Methanol Fueled Genset

Methanol is a renewable, economically, environmentally interesting, and substitute for conventional fuel which is used in Internal Combustion (IC) engine. As methanol may be future fuel for IC engine, so it necessary to test the applicability of methanol in IC engines and characterize the performance and emissions. Port fuel injection method is applied for the substitution of diesel fuel with methanol in IC engine. The methanol injection is nearly double of diesel as the methanol fuel has lower calorific value than diesel fuel (~53 % of diesel). A production-grade six-cylinder, four-stroke, naturally-aspirated, constant speed diesel engine (Cummins DG Set, QSB5.9G1) was modified and used for the experimental test. Technical specifications of the test engine are given in Table 1.

Engine parameters	Specifications
Make/Model	Cummins 3- phase DG set , QSB5.9G1
Engine type	Four-stroke, inline six-cylinder, constant-speed, direct-injection, turbocharged CI engine
Rated power output	140 kW (184 hp)
Rated engine speed	1500 rpm
Displacement volume	5.881
Compression ratio	16.51
Cooling type	Charge air cooled
Lubricating System	Oil Sump, engine mounted lube oil pump & cooler, full flow spin-on lube oil filter
Fuel System	Dual fuel filter system, Bosch fuel system
Governor type	Electronic