Examiner´s report of diploma thesis

Diploma thesis title: “Accuracy enhancement of the fuel level sensor checkpoints” / ”Návrh zpřesnění výpočtu měřicích bodů hladinového palivoměru osobního automobilu”

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Opponent: Ing. Marie Hánová

Content: The thesis describes problematic of fuel level sender accuracy in comparison between theoretical calculation and practical measurements at assembly lines. Material analysis is also included. As result of known facts improvements such as widening of resistor card pads at checkpoints are proposed.

Evaluation: In the thesis problematic of fuel level sensors accuracy is described in detail from theoretical and practical point of view. Both theoretical calculation and material analysis aspects are taken into account. Tolerance strategies are explained with focus on currently used tolerance box strategy. Theoretical results from tolerance analysis are supported by practical part of the thesis. Analysis of statistical data show interesting results which is possible to take as start point for improvement in praxis. Those results also very well demonstrate which aspects have crucial influence on fuel level sender accuracy. As measure to high re-bending rate at assembly lines in production idea of widening of resistor card pads at checkpoints is proposed – instead of tolerance box, detection box is enlarged and gives larger area to detect fuel level sender as OK.

On page 57 and 62 there are some inexactness in formulas. Concretely in formulas (5.8) and (5.9) sum should be written in brackets with Ohm units (the same can be seen at (5.10) and (6.3). In formula (6.1) 200 Ohm is missing in denominator. Except those few inexactnesses formal point of the thesis is very good.

Additional questions:

1. Is the wear of contact system the only main disadvantage of potentiometric systems? If not, what is the other one?
2. Can end segment of the floater arm be in different orientation than in parallel to rotation axis?
3. What are other reasons to use moulded hole instead of drilled one?

Mark: výborně/excellent

Date: 19.1.2015 **Opponent´s signature:**