

2.5 Engine Specification

Table 2: Engine Specification

Vehicle Name	Hero Honda Street
Type	Four stroke SI Engine
No. of cylinder	One
Maximum power	6.5 bhp/8000 rpm
Start	Kick
No. of gears	Four
Clutch	Automatic
A/F ratio	14.7:1
Engine displacement	100 cc

3. Analysis of Working Model



Figure 3: Working model

3.1 Effect on Fuel Consumption

Table 3: Fuel Consumption

Load	Normal Engine	Hydra Engine
0	5.263×10^{-4} kg/s	4.166×10^{-4} kg/s
12	8.33×10^{-4} kg/s	4.347×10^{-4} kg/s
20	9.0909×10^{-4} kg/s	7.143×10^{-4} kg/s

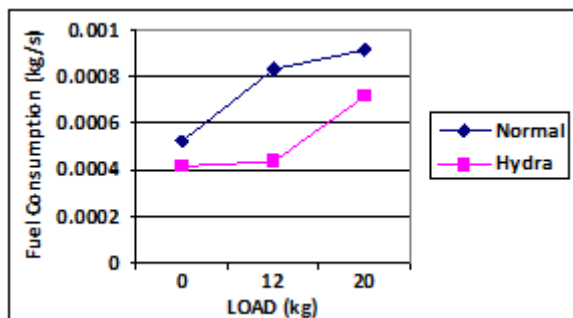


Figure 3: Fuel Consumption

When we added HHO with gasoline fuel, the fuel consumption of engine is decreased, which is shown in chart. We take burette in analysis as fuel tank for easy analysis of the fuel consumption.

3.2 Effect on RPM

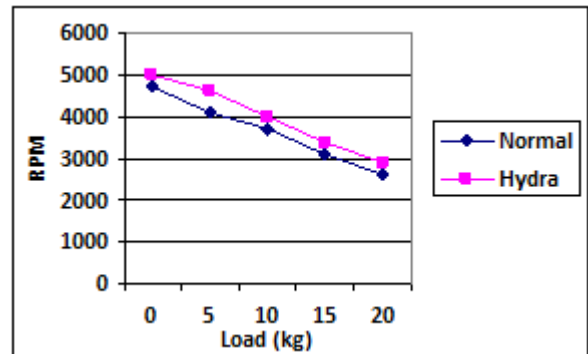


Figure 4: LOAD ⇒ RPM Chart

3.3 Effect on CO%

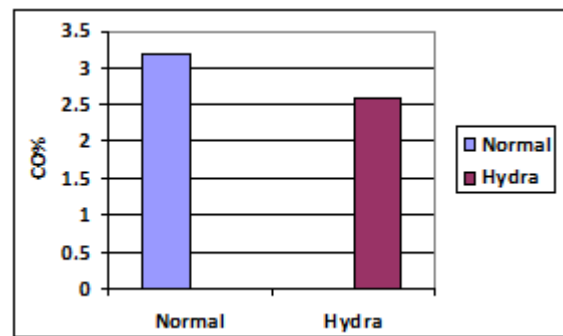


Figure 5: CO%

The CO% was 3.2% when the engine runs on the simple gasoline fuel. The CO% was 2.6% when the engine runs on the HHO + Gasoline fuel. That means there is 23.99% decrease in CO emission. Comparison is shown in the above figure 5.

3.4 Chart of HC Particles

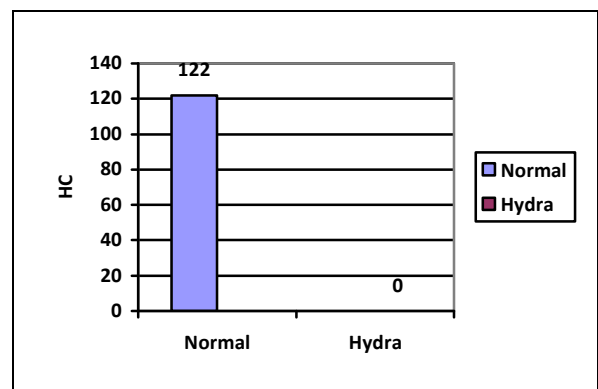


Figure 6: HC Particles

4. Benefits and Safety

4.1 Benefits

- Uses water as source of supplemental alternative fuel.
- Reduces emission.
- Exchange fuel mileage.
- Reductions of carbon build up in cylinder and spark plug.
- Increase spark plug life.
- Long oil changing time.
- Increase vehicle performance.

4.2 Safety Require

- It has been refer as BOOM gas for a reason. If we are collecting the gas, take care that it does not ignite.
- The mixture you will be using can be near the high end of ph scale- highly alkaline .it will react with your skin and potentially cause a skin irritation.
- For establishment of this system in vehicle, skill person is required.

5. Conclusion

In this completed work and mathematical modeling of internal combustion engines as well as analysis of changes of its performance indicators by using HHO and alternative fuel enabled us to formulate following summarized conclusion on the influence of oxy-hydrogen gas.

- The efficiency of oxy-hydrogen gas using in internal combustion engine increases by 18.69%.
- Using HHO with fuel in a spark ignition engine, CO concentration reduces to 18.75%, which reduce the atmospheric solution.
- The use of HHO in gasoline engines consequently reducing the fuel consumption by 23.99%.
- Use of HHO in gasoline engine increases the brake power of engine around 12.20%.

References

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