(2-05) The Lean Boost System

A Gasoline Engine with Performance and Improved Economy

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ABSTRACT

This paper describes the Lean Boost Direct Injection system (LBDI), a downsized gasoline engine for improved fuel economy. LBDI combines direct injection, lean operation and pressure charging, and allows a significant reduction in swept volume to be made whilst retaining vehicle performance. Engine tests have been undertaken which demonstrate the validity of the combustion system. Vehicle simulation results for typical European C class and sports utility vehicles are presented. Using the exhaust gas emission levels from engine tests and drive cycle simulation, aftertreatment requirements and configurations are considered. The alternative of an advanced small bore HSDI is compared.