THE EFFECT OF VARYING IGNITION TIMING USING PROGRAMMABLE ECU AND THE IMPACT OF CHANGING CAMSHAFT DURATION ON ENGINE PERFORMANCE IN 4-STROKE MOTORCYCLES.

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ABSTRACT

The rapid development of the automotive industry is accompanied by human needs for transportation. There are various types of transportation in Indonesia, with motorcycles being quite popular due to their relatively low cost, space efficiency, and ease of maintenance. Improving vehicle performance can be achieved by replacing the programmable CDI (Capacitor Discharge Ignition), which allows adjustments to parameters such as ignition timing and rev limiter.To establish a benchmark for performance enhancements in modified motorcycles, researchers conducted a qualitative study by varying camshaft duration (220°, 260°, 270°, and 280°) alongside ignition timing (30° and 35° BTDC) using a programmable CDI. The results demonstrated that altering and varying camshaft duration with different ignition timing significantly increased engine performance and torque, achieving 28.65 N·m and 35.2 HP, with a specific fuel consumption (SFC) value of 0.228 kg/HP·h.

Keywords : ***Camshaft, Programmable CDI, Ignition Timing***