Air Resources Board Certification
Update

2015 EMA Certification Workshop
April 21, 2015
Outline

- Organization
- Certification Statistics
- Certification Streamlining
- E-Cert Update
- GHG Certification
- Warranty/Label Updates
- Tamper Resistance
- OFCI End-of-Year Reports
- Compliance Testing
- Defects Reports
- SORE Evaporative Testing
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California Environmental Protection Agency
Air Resources Board
2014 Calendar Year New Engine Application Submittals (CIHD+OFSEC)
2014 Calendar Year New Engine Application Tracking (CIHD+OFSEC)

- Applications Submitted
- EOs Signed

2,123 EOs Issued

2014 Calendar Year New Engine Application Tracking (CIHD+OFSEC)
Volume of EOs issued in 2014

2,123 EOs Issued

- Off-Road Small SI Engines - Exhaust
- Off-Road Small SI Engines - Evap.
- Off-Road CI Engines
- On-Road Heavy-Duty
- SI Marine Engines
- Off-Road Large SI Engines

California Environmental Protection Agency
Air Resources Board
2014 Calendar Year Average Application Processing Time (CIHD+OFSEC)

Calendar Days

Average Processing Time

- Notification Time
- EO Process Time from Date of Last Submittal
- EO Process Time from Date of Initial Submittal

California Environmental Protection Agency Air Resources Board
Certification Streamlining

- Workshop was held on November 18, 2014
- Draft mail-out was provided for comments
- Streamlined application categories will include:
  - Carryover,
  - Partial carryover,
  - Carryover/partial carryover requiring OBD approval.
- Final mail-out will be published soon
- Streamlined process will begin in July.
E-Cert Update

- Design revamped to include:
  - Diesel and Otto cycle engines and vehicles
  - Carryover and Partial Carryover applications
  - Greenhouse gas certification
- Data Requirements will be published Summer 2015
- Pilot Program will begin Spring 2016
Transition Period for On-Road HD Phase I GHG

- ARB staff is assisting vehicle and engine manufacturers to comply with the new GHG standards during the transition period.
- Staff is issuing EOs with GHG data to both engine and vehicle manufacturers.
- Please include GHG data in the ABT reports.
- Mail-out will be published soon.
Warranty & Label Updates

• Issues regarding Labels and Warranty statements were identified in 2013.
• Certification staff worked with manufacturers in 2014 to resolve issues.
• All issues have been resolved for the 2015 model year certification.
ARB has the authority to check the hardware for preventing adjustments to emissions related components under §86.094-21 and §1039.205.

Staff is reviewing the tamper resistance hardware on engines.

Manufacturers will be asked to send ARB hardware for review if:
  ○ Not received an approval from ARB, or
  ○ Current approval is more than 5 years old.

Please coordinate with your certification representative.
OFCI End-of-Year Reports Need To Be Submitted

- Production reports needed for:
  - Certified engines, and
  - Flex engines (TPEM)
- Production reports due 45 days from the end of model year (§1039.250(a)).
- As of today 94% of the reports have been received
ARB Is Initiating In-Use Compliance Testing on HDD Engines

- NTE testing will be performed both on road and/or on a chassis dynamometer
- NTE testing will be compared to the applicable NTE standard
- Select engines may be removed from trucks for further engine dynamometer testing
- Engine dynamometer emissions will be compared to the applicable certification standard
- Engine manufacturers will be invited to participate
- Data acquired will be used to help refine existing HDIUT (NTE) regulations
HDD In-Use Compliance Testing

- ARB may select engine families based on HD IUVP results submitted to EPA
- Preliminary work on implementing a NTE database
  - Manufacturer would submit NTE data electronically
  - NTE data submittals are reviewed for completeness
  - NTE data must be standardized
- Active AECD’s during NTE events may invalidate a NTE event
  - Accurate AECD descriptions and triggering information is necessary
  - AECD event broadcast must be standardized
770 unique components reported by HD manufacturers
92 parts with warranty claims rates >20%
Warranty claims may have increased with partial implementation of HD OBD, while some warranty claims may have decreased due to improved design and durability
Some manufacturers not submitting FIRs/EIRs
EIRs continue to lack emissions data
Manufacturer responses delayed and/or incomplete
## 2010-2014 MY Average HD EWIR Cumulative Claims Rate Based on 2014 Q4 Data

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>CUMULATIVE CLAIMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catalytic Converter</td>
<td>6%</td>
</tr>
<tr>
<td>EGR</td>
<td>14%</td>
</tr>
<tr>
<td>EGR Cooler</td>
<td>16%</td>
</tr>
<tr>
<td>Turbo</td>
<td>10%</td>
</tr>
<tr>
<td>Exhaust Manifold</td>
<td>10%</td>
</tr>
<tr>
<td>Injectors</td>
<td>12%</td>
</tr>
<tr>
<td>DPF</td>
<td>11%</td>
</tr>
<tr>
<td>SCR</td>
<td>6%</td>
</tr>
<tr>
<td>Other</td>
<td>6%</td>
</tr>
</tbody>
</table>
ARB defect reporting requirements are same as EPA* - 40 CFR 1068 Subpart F or Part I-E
ARB believes manufacturers have underreported defects, since very few off-road defect reports are submitted to ARB on an annual basis
ARB will coordinate with EPA to determine if there is a discrepancy in reporting

*California Code of Regulations, Title 13, Section 2425.1
Process for Corrective Action

- Create improved parts or calibrations
- Work with ARB to implement corrective action in the form of an extended warranty and/or recall
- Contact customers so they are aware of the service campaign.

*California Code of Regulations, Title 13, Sections 2035, 2111-2119
Manufacturers Are Introducing Electronic Fuel Injection (EFI) SSIE Models

- EFI technology significantly different than carbureted
  - Emissions and deterioration characteristics
  - Closed loop feedback control
- New Deterioration Factor (DF) testing required for EFI
- Carbureted DFs not representative of EFI and cannot be carried over to EFI
Certifying Multi-Fuel SSIE Models

- Manufacturers are introducing multi-fuel models: Tri-Fuel (Gasoline, LPG, CNG)
- DF Testing
  - Identify worst-case fuel and provide technical justification
  - Use worst-case fuel for service accumulation
  - Test using worst-case fuel at each test point
  - Calculate worst-case DF
Averaging, Banking & Trading (ABT)

• 13 CCR Section 2408(d)(4)
  • Starts with 2015 Model Year
  • Any unused certification credits will expire five years after generation

• ABT template and attachments in Mail-out MSO 00-14 have been updated
  
  http://www.arb.ca.gov/msprog/offroad/sore/sorectp/sorectp.htm
MY 2013 SORE Evap. Validation Study

Background

• Follow-up to similar study performed in 2008
• 18 units obtained from SORE manufacturers
  • 15 certified to design based emissions standard (one eliminated due to engine failure)
  • 3 certified to performance based emissions standard
• 17 units SHED tested
  • Three, 24-hour diurnal tests per unit
  • Testing performed 2013 and 2014
MY 2013 SORE Evap. Validation Study
Passing Test Results

• 40 percent of all systems passed testing
• 7 design based systems
  • 4 riding mowers, 3 generators
  • 4 systems with non-metal tank and the same fuel hose
  • 2 systems with metal tank and the same fuel hose
  • 1 system with metal tank and unique fuel hose
MY 2013 SORE Evap. Validation Study
Failing Test Results

- 60 percent of all systems failed testing
- 7 design based systems
  - 6 generators, 1 riding mower
  - 5 systems with metal tank and the same fuel hose
  - 2 systems were unique
- 3 performance based systems
  - 3 walk behind mowers
  - None used the same fuel hose or tank material
### MY 2013 SORE Evap. Validation Study Summary of Results

<table>
<thead>
<tr>
<th>Certification Option</th>
<th>Number Tested</th>
<th>Passing Results</th>
<th>Failing Results</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Units Passing</td>
<td>Average Result</td>
</tr>
<tr>
<td>Design</td>
<td>14</td>
<td>7 1.44 g/day</td>
<td>2.37 g/day</td>
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<tr>
<td>Performance</td>
<td>3</td>
<td>0 NA 1.0 g/day</td>
<td>3 1.4 g/day</td>
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</table>
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Questions