



Independent Testing of HYDI Hydrogen on Demand Production in Improving Performance and Reduce Emissions in Diesel Engines

To Whom it May Concern

The UniSA STEM at the University of South Australia is undertaking an independent testing program to research the impact of a hydrogen on demand unit designed to supplement fuel for large diesel engines. The innovative unit is manufactured by HYDI Pty Ltd in South Australia.

The testing program is seeking to establish performance data relative to variations in emissions, power and fuel consumption. The scientific program is being conducted and will be conducted under controlled conditions incorporating several phases including:

1. Application to a 100-kVA diesel generator at the University of South Australia at Mawson Lakes Campus
2. Application to a Scania public transport bus on a chassis dynamometer in Adelaide
3. Laboratory analysis with a diesel generator in Adelaide to conduct in-cylinder combustion analysis to ensure that the peak temperature and pressure are within specified limits as specified by the manufacturer.
4. Conduct drive-cycle tests with a Scania public transport bus on a chassis dynamometer to measure the on-road performance and emissions on a typical transport route. This test will be conducted on a special chassis dyno which is available in Sydney.

The first phase of the program has established an understanding of the operation of the HYDI unit and its capability to vary the volume of hydrogen produced using an inbuilt electronic control which is manipulated remotely.

Preliminary tests with on-demand hydrogen/oxygen mixture produced by HYDI in a 100-kVA diesel generator showed promising results of reducing Diesel Particulate Emissions in the range of 25 - 80% at varying power of 0 – 100%. The fuel consumption also showed some improvement. It is worth mentioning here that the power needed by the hydrogen/oxygen mixture produced by the HYDI is coming from the gen-set battery/alternator. Therefore, any improvement is the net improvement. Also, the risk of the storage of hydrogen/oxygen mixture is minimum as they are produced on-demand (i.e., no storage).

A comprehensive results and report from this independent testing program will be issued at the completion of the program.

Yours faithfully

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