.

Member,

Ir. B. Kristyanto, M.Eng, Ph.D

Member,

Josef H.N., S.T., M.T.

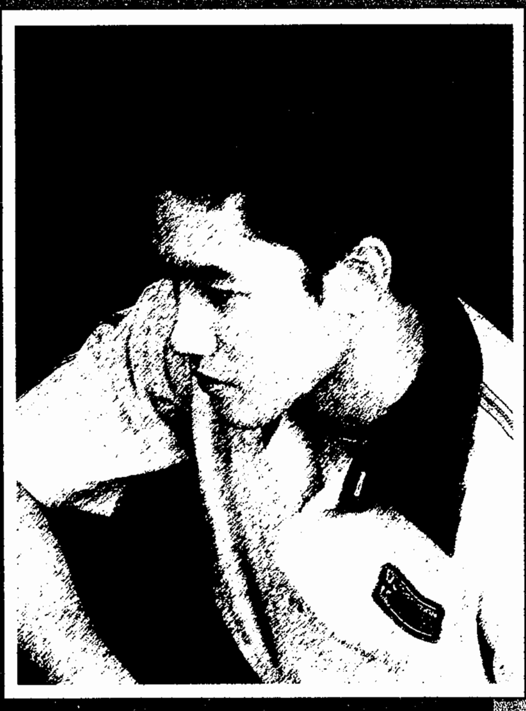
Yogyakarta, January 20, 2006
Dean of Faculty of Industrial Technology
Atma Jaya Yogyakarta University

UNIVERSITAS ATMA JAYA YOGYAKARTA
FAKULTAS TEKNOLOGI INDUSTRI

Ir. Luddy Indra Purnama, M.Sc

This Final Project is dedicated to God for all the wisdom He have Taught me and above all the love and Acer he have provide until this Day.,

To MY Father In Heaven. BeLoVED Mother and Brother Who encouraged Me during all of my year and above all their countless love, and Finally to all my friends.



I know the plans I have for you," declares the Lord, "plans to prosper you and not to harm you, plans to give you hope and a future."

- Jeremiah 29:11

Now faith is being sure of what you hope for and certain of what you do not see.

- hebrews 11:1

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The writer realize that this final report still has a lot of imperfections, so any criticize and inputs are really expected. Eventually, the analyst hopes that this final report can be useful and can be developed in a further research.

Yogyakarta January 10, 2006

The Writer

Roberto Ganis Hascariyo / IIE 02932

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ABSTRACT

This study takes place in the manufacturing company in PT. Hitachi Construction Machinery Indonesia by the object of study is unconformity of 40 mm diameter of hole on ZX-30 Boom Product of Excavator in machining process. The objectives of this study are to analysing quality control aspect and human aspect on nonconformity problem, analysing human posture based on human capability and limitation (effect to human disorder and injured) and evaluating the relationship and potential causes of Quality control and Ergonomic that influenced on existing nonconformity problem. Quality control aspect will bring the assessment of nonconformity cause problem identification. By the Statistical process control on X and R chart that will focus on process stability analysis to reach specification on result. On the other hand human aspect will bring human working analysis assessment that based on human capability and limitation. Biomechanics analysis with mannequin pro software will discuss effect of working load and human body limitation to human disorder and injured.

Conclusions of this study are Energy expenditure analysis result very high total work load (769329.8092 Newton per day or 2927.0441 Newton per machining cycle). The high expenditure of energy (18.5924 Kcal / minute) classified as unduly heavy work that risk to occur the possible of fatigue quickly refer to human error and human body injured. Correlation of ergonomics and quality aspect on this case of study is situation of unergonomics of working environment cause high work load to body segment of operator in activity process its machinery and later then give the high expenditure energy. Fatigue and injured problems in some part of body had been occurred. Then become constraint to operator to done activities on quality control or quality operation like inspection and others, so some problems external influencing quality from process directing and influence the result from quality which in the end result the quality which is not expected.