



DIFFERENTIAL FOR QUAD RIDER WITH CHAIN AND  
SPROCKET POWER TRANSMISSION

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By,

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## ABSTRACT

Quad rider is became dominance as a domestic usage, commercial sport and even for recreation. Through a modification of available sources in local market, quad rider can be fabricated here. But it is not worthwhile to do modification for the mass production of off road vehicle.

Light off road vehicle like quad rider use small engine usually below 500 cc engine. Therefore motorcycle engine is used for off road vehicle where power to wheels has been transmitted through chain and sprocket. As the quad rider is rear-wheel vehicle with chain and sprocket power transmission, differential will be located at rear side of the vehicle. The usual transmission of power at vehicles is by gear for front-wheel drive vehicle or by shaft for rear-wheel drive vehicle. Therefore modification is essential to match with that system.

Fabrication of differential is made with using available sources that found in local market. Suitable car differential is selected for the modification. Light car differential had been chosen because it is not heavy to be used for quad rider. Crown gear of differential is replaced with suitable motorcycle sprocket. So that the differential is drove with chain and sprocket.

Through bolt, bolt and nut is decided to use for fabrication. It was subjected to the available load due to power transmission from engine to chain and sprocket. High tensile of through bolt and bolt is decided for fabrication because it is strong to withstand load, which were shear stress and bending stress.

New housing for the differential of quad rider is designed to prevent gears being exposed to the outside element such as dust, mud, sand and etcetera.

Original drive shaft was modified to fabricate with drive shaft with universal joint. Original drive shaft has no universal joint but quad rider need universal joint

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