



MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE GWALIOR

Department of Mechanical Engineering

REPORT OF SKILL-BASED MINI PROJECT

Automotive Engine (190313)

Title of Project:STUDY OF FOUR-STROKE SINGLE CYLINDER PETROL ENGINE

Introduction:

Single cylinder 4-stroke engine working can be understood by knowing the process which consists of 4 numbers of strokes. The engine does two cycles of the crankshaft by completing four strokes of the engine i.e. suction, compression, expansion, and exhaust.

Description of Model



The working of four stroke engine consists of four strokes of piston and two crank revolutions.

1st stroke (Suction stroke): In this stroke fresh charge of air or air-fuel mixture is taken inside. For this process piston moves from TDC to BDC. **2nd stroke (Compression stroke):** The fresh charge is compressed by moving the piston from BDC to TDC. **3rd stroke (Expansion Stroke):** It is also known as the power stroke. In this stroke compressed charge is combusted which generates high-pressure hot gases inside of a cylinder. It pushes the piston from TDC to BDC. In this process hot gases are expanded from TDC to BDC. **4th stroke (Exhaust**

stroke): In the ideal cycle, it is known as the heat rejection process. In this stroke, the hot gases (Combustion products) are expelled out from the cylinder by moving the piston from BDC to TDC.

Applications of Model

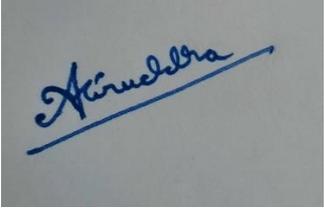
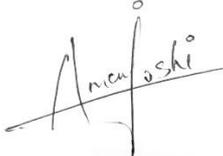
The four-stroke engine is the most common type of internal combustion engine and is used in various automobiles (that specifically use gasoline as fuel) like cars, trucks, and some motorbikes (many motorbikes use a two stroke engine). A four stroke engine delivers one power stroke for every two cycles of the piston (or four piston strokes).

What I Learned Through Project:

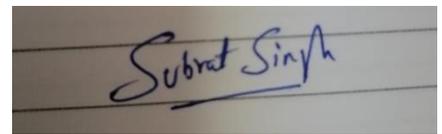
1. 4-cylinder engines tend to be fuel-efficient and are a great buy if you are looking for a small and reliable car.
2. 4-cylinder engines have less of an impact on your carbon footprint than a 6-cylinder engine.
3. 4-cylinder engines are commonly found in smaller, compact cars, which are easier to maneuver and park.
4. In general, you will get more fuel economy from a 4-cylinder engine.

Submitted by:

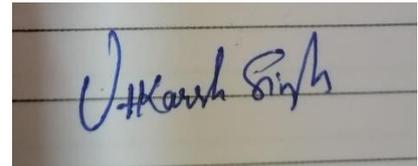
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