

**PERFORMANCE ANALYSIS OF AN INERTIAL
FRICTIONLESS TORQUE TRANSFER DEVICE FOR
AUTOMOTIVE TRANSMISSION**

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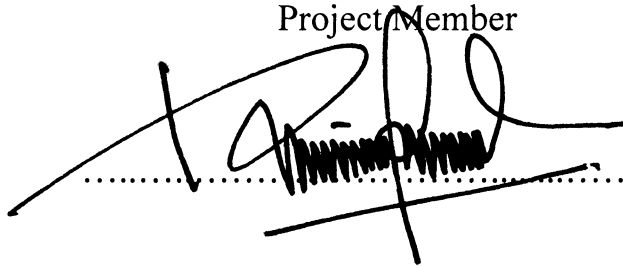
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ABSTRACT

Slip disc or clutch disc is a common type of torque transfer device used in manual transmission of an automobile. In the clutch assembly, the clutch disc utilizes friction as the torque transfer mechanism and therefore susceptible to wear due to friction. Its lifespan depends on the driver's style of driving and the condition of the road. Clutch disc wear at higher rate on slopes compared to flat road due to the gradient of the former. The rapid wear of clutch discs requires replacement, not only the disc itself but also its auxiliaries, such as the pressure plate set and a double-sided release bearing thus the cost implication of the existing device. In order to increase the lifespan of the torque transfer device without compromising the required performance, a new device that does not use friction as a mean to transfer torque is to be designed and tested. This would entail a single device that eliminates the use of friction and substitute two main components of a conventional power train i.e. clutch and transmission (gearbox) for torque transmission. In the research, it was found that the torque transfer device had performed as expected. It could transfer torque from the input shaft to the output shaft. Other parameters such as output torque vs. input torque, output rpm vs. input rpm, minimum torque required for moving certain loaded output wheel, maximum torque available, and maximum horse power that the device can transfer should be done in the further research.