

ABSTRACT

EFFECT OF THE CONSTANT AVERAGE SPEED VARIATION ON FUEL CONSUMPTION OF A 4 - STROKE ENGINE MOTORCYCLE

By

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The growth of motorcycles demand in Indonesia has reached 1 million units per year. The estimated growth is about 10 percent per year. This means that the growth of motorcycles in Indonesia will require the increase in fuel stockpiles every year. Therefore, it is necessary to save fuel, for example by applying smart driving behaviors. Driving behaviors include accelerating, braking or decelerating, idling, adjusting gears, speeding, and turning on or off the vehicle. Inconstant acceleration and sudden braking can cause unstable fuel consumption or waste of fuel.

Therefore, the authors observed the effect of the constant average speed variation on fuel consumption of a 4-stroke motorcycle through a series of tests with several variations including road test with the variations of the average speed of 30 km/h, 50 k/h and 70 km/h, stationery test with variation of the engine rotation of 1500 rpm, 2500 rpm and 4000 rpm, and the road test with variation of speed and test of as far as 1 km with 5 time stop (stop every 200 m)

The results showed that the lowest fuel consumption on a test with a distance of 2.5 km occurred at a speed of 50 km/h as big as 32 ml (16 %) followed by 30 km/h of speed that consumed 49 ml (24.5%) fuel and on a test with a distance of 5 km at a speed of 70 km/h as much as 79 ml (39.5 %) followed by 30 km/h of speed that consumed 82,3 ml (41.15 %) fuel. The average fuel consumption at the engine rotation speed of 1500 rpm, 2500 rpm and 4000 rpm were 18.66 ml (9.33 %), 23 ml (11.5 %), and 36 ml (18 %).

Keywords: Driving behavior, Smart driving, Fuel saving.