



Opposition template

About group: [C] - Handheld Vacuum Cleaner by: Ferdinand Blase

Product

What product was it?

➤ Handheld Vacuum Cleaner



Key strengths #1

- **What was well executed?**
 - *The shown CAD model is really well especially the attention to details is astonishing.*
 - *I think the labelling of the Parts was a great way to incorporate the subassemblies previously established and make it a lot easier to follow the report.*
 - *Lastly, I think that it is great that you put in the time to measure the assembly process and even did that multiple times to make sure to get a representative result.*
- **Did the group show particular innovation or creativity? How?**
 - *I was extremely impressed by the level of detail that was put into the chapter 4.1 Assembly Operations Overview.*
 - *It was so easy to follow the steps that are necessary to complete the vacuum, and I think it really helped to visualize the steps to easily understand the assembly process as a whole in a better way.*
 - *In general again the details on the CAD models are impressive. Even showing the mechanical details of e.g. stops that prevent the filter unit from sliding in too far.*
- **Were the chosen methodologies appropriate for the objectives?**
 - *In general I believe that you have chosen the right methods at the right times.*
 - *I do not think that some major methods are missing and I do not see any issues with the execution.*
 - *I think that some of the methods were a bit unnecessary and repetitive but that was just my feeling (Figure 2 and 3 do not really provide any new information except that one is labelled with balloons to indicate which part is which).*

Key strengths #2

- *Were technical justifications for design choices strong and well-supported?*
 - *The three design improvements you have suggested all seem reasonable to me, but it is kind of hard to judge without the product.*
 - *The third suggestions is to one where I would be most hesitant about. From my understanding the motor is bought by another company as a finished module with the turbine already attached and I believe that it would be kind of hard to implement this change when you are not the OEM for this part.*
- *Does the report suggest effective coordination and teamwork?*
 - *It is really hard to judge the teamwork from just reading the report but I have not seen anything that would suggest otherwise which makes me believe that the team worked well together.*
 - *Additionally the report is very coherent and fits well together. The only difference I was able to notice was in the writing style or rather the sentence structure but it did not majorly disrupt the reading flow.*

Areas for improvement #1

- *Are there technical issues or missing information?* (e.g., unrealistic assumptions, incomplete data)
 - I have noticed while reading the report that I think some more technical details could be added at the beginning of the report (maybe in form of a table).
 - For example the energy consumption of the motor, battery capacity and maybe even the overall dimension of the product.
 - There are still some missing information in the texts or columns in tables that are not completed but I believe that the reason for this is the draft status of the report.
 - Table 4 is missing the dimensions.
 - The analysis of the impacts of the design changes on the automatic assembly (Chapter 6.4.2) (add some text like end of section 6.4.1. that was really good and the comparison to the old version helped to clearly show the effect of the changes made).
- *Are practical aspects properly addressed?* (e.g., feasibility, implementation constraints)
 - In my opinion all the practical aspects are probably addressed.
 - Especially the section where you talk about possible fixtures is really well documented and illustrates clearly how you imagine it to work. additionally I think the thoughts behind it are really good and the assembly steps should benefit severely from the use of the fixtures.

Areas for improvement #2

- *Are there gaps in explanation or reasoning? (e.g., weak justification, missing steps)*
 - In chapter 5.1 you say 'assuming that our company positions itself as a mid sized player' I think it would be beneficial to state the companies name somewhere and includes a source of where they mentioned this. I was not able to extract this information from your text bends the only company name that was mentioned was Clas Ohlson which in my opinion is just a retailer of your product.
 - Something else that could be improved further is in chapter 5.4 just before table 13 starts you mentioned 'additionally, work element 6, ... was moved' and I believe that's a justification here could improve the readability.
- *Is any part of the report unclear, ambiguous, or difficult to follow?*
 - *The text is overall really easy to follow and only few paragraphs oppose some issues. There some spelling mistakes throughout the text but they are on a minimal level.*
 - *Recheck the spelling for missing letters (e.g. p.35 Kilbridge is speeled different in header and first line of text), inserted spaces at the wrong places (e.g. p.23 Thea ssembly) and general grammatical understandability (e.g. p.27 4.3.1. last bullet point).*
- *Are there weak arguments that need stronger evidence/references?*
 - *Reference the source used for chapter 6.2 DFA for automatic assembly.*

Assessment of implementation and results

- *Is there sufficient documentation of the process?*
 - *If by process the steps you have taken this meant there is more than enough documentation for it as part of the first chapter.*
 - *I think in this chapter it is quite clear which topics you have dealt with, why you have dealt with them, and what the possible implications of them are for the structure of the report.*
- *Are the results/data valid and based on reliable sources?*
 - *The data sources you have used are all relevant in my opinion and also reliable.*
 - *As already previously mentioned I think that in the design for simply analysis he could mention the source that was given in the lectures to document well which method is use and where it comes from.*
- *Are the explanations logically structured and easy to follow?*
 - *Almost all of your explanations are well structured and easy to follow.*
 - *The only thing I would explain further would be in chapter 5.4 and deals with why work element 6 was switched from 1 station to another as there were no reasons given as to why these change were made*
- *How complete is the work? Are any key aspects missing/weak?*
 - *In general your report already looks really complete and only minor things are missing.*
 - *I believe that's in table 4 the dimensions column is only not filled in yet because it is just a draft And I believe that some further explanation for table 19 is also missing for the same reason.*
- *Did the group consider alternative approaches or compare different solutions?*
 - *You have considered various difference scenarios in chapter 8.4 to compare different return on investments by changing the price you can ask for your product.*
 - *I think this is a great addition to your comic analysis and really helps to see the differences that the price would make.*

Report and presentation

- *Is the report structured logically and easy to follow?*
 - *Your reports is structured really well and I think overall the structure helps reader to understand your processes.*
 - *In my opinion it would be nice to have to text alignment option 'Justify' instead of the 'align left' option because I believe it fits the academic structure a bit better.*
 - *Additionally as also previously mentioned I think that figure 2 and 3 are a bit too alike And I would suggest to merge them into one.*
 - *Lastly I was wondering why the order of parts in table 4 is different then in Table 3 and I believe that keeping the same order for table #4 could help with clarity for the reader.*
- *Does the report cover all necessary information concisely?*
 - *In my opinion the report covers all the necessary information really well and I do not see major gaps in your report.*
- *Is there a logical flow of ideas and sections?*
 - *The same conclusion is also drawn for the logical flow between the sections where I believe you report does a really good job to link the sections to one another and establish a reading flow that is coherent throughout the report.*
- *Are figures, tables, and diagrams effectively used to support arguments?*
 - *A lot of tables and figures are used to illustrate your ideas well and they support your arguments really well.*
 - *I think it would be nice to have a standardised table structure as currently the table structure changes throughout different chapters (e.g. Header font, row colour).*
- *Does the presentation effectively communicate the key aspects of the project?*
 - *The report clearly shows the key aspects and goals of the project. it is clear that you understood the assignment in detail and Spence a lot of time trying to understand the underlying assembly principles that are or were used to assemble your products.*
 - *This can also clearly be seen by the structure of your report as it suggests that you have spent some time thinking about the correct order of the different chapters and the possible consequences from changing it up*

Questions for discussion and suggestions

List 2-4 questions to discuss during opposition

1. Explain economic assumptions
 1. Market share of 20%
 2. Average price of 80\$
 3. Material share of 17%
2. The DFA Index for manual assembly is relatively low could you go into detail on why this occurs?
3. Do you think there are any drawbacks from implementing the proposed design changes?
4. Were you happy with your product and did the relative few number of components pose any challenges that you needed to deal with?

- Final verdict:

I think you have done a really good job of explaining the overall structure of your product and I now have a good idea of how the product is assembled. Additionally, I think your analysis provided good insights and all of the necessary criteria are met.

Provide constructive recommendations

- Make sure that the pictures in table one do not overlap into other rows.
- When using an abbreviation for the first time write it completely (e.g. PCB).
- Check for spelling and grammatical mistakes in addition to those previously mentioned.
- Maybe increase the column width of the result column in Table 5 to display the numbers in one line.
- Write the variables in the correct way (e.g. T_e to T_e Table 6 and 8.1 LH).
- Insert 'Ranked' in the header for chapter 5.3.4. to make it say Ranked positional weight method.
- Lastly the link to your LSD did not work for me in the pdf (This might be on me tho).

