Design and Development of 80 CC Engine Operated Bicycle

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Abstract:
An engineer is always focused towards challenges of bringing ideas and concepts to life. Therefore, sophisticated machines and modern techniques have to be constantly developed and implemented for economical manufacturing of products. At the same time, we should take care that there has been no compromise made with quality and accuracy. The engineer is constantly confronted to the challenges of bringing ideas and design into reality. New machines and techniques are being developed continuously to manufacture various products at cheaper rates and high quality.

I. INTRODUCTION

A motorised bicycle is a bicycle with an attached motor or engine and transmission used either to power the vehicle unassisted, or to assist with pedalling. Since it always retains both pedals and a discrete connected drive for rider-powered propulsion, the motorised bicycle is in technical terms a true bicycle, albeit a power-assisted one. However, for purposes of governmental licensing and registration requirements, the type may be legally defined as a motor vehicle, motorbike, moped, or a separate class of hybrid vehicle. Powered by a variety of engine types and designs, the motorised bicycle formed the prototype for what would later become the motorbike.

II. MODEL

III. WORKING

The working of 80 cc petrol engine bicycle is as same as all other petrol engine. The induction-compression stroke. A fresh charge of air and fuel is taken into the crank chamber as a result of the depression created under the piston as it advances towards the cylinder head. At the same time, last compression of the charge transferred earlier in the stroke beginning the crank chamber to the cylinder takes place above the advancing piston. The power-exhaust stroke. The combustible charge in the cylinder is ignited instantly preceding the power stroke, during which the gases enlarge and perform useful work on the retreating piston. At the same time, the previously induced charge trapped under the retreating piston is partially compressed. Towards the end of the stroke, the exhaust gases are evacuated from the cylinder, a process that is facilitated by the scavenging stroke of the new charge transferred from the crankcase. The uncovering and covering of the cylinder ports of the piston, or port timing, is determined by considerations like to those affecting the valve timing of the four-stroke engine.

IV. CONSTRUCTION

- INSTALLING REAR SPROCKET.
- MOUNTING ENGINE TO FRAME.
- FITTING CONTROLS
- CARBURETOR INSTALLATION
- MAINTENANCE ROUTINE

V. COMPONENTS

<table>
<thead>
<tr>
<th>SR NO</th>
<th>PART NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FRAME</td>
</tr>
<tr>
<td>2</td>
<td>CLUTCH</td>
</tr>
<tr>
<td>3</td>
<td>BRAKE</td>
</tr>
<tr>
<td>4</td>
<td>ENGINE</td>
</tr>
<tr>
<td>5</td>
<td>FUEL TANK</td>
</tr>
<tr>
<td>6</td>
<td>CARBURETOR</td>
</tr>
<tr>
<td>7</td>
<td>CHAIN DRIVE</td>
</tr>
<tr>
<td>8</td>
<td>WHEEL</td>
</tr>
<tr>
<td>9</td>
<td>CABLES</td>
</tr>
<tr>
<td>10</td>
<td>NUT BOLT WASHER M10</td>
</tr>
<tr>
<td>11</td>
<td>BRAKE SHOE</td>
</tr>
</tbody>
</table>
VI. RESULT

<table>
<thead>
<tr>
<th>Test</th>
<th>Motorised bicycle</th>
<th>Motorised bicycle</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pedelec</td>
<td>80 cc Engine</td>
</tr>
<tr>
<td>Top speed (Km/h)</td>
<td>21.3</td>
<td>35.62</td>
</tr>
<tr>
<td>Controlled brake stop (m)</td>
<td>4.95</td>
<td>12.9</td>
</tr>
<tr>
<td>Emergency Brake Stop (m)</td>
<td>N/A</td>
<td>6.6</td>
</tr>
</tbody>
</table>

VII. ADVANTAGES

- It Is Light In Wei
- The Design Of The Bicycle Is Compact
- It Required Less Area To Park As Compared To Bikes.
- The Cost Of The Bicycle Is Also Less.
- It Is Easy To Operate.
- Less Vibration Problems and Jerking Problems.
- In Engine Operated Bicycle Getting Good Throttle Response.

VIII. DIS-ADVANTAGES

- It Is Used For Less Distance Only
- The Speed Of The Bicycle Is Less.
- This Not Used For Big Cities in Travelling Purpose.

IX. APPLICATION

- It is use for the short distance travelling
- It is used for the residency areas where the space between the buildings or the main road is more.
- It is used in industry also where the plant distance is more.
- It is also used for to train the bike as a first step in motor training school.

X. CONCLUSIONS

1. Petrol-powered bicycles do not comply with the definition of power assisted pedal cycle specified in legislation because –

2. The primary source of power is not from the rider but the motor. The continuous speeds generated by the engines of between 22 and 43km/h mean it is difficult for a rider to contribute to the overall motive force, meaning there is no incentive for the rider to pedal.

3. Where limiting devices are not fitted, the power exceeds the 200 watt limit.

4. Devices fitted to petrol-powered bicycles to restrict their power output to the 200 watt limit can easily be removed resulting in a motorised bicycle that does not comply with the definition of power assisted pedal cycle specified in NSW legislation.

5. The risks associated with petrol-powered bicycles can be increased as minor tweaks to their engines and exhausts can produce even greater power.

XI. REFERENCES

