

**ANALYSIS AND IMPROVEMENT IN DEVELOPMENT OF
REVERSE GEAR
SHIFTING IN THREE WHEELER PETROL ENGINE**

M Tech Dissertation

by

KHILANKUMAR MUKESHCHANDRA PANCHAL

180303206006

Under the supervision of

Prof. Imran Molvi

Mr. Pranav Trivedi



April 2020

**DEPARTMENT OF MECHANICAL ENGINEERING
PARUL INSTITUTE OF ENGINEERING & TECHNOLOGY
FACULTY OF ENGINEERING & TECHNOLOGY, PARUL UNIVERSITY
P.O. LIMDA– 391 760, GUJARAT, INDIA**

ABSTRACT

This Study investigates methods to improve and develop reverse gear shifting of constant mesh type three wheelers four stroke petrol engine by analysis through observation, field complaints and finding root cause of reverse gear shifting failure. The problem arises in gearbox due to failure of reverse gear shifting mechanism. While running vehicle, due to excessive play occurs between Reverse fork and Reverse gear, disturbing the alignment at gear shifting mechanism in gearbox of petrol engine. Deep enhancement aiming in describing the method for improvement to maintain fork position wrt. main housing gear box. Reverse shifting fork design modified & changed by adding extra oil seat sitting position with increase in diameter to maintain fork position wrt. Bore depth in gear shifting housing. While shifting on reverse with fork reverse gear references are shifted from idle location. The impact of development replicates on performances and smooth engine reverse gear shifting. This study is focuses on development & modification in failure parts with more working life of failure parts.