

Novel Approach to Increase Efficiency of Engine

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Abstract- The four stroke engine of motorcycles is mainly worked upon on four basic actions of engine induction, compression, power and exhaust. Initially these strokes has the relationship between TDC [top dead curve] to BDC[bottom dead curve] and pressure created in assembled engine, there are many types of engine having different types of cc i.e. cubic centimeter such as 100,110,125 up to 1300cc. The combustion in petrol engine is done using flammable mixture of air and petrol which is ignited by time spark when the charged is compressed. Now a day's many researches are working to increase the fuel efficiency in order to increase the mileage of the vehicle. **Our idea proposed is giving a significant results and mileage is observed to be increase dramatically.** We have modified the engine with petrol consumption mechanism which is working more effectively than the engine available presently and the mileage observed is double that of existing mileage of vehicle. Initially the inlet valve allow to passes the fuel and air via pipe to the engine the spark plug also connected with the engine because petrol engine needed a spark for fuel combustion's the working of four stroke engine the main motto is to give the up and down moment to the cylinder head of the engine so that it can rotate the fly wheel via connecting rod [Con- rod], piston, crank shaft in crank case. The inlet allows to pass the fuel and then the petro was stored in cylinder between piston and the top head of the cylinder and due to the spark the combustion occurs and it produces the chemical reaction of oxygen and carbon mono-oxide only 70% of fuel combustion occur and some fuel is used to keep the piston oily for cooling purpose so that the piston also cooled during maximum load or at long duration working.

Index Terms- Engine, Rpm, Modified, Combustion, Minutes

I. INTRODUCTION

Stage 1

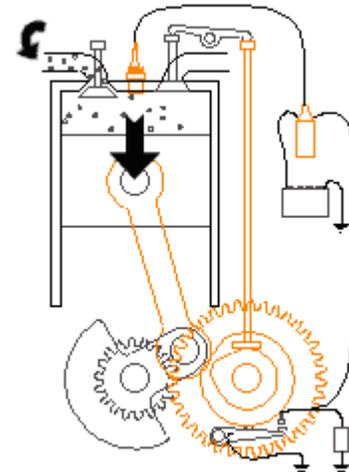


Fig.1[2]

Initially in induction process the petrol get sparks and it start combustion and create the petrol vapor ; these vapor produces the pressure on the head of the cylinder, so some wastage of petrol happens so here some petrol get waste due to incomplete combustion of petrol and some in piston to make it cooled with oil..

Stage 2: Compression

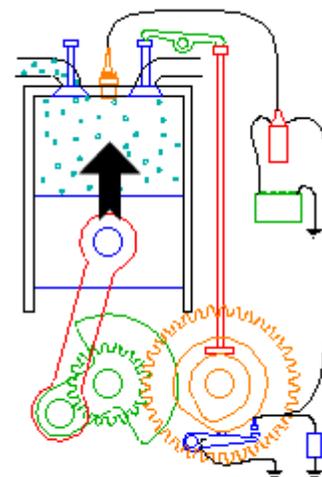


Fig 2 [2]

As per the induction process end at the end of induction process many amount of petrol vapor collected and due to the combustion pressure get induce in cylinder between head and cylinder head due to these the piston get compress and as well as piston compress towards bottom side the connecting rod also moved and it makes the crank shaft to moved with the fly wheel with both intake and exhaust valves closed, the piston returns to the top of the cylinder compressing the air or fuel-air mixture into the combustion chamber of the cylinder head. During the compression stroke the temperature of the air or fuel-air mixture rises by several hundred degrees. [1]

Stage 3: Power Stroke:

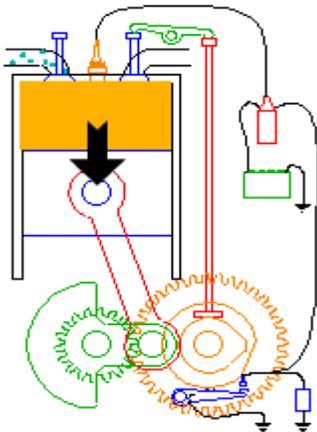


Fig 3 [2]

This is the start of the second revolution of the cycle. While the piston is close to Top Dead Centre, the compressed air-fuel mixture in a gasoline engine is ignited, usually by a spark plug, or fuel is injected into a diesel engine, which ignites due to the heat generated in the air during the compression stroke. The resulting pressure from the combustion of the compressed fuel-air mixture forces the piston back down toward bottom dead centre.[1]

Stage 4: Exhaust Stroke:

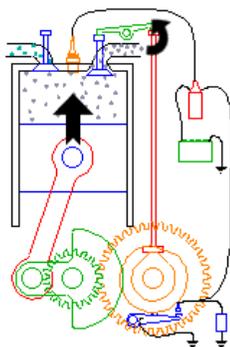


Fig 4 [2]

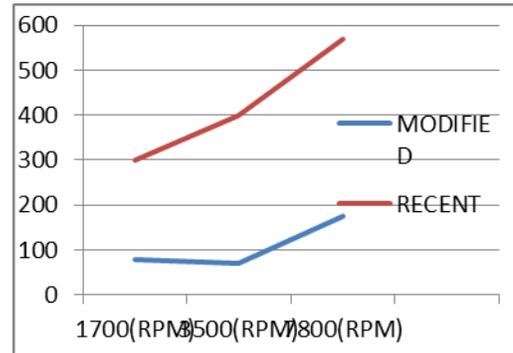
During the *exhaust* stroke, the piston once again returns to top dead centre while the exhaust valve is open. This action expels the spent fuel-air mixture through the exhaust valve(s). [1]

II. OBSERVATIONS

Readings Taken At 4th Gear:

Comparison between Readings:

Comparison: Rpm Vs Petrol Consumption



On X axis: RPM

On Y axis: PETROL CONSUMED

Effects:

Bike Performance After Modification:

Breaking Effect:

Gear	Effect
1 st	Normal
2 nd	Normal
3 rd	Normal
4 th	Normal

In break effect there was no effect occurred while running on petrol vapor , it works same as the petrol engine.

Light Efficiency:

Gear	Light Effect
1 st	Normal
2 nd	Normal
3 rd	Normal
4 th	Normal

The light effect is also normal means same as the petrol running engine.

Gear Shifting:

The gear shifting that means the shifting up and shifting down of gear is mainly effect to the load of the engine according to that the performance is depended when running the vapor engine there was smoothly up shifting and down shifting occurs means no problem of hardness or roughness .

Other Effect:

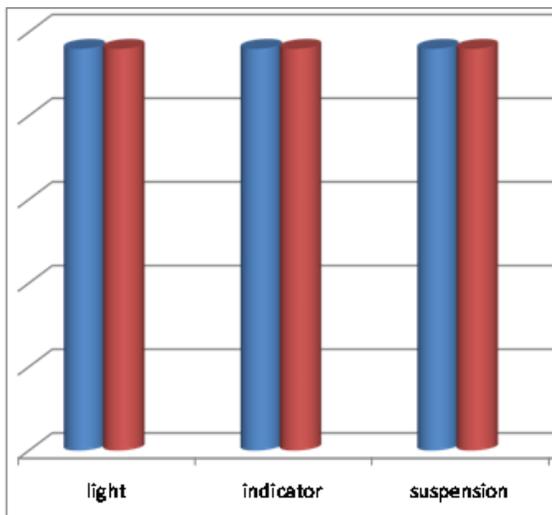
The other effect such as the vibration effect in engine cannot feel.

Indicators:

The indicator also perform the same as it works in petrol engine

Suspension:

The suspension of the vehicle also same.comparison between both engines:



REDUCTION COST:

In modified assemble weight of engine is also reduces which also reduces cost.

III. CONCLUSION

Above results and data for the standard engine reflects that the efficiency of fuel combustion and ultimately the mileage of a vehicle is found to be increase significantly

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