

ANALYSIS THE EFFECT OF STANDARD ECU, REMAP ECU AND AFTERMARKET ECU ON POWER TORQUE FUEL CONSUMPTION AT 155CC VVA AUTOMATIC MOTORCYCLE

Name : Puguh Permadi
Student Number : 2204211322
Supervisor 1 : Firman Alhaffis, S.T., M.T.
Supervisor 2 : Irwan Kurniawan S.T., M.T.

ABSTRACT

This study analyzes the influence of three types of Electronic Control Units (ECU) Standard ECU, Remapped ECU, and Aftermarket ECU, on torque, power, AFR, and fuel consumption in a 155 cc VVA automatic motorcycle through dynotest measurements and a 1 liter full to full fuel consumption test under constant parameters, including Pertamina Turbo fuel, a 70 kg load, and an engine speed range of 2,000–7,000 RPM. The results show that the Standard ECU produced a torque of 20.78 Nm at 2,792 RPM, power of 10.3 HP at 6,563 RPM, an AFR of 11.3, and fuel consumption of 40.00 km/l. The Remapped ECU provided improvements with a torque of 20.78 Nm at 2,996 RPM, power of 10.7 HP at 6,858 RPM, an AFR of 12.3, and fuel consumption of 43.00 km/l. The Aftermarket ECU delivered the best performance, producing a torque of 21.38 Nm at 2,924 RPM, power of 11.8 HP at 6,112 RPM, an AFR of 12.3, and fuel consumption of 43.20 km/l. Overall, the Aftermarket ECU offered the most optimal increase in power and fuel efficiency, the Remapped ECU provided balanced improvements, while the Standard ECU remained stable but with slightly lower performance.

Keyword: *Standard ECU, Remapped ECU, Aftermarket ECU, air-Fuel Ratio (AFR), 155cc VVA Automatic Motorcycle*