Aftermarket Catalytic Converter Regulation

AQCAC Meeting - Karl Munder

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What is a Catalytic Converter?

• A device installed on a vehicle that reduces emissions formed in the engine during fuel combustion prior to their exhaust out the tailpipe

• Catalytic converters contain a combination of precious metals that reduce the amount of harmful pollution being emitted through the vehicle’s exhaust system

• As they age, contaminants may build up on the catalyst surfaces, making them less efficient
... for Catalytic Converter Failures

• Three Options
  – Original Equipment Manufacturer (OEM)
  – Still functional replacement from another vehicle (used)
  – One manufactured by a third party (Aftermarket)
Options

Two types of Aftermarket Catalytic Converters

• Federal (USEPA)
• California Air Resources Board (CARB)
Federal Aftermarket Converter

- Performance based on a reduction efficiency of 70/70/30% for the pollutants HC/CO/NOx
- Manufactures certify to EPA that their converters meet the requirements
- Performance warranty of 25,000 miles

HC = Hydrocarbon
CO = Carbon monoxide
NOx = Nitrogen oxide
CARB Aftermarket Converter Program

- Converter must allow vehicle to meet its original certification level (e.g. LEV, TLEV, ULEV, etc.)
- Must be OBD II (On Board Diagnostic II) compatible, if it is an OBD equipped vehicle – check engine light must stay out
- Does not allow used converters
CARB (continued)

• CARB reviews test results from independent labs to certify converters.

• CARB executive orders are issued to specific engine families

• CARB audits/tests converters to ensure they meet the standards

• Warranty of 50,000 miles/5 years covers converter, parts and labor
Need for an Updated Program

• Federal program not updated since 1986
  – Does not consider the significant technological advances occurring over the years

• The Ozone Transport Commission (OTC)
  – Made a push for an update of the federal program
  – Developed a model rule based on CARB AMCC Program

• Two OTC states (NY, ME) have already adopted this program
  – Other OTC states also moving forward

• Rule will move Maryland forward …
  – … but it will also continue to push for a federal program or implementation through a partnership … this one simply makes the most sense as a federal rule, policy or program
Benefits of Newer Converter Technology

• Catalytic converter technology has progressed dramatically in response to stricter vehicle emissions standards

• New Catalytic converters can reduce engine-out emissions by over 99 %

• Federal AMCCs have not benefited from technology progression

• Allowing poorly performing federal AMCCs on new vehicles defeats technological advancements of today’s vehicles
Why is a CARB Approved Converter…

… a better option?

<table>
<thead>
<tr>
<th></th>
<th>Federal Converter</th>
<th>CARB Converter</th>
<th>Is CARB Better</th>
</tr>
</thead>
<tbody>
<tr>
<td>Converter Efficiency</td>
<td>70/70/30%</td>
<td>must allow vehicle to meet its original certification level</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>(HC/CO/NOx)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warranty (conversion efficiency)</td>
<td>25,000 miles</td>
<td>50,000 miles</td>
<td>Yes</td>
</tr>
<tr>
<td>Compatible with an OBD II Vehicle</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
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– Consumer protection through better warranty is another important reason to move ahead
## Reductions from New OTC Measures

<table>
<thead>
<tr>
<th>OTC Model Control Measures</th>
<th>Regional Reductions (tons per year)</th>
<th>Regional Reductions (tons per day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aftermarket Catalysts</td>
<td>10,059 (NOx) 2,235 (VOC)</td>
<td>27 (NOx) 6 (VOC)</td>
</tr>
<tr>
<td>On-Road Idling</td>
<td>19,716 (NOx) 4,067 (VOC)</td>
<td>54 (NOx) 11 (VOC)</td>
</tr>
<tr>
<td>Nonroad Idling</td>
<td>16,892 (NOx) 2,460 (VOC)</td>
<td>46 (NOx) 7 (VOC)</td>
</tr>
<tr>
<td>Heavy Duty I &amp; M</td>
<td>9,326 (NOx)</td>
<td>25 (NOx)</td>
</tr>
<tr>
<td>Enhanced SMARTWAY</td>
<td>2.5%</td>
<td></td>
</tr>
<tr>
<td>Ultra Low NOx Burners</td>
<td>3,669 (NOx)</td>
<td>10 (NOx)</td>
</tr>
<tr>
<td>Consumer Products</td>
<td>9,729 (VOC)</td>
<td>26 (VOC)</td>
</tr>
<tr>
<td>AIM</td>
<td>26,506 (VOC)</td>
<td>72 (VOC)</td>
</tr>
<tr>
<td>Auto Coatings</td>
<td>7,711 (VOC)</td>
<td>21 (VOC)</td>
</tr>
</tbody>
</table>

- Potential for large regional emission reductions
- Somewhere around 30 tons per day of NOx reductions in the OTC states
- Greater reductions if a national program
- Compared to other options … this is a large NOx reduction
Industry Support for OTC Effort

- OTC has worked for over 3 years with manufacturers of aftermarket converters
- OTC has industry support for their efforts on the model rule and for pushing EPA to update the federal aftermarket converter program
- One concern from the manufacturers ...
  - Much better if done through a federal rule
Maryland’s Proposed Regulation

- Based on OTC Model Rule
- Requires use of CARB-approved AMCCs on MY 2000 and newer vehicles beginning 1/1/2018
- Prohibits the sale or installation of used, recycled, or salvaged converters
- Provides waivers for unusual cases on a case by case basis
- Applies to a person that installs, sells, supplies, or offers for sale an AMCC in the state
- Sunsets if EPA revises federal policy or if EPA/OTC develop an alternative implementation program with manufacturers
Maryland’s Progress

• Anticipate adoption of regulation by end of 2015

• Held Stakeholder meeting in April 2015
  – Industry was represented by the following groups:
    • Chesapeake Automotive Business Association
    • Washington, Maryland, Delaware Service Station & Automotive Repair Association
    • Manufactures of Emission Controls Association
    • Auto Car Association
  – Generally supportive
    • Would prefer federal program … or
    • Partnership process
Questions