DESIGN OF LOCATING AND LOCKING MECHANISM FOR RURAL MULTIPURPOSE PICKUP TRUCK BOXES

Student Name : Rizky Pratomo
NRP : 2108.100.056
Major : Mechanical Engineering FTI- ITS
Guidance Lecture : Prof. Dr. –Ing. I Made Londen Batan, M.Eng

Abstract
To support the needs of rural communities in the areas of transportation, Multipurpose GEA Pickup truck car was developed. Multipurpose concept is offered with only one car can have 4 pieces of different box types of removable plug. To meet the required design concept locating mechanism that can make the box can be installed right on top of the chassis and the locking mechanism has been installed so that the box can not be separated either the car is stationary or moving.

On this Final Project several locating and locking mechanism concepts was made and then the best concept that qualify the needs list, that is include light weight, easy to make, durable, safe and easy to use will be selected. After that, designing the components required followed by detailed engineering drawing of the components. The design is done with the help of CATIA V5R17 software.

From the design of this final project, for locating the box right on the chassis position, the guider box mechanism that can follow the path of a rolling cross-section of the v-shaped chassis made with the help of HDPE roller and roller ball bearing was used. Then the locking mechanism that was
used is by using 4 pieces toggle clamp on the side of the box. From the calculation and analysis of toggle clamp, we can assume that locking mechanism is safe because the maximum stress produced is still under the yield stress of material, either the car going uphill or turned.

Key Words: design, multipurpose pickup, locating, locking