



SAE 2009 **On-Board Diagnostics** Symposium

Update on Light and Heavy Duty Vehicle

September 22-24, 2009 • Indianapolis Marriott Downtown • Indianapolis, IN



SCR Breakout Session Wednesday Afternoon



OBD vs. Inducement

- OBD & SCR Inducement are separate requirements
 - 3 Main SCR Inducement Triggers
 - Low/Empty Reductant
 - Improper Reductant
 - Tampering
- } OBD Overlap
- Tampering often not distinguishable from true failures
 - Want to avoid a “MIL -> Inducement” consumer perspective
 - Conservative manufacturers may be at risk depending upon what is decided to be “tampering” or not
 - EMA not yet successful in accomplishing an industry agreement with EPA, action currently on hold





NOx Sensor Diagnostics

- Single Sensor vs. Dual Sensor
- Dual Sensor allows for some comparison, during motoring and maybe some other conditions
 - More complex diagnostics will be required (e.g. ammonia storage, intrusive dosing, O₂ content correlation) to ensure correct readings over the full speed/load range
 - Difficulty in distinguishing which sensor is bad, In vs. Out
 - There might be aftertreatment architectures which allow for meeting the OBD threshold
- Further encourage supplier(s) to present at OBD Symposium next year
 - Are there options for these complex diagnostics to reside internal to the sensor



SCR Catalyst Eff'y Diagnostic

- Diagnostic Robustness is a concern, especially considering End of Useful Life systems
 - ARB or manufacturers themselves may find In-Use non-compliance
 - Modelled engine-out NOx in conjunction with direct NOx measurement presents new OBD concerns
- Stringency of the OBD Threshold is still in question
 - Manufacturers not claiming to be meeting 2010, let alone stricter 2013 OBD Threshold
 - No diesels certs currently approved to 2010 HD OBD



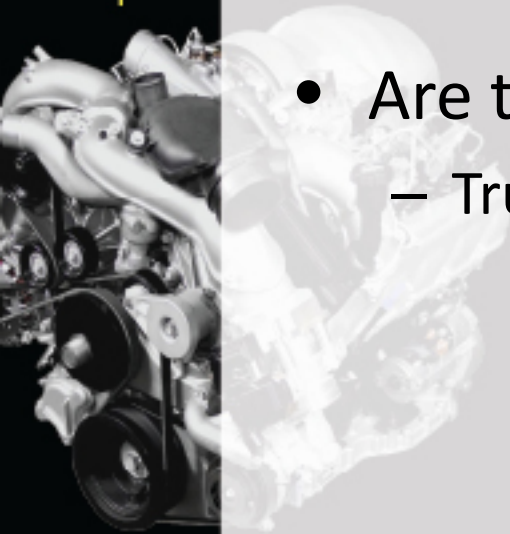
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US & Euro

- Are there alternatives to inducement?
 - Truck Stop Spot Checks -> Hefty Fines





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SCR Aging

- Brief discussion on perceived aging relative to whether a temperature gradient front to back is realistic, other characteristics, etc.

