

Ing. Jaroslav Kadlec

Review of Master Thesis

Author: Gagan Raikwaparn

Title: POWERTRAIN SYSTEM INTEGRATION FOR MINI-EXCAVATOR

Reviewer: Ing. Jaroslav Kadlec

1. General description

The thesis consists of 6 chapters written on 42 pages all together. The structure of the thesis conforms to principles and requests to the structure of master thesis. The author has studied and used appropriate number of bibliography sources used and quoted in the thesis. It is the evidence of a good orientation in the problem discussed in the thesis. The word processing of the thesis is adequate. The using of different fonts and structure of the text is proper and helps the reader for better orientation in the text. I miss textual callouts within a few pictures for easier understanding. **The thesis fulfils the formal requests on good level.**

2. Aims and methods of the thesis

The objective is to develop a cheaper machine for the Middle East region market. The thesis takes all necessary steps to implement powertrain system into a machine: mechanical engine packing, proposal of air intake system, cooling system calculation. The author performs geometry check for all possible interferences and suggests appropriate and feasible solution for each point. The proposal of air intake systems meets requirements for engine application approval. Cooling system calculation takes two approaches with Excel calculation and KULI software calculation and provides background for heat exchanger and fan selection. The author successfully meets the application requirements and utilizes KULI software benefits for possible future optimization.

3. Results of thesis and their benefit

The author is capable to use solid theoretical background for implementation powertrain system development. The thesis methodology can be utilized in future machines' powertrain system optimization.

4. Questions

1. Regarding the fan selection criteria's is there any aspect of permissible sound level?
2. Is there a sufficient clearance between fan and shroud?
3. I miss the heat exchanger scheme in respect of heat rejection into coolant.

5. Conclusion

In my opinion, the thesis by Gagan Raikwaparn fulfils all the conditions for gaining the Master degree; therefore it is recommended for A level.

Dobris, January 25, 2019

Ing. Jaroslav Kadlec