THE ERGONOMIC PICK UP CABIN DESIGNING FOR GEA CAR DEVELOPMENT

Student Name : Fininawati Dwi Wahyudi
NRP : 2108100043
Department : Mechanical Engineering
Advisor : Prof. Dr. –Ing. I Made Londen Batan, M.Eng

Abstract

On the development of GEA pick up, PT INKA trying to produce the best national car for Indonesian people. Various aspects related to the comfort of this car needs to be evaluated before entering the stage of mass production. One of the problem is the existing pick up’s cabin is too narrow and not ergonomically for the driver. So, the ergonomics analysis should be done to evaluate the comfort of the driver while driving a pick-up and create the alternative design to fix it. It will be analyzed the comfort of existing car cabin design and then simulate it through software CATIA V5. CATIA simulation is used to determine the degree of injury risk (RULA). Improvements in body position may be performed if the score of injury risk quite high. With the change in body position, it can be made an alternative design of a new cabin design. The new cabin design includes the analysis and design of all components in it like a steering wheel, seats, pedals, handbrake, and the transmission. From this final assignment it obtained the ergonomics study of GEA pickup with the degree of injury risk for driver is 4 and while he holding the handbrake lever is 5. It means that the design required further investigation and changes soon. Then a new cabin design cars is designed which the seat between the driver and passenger are separated and handbrake position was moved to the left of the driver. The problem that design of the cabin is too narrow can be handled by lowering the chair seat frame by 80 mm, seat angle changed to 100°, the car seat is thinned to 60 mm, and a car seat for the driver to be moved on and backward and also can be adapted to
the condition of the driver's body. Based on these design changes, then the value obtained for the driver's injury risk is 3 and for the passengers is 2 so it can be said that the new design is more ergonomic. Hopefully this car cabin design alternatives can be fully realized for the driver and passenger of pickup GEA therefore they can feel safe and comfortable while driving.