

Go-Kart Power Transmission System

Satyam Avhad¹ Yash Barse²

^{1,2}Jayawantrao Sawant Polytechnic Memorial, Hadapsar, India

Abstract— This paper overview the program whose objective is to transmit power using 4 stroke IC engine. In this paper detailed information is given about power system. Most common part used for power transmission is IC engine. In almost all vehicles IC Engine is used .But we used IC engine for self-made vehicle we name it as go kart. It is a 4stroke vehicle having rear wheel drive. In this project we research about engine working of each part and technical naming of each component also assembly disassembly of engine. Go-kart, is defined as the system which does not have suspension system and no differential. They are race on down scaled track, but sometimes kart driven as entertainment or as a hobby by non-professionals. 'Go Karting' is common stepping stone to the expensive ranks of motor sports. Kart racing is the most economic form of karting motor sport. Kart racing is a low-cost and safe way to introduce drivers to motor racing. Many people believe that this sport is associated with youthful drivers only but matures are also very active in karting. Karting is introduced as the first step in learning and racing career of any individual. It can prepare the driver for full speed racing by helping him to develop guide, we can learn precision car control and improve decision making skills. Also it brings an awareness of the different parameters that can be try to improve the competitiveness of the kart.

Keywords: Go Karting, Power Transmission System

I. INTRODUCTION

The first standard transmission system was developed by French inventor Emile Levassor in 1984. They invented three speed transmissions and the direct point of system is contemporary standard transmission.

The meaning of standard transmission system is a standard gear box or a colloquially in other country transmission system is used in motorcar is of stick shifter. The life of manual transmission system last longer than automatic transmission system. The life of manual transmission system is approx. 1,93,000 Km but in aggressive driving and irregular fluid change it may affect the life of system. The design of manual transmission system is simple than automatic. Clutch is the only component which needs to be maintain but it also last for 1,600 Km. In automatic vehicle there are component like torque convertor and hydraulic pump which affect in low fuel efficiency but who have manual transmission vehicle have 15% more fuel efficiency. It is much cheaper than automatic component used in system it is very heavy for drive to stop a car on hill or at any inclined angle surface and start it again at that time it roll back. We use manual transmission system which has longer life and low cost maintenance also power generated is more than automatic power transmission system. A transmission is a device or machine that consists of power source and power transference in system, in which power is applied to controlled application of the power. Often the meaning of transmission means simply the use of gear and gear trains to give a specific amount of torque conversion to another machine by rotating power source. Commonly most motor

vehicles are used for adapting transmission for output of IC engine to the drive wheel. Highly rotation speed engine are needed to inappropriate starting stopping and slow travel.

A. Component Use for Power Transmission System

- Shaft
- Clutch
- Gearbox
- Flywheel
- Chain
- Sprocket

1) Shaft

Usually shaft is in circular is cross section, used to transfer the power from one place to another place or machine without any loss of power. Shaft is also used for support transmission component like wheels etc.

Mainly shaft is divided into 2 types

- 1) Axle
- 2) Spindle

Shaft is mostly made from mild steels, chromium etc. we used mild steel shaft for transmitting the power from engine to rear wheels. In our Go-Kart on rear shaft sprocket, disc is mounted and they are locked using 7*8 key material. Diameter of our shaft is 25mm. we decide this diameter by considering all the forces acting on shaft. Then we find the all the stresses acting on a shaft. We use Ansys PC software for testing the shaft under loaded condition and this how we design our Go- Kart shaft.

2) Clutch-

Only one clutch plate like in single plate clutch. This clutch transmitted the high torque because of number of friction surfaces. The diameter of this clutch is reduce compare to single plate clutch and transmitted more torque.

3) Gear box-

This is the main component of transmission system. The gear box is consisting of Gears with different sizes and teeth of gear. Gear box is located between output shaft and clutch. The main function of gear box is to give torque and speed when required. In gear box different gears are meshed with each other. In our kart 4 gears are used, each gear have different speed and torque. Frist gear have maximum torque and low speed and the meshing of gears are main drive shaft has small gear with minimum teeth and driven shaft has big gear with maximum teeth so maximum torque is available. On fourth gear speed is at maximum and torque is low and the meshing of this gear are drive gear is big in size and gave maximum teeth and driven gear is of small size so maximum speed is available.

4) Flywheel-

It is designed to store rotational energy efficiently flywheel reduce the fluctuation in speed of the engine by their moment of inertia. The energy stored in the flywheel is proportional to its speed and mass. We can change flywheel stored energy by increasing and decreasing the speed of flywheel when its mass is constant. Flywheel act as mechanical energy storage device. It is located at end of crank shaft. It reduces vibration

by smoothing power stroke. Flywheel is circular in shape and has maximum mass to store energy.

5) *Chain-*

chain drive is used to transmit power from one place to another place. We used roller chain to transmit the power from engine to rear wheel. Chain supported on sprocket. It require lubrication and it have 95% efficiency. It does not slip from sprocket. It is useful for medium distance power transmission. It is made for steel.

II. CONCLUSION

This paper gives detailed information about the power transmission system of Go-kart. For this we used 125cc discover engine and we researched about different parts of engine in which it include shaft, clutch, gearbox, flywheel, chain, and sprocket. Workings of all these given parts are explained in this paper. Where we conclude that engine is the heart of Power Transmission System. Because engine convert chemical energy into mechanical energy. Also sliding motion of piston is converted into the rotary motion of the shaft.

REFERENCES

- [1] www.Wekipedia.com
- [2] Technical publication book of automobile.
- [3] IJSETR Reference paper.
- [4] Research gate Design report
- [5] Automotive mechanics- Course Angelin

