

# Off-Road Small and Large Spark-Ignition Engines

Q/A and Update

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2009 EMA Certification Workshop

May 5, 2009

California Environmental Protection Agency

 **Air Resources Board**

# Small Spark-Ignition Engines (SORE)

California Environmental Protection Agency

 **Air Resources Board**

# SORE 2010+ MY Evaporative Requirements (Small Production Volume Tank Exemption)

- Small Production Volume Tank Exemption Manufacturers (SPVTM) must meet:
  - Low Permeation Fuel Hose (CCR Title 13 Section §2754)
  - Carbon Canister (§2754)
  - Fuel Cap Performance Standard (§2756)
- Fuel tank is exempt - permeation data not required to be submitted

# 2008 SPVTM Exemption

- Some SPVTM may need to submit an annual year-end actual California sales report as specified in SORE FAQ #1-44
- For example, SPVTM with 50-state sales  $\geq 4000$  units and choose not to limit exemption labels to  $\leq 400$  units

# SORE Exhaust Testing (Haagen-Smit Lab)

- ARB SORE Dynamometer fully operational
- Testing will include:
  - Confirmatory engine testing
  - Title 13 New Engine Compliance testing

# Large Spark-Ignition Engines (LSI)

California Environmental Protection Agency

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## LSI > 1 Liter (2010+ MY Requirements)

- Exhaust Emission Standards for 2010+ MY > 1.0 liter
  - HC+NOx: 0.8 g/kW-hr
  - CO: 20.6 g/kW-hr
- Alternate formula listed in §2433(b)(1)(B) no longer applicable to 2010+ MY:  
$$(\text{HC}+\text{NOx}) \times \text{CO}^{0.784} \leq 8.57$$

# LSI Durability Demonstration (2010+ MY)

- Durability Demonstration:
  - Should be representative of real-world use
  - Accumulation cycle - mixture of Transient and Steady-State operation
  - Minimum of 50% useful life
- Manufacturers have begun submitting 2010 MY durability testing results