



EMISSIONSOLUTIONSINC



Tomorrow's Technology Today

Introduction

- *Committed to Gaseous Fuel Technologies Addressing Air Quality, Economic, and Energy Security Issues.*
- *ESI is MY2010 CARB/EPA certified with its Phoenix NG 7.6L engine series.*
- *Each ESI Engine Qualifies for the Maximum \$32,000 Federal Tax Credit.*
- *Poised for the Growth Opportunities with Proven Products in the Global Market Place.*



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Company Overview

➤ **Emission Solutions, Inc. (ESI)**

- *Privately Held Texas S Corporation – Founded 1998, Formed Sept, 2002 – Dallas, TX*
- *Develops, Manufactures & Markets CARB & EPA MY2010 OEM, Heavy-Duty, CNG/LNG Engines*
- *Patented Technologies*
- *Navistar-International, Class 6,7 Trucks and School Buses with DT466e or MaxxForce® DT engines*
- *Food & Beverage Distribution*
- *Municipalities and School Districts*
- *Refuse*





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ENGINE SIMPLICITY

- 1) Throttle Body
- 2) Coil per Spark plug
- 3) 33 lb passive three way catalyst
- 4) No EGR
- 5) Simple CNG regulator
- 6) Open System ECU Software
- 7) Simple wiring harness
- 8) For replacement or new chassis



BENEFITS:

- 1) IRS authorized VETC (\$32,000)
- 2) Eligible for Fed/State Funding
- 3) Lowest NOx+NMHC= 0.18 g/bhp-hr
- 4) Best Power:weight ratio in its class
- 5) Extended life cycle (10 years)
- 6) No major tools or training required
- 7) No service center changes
- 8) Less Service Intervals, fuel savings



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MY2010 PHOENIX NG 7.6L

Medium/Heavy-Duty Natural Gas Engine Model ESI0326 300hp (224kw)

FEATURES

- * **2010 CARB/EPA certified requiring only a maintenance-free passive three-way Catalyst and NO EGR**
- * Stoichiometric, Turbocharged, closed loop adaptive learn combustion technology
- * New computerized control management (SAE J1939, J1587, ATA data links) for on-demand peak performance and emission control
- * Best power- to- weight ratio in its class
- * Designed with wet-type cylinder liners and hardened combustion components for improved heat dissipation and heat resistance and extended engine life
- * Extensive ECU operational management logs & easy-to-use diagnostic capabilities

BENEFITS

- * Lowest tailpipe emissions of **ANY** medium/heavy-duty engine
- * \$32,000 federal tax credit (IRS letter available)
- * Eligible for federal, state and local incentives in many states
- * Engineered with lower engine compression ratio for extended engine life
- * Improved fuel efficiency using an electronic throttle body and stoichiometric fumigation.
- * **NO** complex emission Aftertreatment – **NO costly DPF, EGR or SCR** –substantially reduces maintenance costs

ENGINE SPECIFICATIONS

Horsepower	175-300hp
Peak Torque	460-900 lb-ft
Combustion System	Dedicated spark-ignited, Throttle-body injection, Turbocharged
Displacement, Compression Ratio	7.6 Liters, 10.5:1
(NOx + NMHC Emissions)	0.18 g/bhp-hr
PM Emissions	0.01 g/bhp-hr
Aftertreatment	Passive three-way Catalytic Converter
Dry Weight	1,290 pounds
Fuel Type	CNG & LNG – Domestic fuel – validated to MN 75

MAINTENANCE INTERVALS

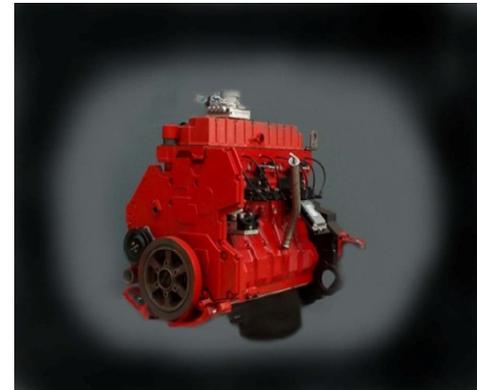
Oil and Filter: 20,000 miles or 1,000 Hours
 Spark Plugs: 50,000 miles or 2,000 Hours

WARRANTY*

Standard two year or 4,000 hours with full parts and labor; extended warranty available
 * which ever occurs first

Specifications and design subject to change without notice

**2010 Technology Today
 Without
 Complex Exhaust Treatment**

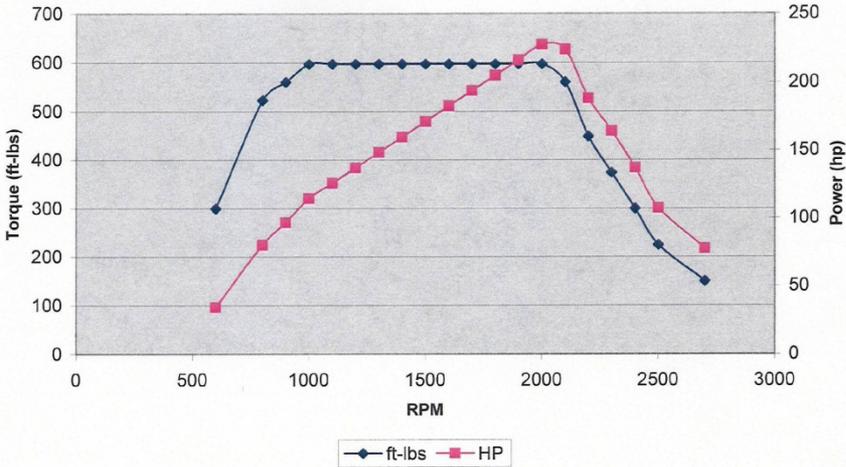


Patent No.: US 6,910,269

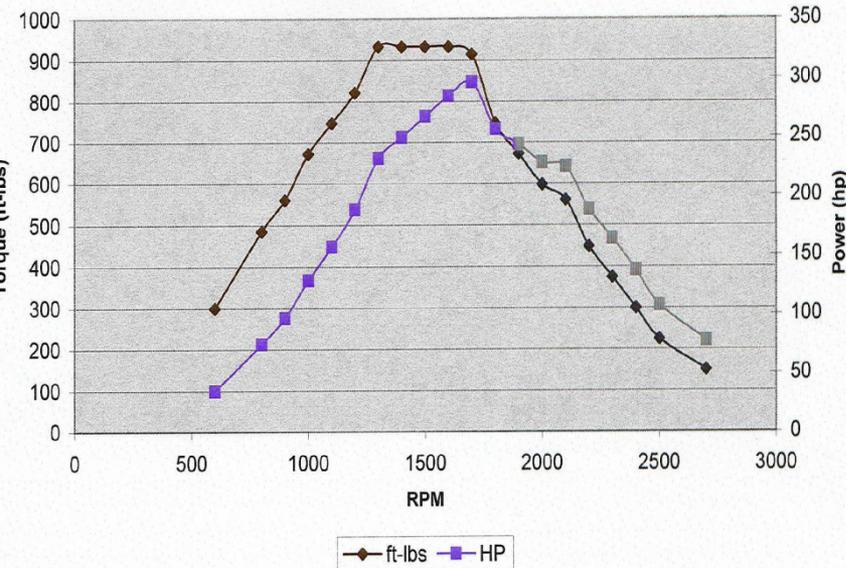
MY2010 Phoenix NG 7.6L ESI0326 Performance Curves



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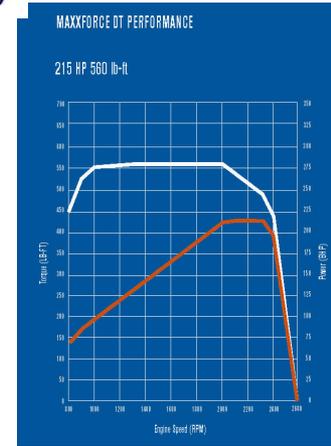


215 hp@600 lb-ft

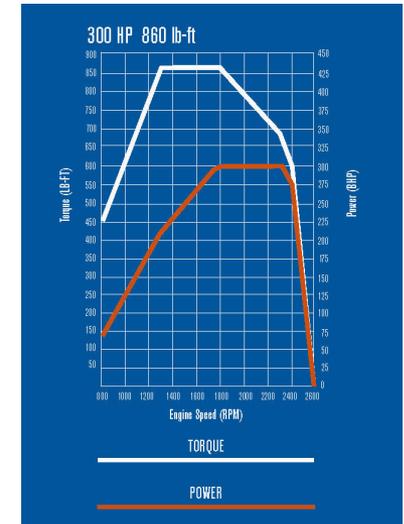


300hp@900lb-ft

MY2009 MaxxForce DT® DT Performance Curves



215 hp@550 lb-ft



300 hp@860 lb-ft



350 hp (261 kW)
Phoenix NG 9.3L
Design Specification

Durability through innovative design

General Data

Ratings:	285-350 hp
(hp/torque mapped to meet critical payloads)	950-1,200 lb-ft
Combustion System	Dedicated Spark-Ignited
After Cooler	Air to Air
Engine Configuration	Four Cycle, In-Line Six
Aspiration	Turbocharged-Throttle Body
Compression Ratio	11.5:1
Displacement	9.3 Liters

Features and Benefits

Delivers up to 350 hp with superior torque rise (up to 1,200 lb-ft) for quicker response, improved acceleration and pulling power. Designed with Wet-Type cylinder liners and cryogenically hardened combustion components for improved heat dissipation and heat resistance to extend product and emission life cycle. Two year parts and labor (unlimited miles).

Fuel System

- Stoichiometric, closed loop adaptive learn technology
- Computerized control management for on demand peak performance and emission control
- Adaptive fuel types: CNG, LNG, Propane
- EPA/CARB Emission MY 2010 Certification: December 31, 2009

Specifications subject to change without notice

Patent No.: US 6,910,269





Customer Projects

Tulsa School District	Joe Cooper Ford	140	60			
Great Plains Coca Cola	Joe Cooper Ford	2	10			
Texas City ISD	Int'l Trucks Hou	20	142			
City of Kansas City	SWIT McKinney	19	50			
City of Dallas	SWIT Dallas	24	20			
Anheuser Busch, NY	Syosset	22	50			
Pepsi, SLC	Semi-Service	1	100			
Swire Coca-Cola USA	Lake City Trucks	1	20			
Elgin Sweeper	SWIT McKinney	1	100			
Botanical Gardens, NY	Syosset	1	10			
Sewer Equip. Co Of America	SWIT McKinney	1	50			
City of Burlington, VT	J&B International	1	10			
Navistar Escobedo	Peru	1				
Total		234	622			

Approved Stimulus Funding Projects

<i>INDOT, IN</i>	64				
<i>Suffolk Co, NY</i>	48				
<i>Ansonia SD, OH</i>	6				
<i>Oyster Bay, NY</i>	49				
<i>Nassau Co, NY</i>	25				
<i>Sysco Foods, UT</i>	25				
<i>Middle Country CSD, NY</i>	48				
TOTAL	265				



Projected New Orders 2010

<i>Customer</i>	<i>Vehicle Potential Orders 2009</i>	<i>Additional Vehicle Potential</i>			
Southern Wine	96				
Birmingham, Al	82				
Navistar Escobedo	50	250			
Silver Eagle Dist.	32	200			
DC Area Dealer / Utility Refuse	25				
Philadelphia, Pa	10				
Casella Waste System	6				
Westrux Demo	2	200			
Swire Coke, SLC	5	10			
Pepsi Bottling Group / SLC	5	100's			
Groot Industries	4	15			
Total	317	775			
Indicates Current Customer					



ESI Demo Projects

- ***Southern California: WESTRUX International Truck / Clean Energy / EnviroMech Industries and ESI. Provides Vehicles for Customer Demo's in Southern California***
 - *Addressing:
Municipal, Food/Beverage, Construction Industry*

- ***Southern California Gas Company: Funding a Crash Test for School Buses in California.***
 - *Required by the California Highway Patrol*
 - *ESI to Repower School Buses in the State after Approval.*



Summary

- *Committed to Gaseous Fuels Technologies Addressing Air Quality, Economics, and Energy Security Issues.*
- *ESI Phoenix NG 7.6L Engine Series are MY2010 CARB/EPA certified.*
- *Each ESI Engine Qualifies for the Maximum \$32,000 Federal Tax Credit.*
- *Poised for Growth Opportunities with Proven Products Within The Market Place.*
- *PERC to Fund Development and Certification of 7.6L Propane Engine; ESI is working with CleanFuelUSA to develop this project.*