

This assignment was carried out for Noble House Classics in Almere. Noble House is a company that specialises in restoring classic Aston Martins and Jaguars. They do regular maintenance but can also do complete restorations. Noble House has been rewarded as official Heritage Dealer by Aston Martin.

Noble House is looking into the option of converting classic Aston Martins to electric drive. This way they want to be ahead of the competition and widen their activities. This thesis, together with the thesis of Jacquélien Beusink which has been done in parallel, are the first steps in this process.

This thesis is a feasibility study on the conversion of an Aston Martin DB5 to electric drive. The research starts with a theoretical background on electric driving in general. Research has been done on how the most important components work and which type of component is the most suitable for this project. With this knowledge, different powertrain concepts have been created. One concept uses a transmission while the other does not. Both concepts were compared in terms of complexity, driving characteristics, efficiency etc. The concept with the most promising future is chosen to be developed further. A battery pack was designed that fits in the weight limit of the car and has enough power to get a good acceleration and top speed. Components that work in this powertrain have been proposed. This concept is used to reflect on the feasibility of an electric DB5.

Three tools have been developed to help with the selection of a suitable motor and battery pack. This includes a simulation to find the acceleration, top speed and energy use of a car with a certain powertrain. An overview of battery cells was made to quickly find a suitable battery pack for a set of requirements.

At the start of the project, several requirements were set for the car. The most important are that the weight of the car may not increase over the original, that the chassis may not be edited in a way that disables rebuilding, and that the car has a minimal range of 220 km. A wish is to have similar acceleration and top speed as the original car. The only requirement that has not been met is the minimal range of 220 km. The final concept has a range of 120 km. This means that an electric DB5 as proposed is not feasible at this point.

However, the recommended action is to continue the development of the electric powertrain. Future developments and further research can increase the range of the car. It is expected that there is still interest in an electric Aston Martin DB5.