DEVELOPMENT LADDER FRAME CHASSIS MODELS FOR COMMERCIAL MULTIPURPOSE PICK UP CAR

Student Name : Yusuf Kadang
Student Identity Number : 2111201002
Department : Mechanical Engineering FTI-ITS
Supervisor : Prof. Dr. Ing. Ir. I Made Londen Batan, M.Eng

ABSTRACT

Chassis is an important role in a vehicle, because the chassis is the base most of the components of the vehicle, so it must be able to accept loads, both static and dynamic loads. With regard to the development of a multipurpose pickup truck chassis 650 cc, it has conducted engineering studies where weight is 119.3 kg chassis, and includes too heavy to pick up the car. It is necessary for the development of the chassis to fit the needs. To overcome the above problems, the model will be designed Ladder frame chassis. For the development of some alternative concepts chassis made chassis, some concepts will be selected from a concept that best meet the criteria.

To analyze the structure of the chassis used software Solidworks 2012 and FEM program to analyze the strength of the static loading. Analysis on static loading force concentrated on the analysis of deflection, torsion, bending and tension as well as the determination of the most critical areas in the chassis. As a result, then the chassis design to suit commercial multipurpose pickup truck with a 650 cc 1338 kg workload has size chassis 3900 x 765 x 120, weight 109.4 kg and the maximum principal stress of 97.72 MPa smaller of allowable stress of 250 MPa so the chassis is safe.

Keywords; Chasis pick up, multipurpose car, simulation, stress analysis