ABSTRACT

Transmission System at 125 Vario PGM-FI system is an automatic transmission. Automatic transmission system is composed of a belt and pulley system and final drive. In the previous output vario vehicles also use the same automatic transmission system. One of the previous output of the vario is New Vario 110. Both are using the same system that uses a CVT automatic transmission. Both also have the same type of engine albeit with different cylinder capacities. Need to do analysis to compare the performance of the 125 Vario PGM-FI with the vehicle out before the New Vario 110. From there it can be seen whether there is an influence of the transmission system on vehicle performance.

Parameter comparison of the two vehicles refer to three things: the thrust, angle of inclination and acceleration of the vehicle. To get the thrust of each vehicle will be dynotest directly on the output of the torque wheel wheels as a function of rotation of the wheel. From this data will be converted into thrust force as a function of vehicle speed or linear wheel velocity. Incline angle is obtained from geometric progression with input thrust and drag the boundary parameters of the graph. Graph biggest drag cutting thrust at the top point of the graph is a reflection maximum incline. From this maximum incline angle of inclination can be seen that the magnitude of each drivable vehicle. Acceleration of each vehicle obtained from dynotest on vehicle
wheels. Test equipment output is set to appear each time a change of pace. Given interval velocity of 10 km / hour. Of time and these changes can be obtained through the formula uniformly accelerated motion acceleration value.

The results obtained thrust Vario 125 PGM FI has better characteristics than the Vario 110 FI where the magnitude of the thrust can be maintained at high values up to speeds of 45 km / hour. The angle of inclination is able to pass Vario 125 PGM FI is equal to 28.5 degrees, is slightly larger than the angle of inclination can be passed Vario 110 FI that has a large angle of 26 degrees. The magnitude of the acceleration of the Vario 125 PGM FI has better characteristics than the Vario 110 Vario 125 FI where the acceleration has a greater value on the early pace and was able to be maintained at a higher speed than the Vario 110 FI. From this comparison it can be seen that the automatic transmission available on the Vario 125 PGM FI is more effective than automatic transmission Vario 110 FI.

**Keywords:** Rolling resistance, drag force, grade, Automatic Transmission, Ratio Pulley.