

High-Efficiency Engine Technologies

A Natural Gas, High Compression Ratio,

High Efficiency, ICRE

John W. Fitzgerald, President ETTI

The OTTO 3G™ Engine R&D

Dr. S. Scott Goldsborough,

Modeling & analysis

***Realizing The Full Potential Of Natural Gas
As A Vehicular Fuel***

Oct. 03, 2011

Poster 07 location

DEER 2011, P - 07, ETTI - The OTTO 3G™ 1.6L prototype engine

1.6L FP-FS ENGINE

100KW TURBO-COMPOUNDED

2.5 IN. BORE, 5.0 IN. STROKE

ILLUSTRATED AT MID STROKE

MECHANICAL RECTIFIER OUTPUT
HYDRAULIC COUPLED GEV CAM
WET CYLINDER SLEEVE (DARTON)

ETTI RINGPACK

FEDERAL-MOGUL STYLE
SQUEEZE FILM BEARINGS
(PISTON, ROD & PIVOT SHAFT)

US PATENT 7,258,086

AU PATENT 2006216721

Additional Foreign Patents Pending on 7,258,086
Other Patents Pending On Various Features

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CONFIDENTIAL

NOTE:
ELECTRICALLY DRIVEN EXTERNAL
LUBRICATION AND COOLANT PUMPS

