

***Analysis of the Effect of Adding an Oil Cooler to a Bore-Up Engine of a 240CC
Honda GL Motorcycle on Engine Performance and e***

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ABSTRACT

Engine modification through the bore-up method can improve engine performance but also increases engine operating e, which may lead to overheating. One solution to maintain engine e stability is the installation of an oil cooler. This study aimed to analyze the effect of adding an oil cooler to a 240 CC bore-up Honda GL engine on torque, power, and engine e. An experimental method was employed using three engine conditions: a standard engine, a bore-up engine without an oil cooler, and a bore-up engine equipped with an oil cooler. Engine performance was tested using a dynamometer, while engine e was measured using a thermogun at engine speeds of 2,000 RPM and 8,000 RPM for 5 and 15 minutes. The results showed that the bore-up engine equipped with an oil cooler produced the highest torque of 18.82 Nm at 7,300 RPM and the highest power of 20.05 HP at 8,330 RPM. Furthermore, the installation of the oil cooler reduced engine e by up to 16°C at 2,000 RPM for 15 minutes and 9°C at 8,000 RPM. These findings indicate that the addition of an oil cooler is effective in maintaining engine e stability while improving the performance of a 240 CC bore-up Honda GL engine.

Keywords: *bore-up, oil cooler, torque, power, engine e.*