

# THE INFLUENCE OF LIGHTWEIGHT MATERIALS ON FUEL ECONOMY AND EMISSIONS IN HEAVY-DUTY DIESEL ENGINES

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For an in-line six cylinder diesel engine, it is estimated that a 25% reduction in total engine weight could result in a 6% fuel economy benefit. This saving in fuel usage translates into a reduction of approximately 10 gms of NO<sub>x</sub> per gallon per year for each gallon of fuel saved. For large production engines, this elimination of emissions to the

atmosphere is substantial. This paper describes the technologies being developed that will allow for the substitution of aluminum for cast iron in engine heads and blocks, while at the same time, allowing the engine manufacturer to maintain performance and durability.