

HIGHER TECHNICAL INSTITUTE

MECHANICAL ENGINEERING DEPARTMENT

DIPLOMA PROJECT

DESIGN AND CONSTRUCT A KIT CAR

By: Andreas Stasis

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DESIGN AND CONSTRUCT A KIT CAR

By

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Project report

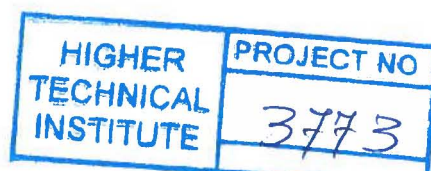
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This project wouldn't had been suggested if it was for Mr. Demetriou teaching method that stimulated our interest in various mechanisms on car, during his class and laboratory lectures he captivated our need to learn and made us what to study deeper into what we where show so I decided to talk to him about the idea of building a kit car including the chassis and so he suggested the projects title.

I would like to further extend him for his guidance on subjects I had problems with and on his help on how to organize my ideas in order to see which solution was best in each case I also would like to thank Mr. Kalogyrou for warning me on how difficult the construction aspect would be and hence making me work long ours in order to finish in time.

Finally I would like to express my gratitude to Nikiforos Kaninklides for letting me use his place of work, tools and knowledge on the sublect in order to finish the construction part of the project.

SUMMARY

The objective of this project was to construct a car on the lowest budget possible that would work properly under hard use, have the correct dynamics and would last through time, this was to be established with a space frame chassis design and construct only the basic car to see if the calculations were correct.

Introduction:

We live in an age where air conditioning and traction control are not in the extra features list but on basic equipment when buying a car, even if it's considered 'sports car' this is because the kind of cars that used to be built only for those that could drive them are now built for the rich. Someone that buys a car to show off his money doesn't really care about the performance rather than the level of comfort it can offer and the specification list that he or she will read in the dealership, this leads to companies losing the point of building this kind of cars and started designing them on being user friendly and comfortable instead of trying to design them to go fast. This phenomenon has been noticed in many sport cars and hot hatch categories where previous versions of the same cars were faster with less technology and less power.

The main reason in why this has happened is that by adding comfort aids to a car the weight is significantly increased and the same happens when adding equipment to make the car easier to drive like complex 4wd systems and rear wheel steering that reacts to the car's behavior to keep it in the road no matter how inexperienced is the person behind the steering wheel. Some of these luxury items are excessive soundproofing to eliminate any outside noise, thick electronically controlled seats, in car TV, navigation and sound systems that could easily be part of home theatre packs, huge wheels using low profile tires that spoil the grip in order to look better and many others.

The idea choosing this project came to my mind when I was looking for a car for myself and couldn't find one that would fit my needs so I've decided to build one by myself, during my research on how to build a car in my own back yard I came across the words of Colin Chapman, owner and founder of Lotus cars company, 'Performance through lightweight' and to the kit car scene that is blooming in the UK so I thought that it would be a good road to go down to but instead of buying a ready to assemble kit I decided to build one from zero incorporating various used and new parts in order to keep the cost low.

Only thing that remains now is to see the impact it will have on the local population.