

## Pengembangan kendaraan hibrida CNG (compressed natural gas)-motor elektronik untuk jenis MPV (multi purpose vehicle) = Development of hybrid vehicle CNG (compressed natural gas)-electric motor on a MPV (multi purpose vehicle) car type

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### Abstrak

Hybrid Electric Vehicle banyak dikembangkan di negara maju karena memiliki konsumsi bahan bakar yang lebih baik dibanding kendaraan bensin. Pada umumnya, kendaraan hibrida, yang memiliki dua atau lebih sistem propulsi, memiliki penggerak berbahan bakar minyak bumi dan sistem penggerak elektrik. Dalam riset ini dilakukan perancangan dan pengujian prototype kendaraan hibrida berbahan bakar compressed natural gas (CNG) dan sistem penggerak elektrik dengan kombinasi series - parallel mesin bensin berdaya 81 kW dan motor listrik 10 kW yang bertujuan sebagai system konversi untuk kendaraan jenis MPV. Mesin bensin ditambahkan converter kit CNG yang memiliki kapasitas 15 LSP (liter setara premium), sedangkan penggerak elektrik dengan 6 buah baterai lead acid dihubungkan secara parallel dengan spesifikasi 12V 200 Ah per baterai. Dari hasil perhitungan secara teoritis, didapat bahwa konsumsi bahan bakar kendaraan hibrida hasil rancangan mencapai 17.43 km/L.

.....Hybrid Electric Vehicle developed in many developed country because of its better fuel consumption compared to gasoline vehicle. In general, hybrid vehicles, which have two or more propulsion systems, have a gasoline fueled propulsion and electric propulsion system. In this research design and testing of a prototype hybrid electric vehicle with compressed natural gas (CNG) and electric propulsion system with a combination of series - parallel gasoline fueled engine with 81 kW power and a 10 kW electric motor that is intended as a conversion system for MPV type vehicles.

Gasoline engine added CNG converter kits which have a capacity of 15 GLE (Gasoline Liter Equivalent), while the electric drive with 6 pieces of lead acid battery connected in parallel with a specification of 12V 200 Ah per battery. From the result of theoretical calculation, it's found that the fuel consumption of designed hybrid electric vehicles reached 17.43 km/L.