California’s Proposed Certification Process for Specially Produced Motor Vehicles

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California Air Resources Board
AGENDA

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• What Are The Goals Of The California Air Resources Board For This Project
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Introductions

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Why Are We Here?

- California regulations require all new vehicles to meet exhaust and evaporative emission standards, along with other requirements, such as On-Board Diagnostics.

- The Specialty Equipment Market Association (SEMA) requested the California Air Resources Board (CARB) consider adoption of new regulations to allow the use of new light-duty vehicle engines used by low-volume manufacturers of new vehicles that look like previously produced vehicles or specially produced motor vehicles (SPMV).

- SEMA expressed the need to have a SPMV program in California similar to the one that was recently adopted for the rest of the country.

- CARB agreed to consider new procedures to allow sales of SPMVs in California.
Suggested Specially Produced Motor Vehicle Definition

• A SPMV is a turnkey light-duty vehicle or light-duty truck produced by a low-volume vehicle manufacturer that resembles the body of a motor vehicle that was produced for sale in the U.S. not less than 25 years ago

• The SPMV will be a new vehicle produced for sale to the public

• A low-volume vehicle manufacturer is a manufacturer that has total worldwide vehicle sales of less than 5000 vehicles per calendar year

• A maximum of 325 SPMVs may be produced per calendar year per manufacturer
Vehicle Engine Certification - Proposed Procedures

- Certified Vehicle Engine Package
- Exhaust Emissions
- Evaporative Emissions
- On-Board Diagnostics (OBD)
- How is a Certified Vehicle Engine Package Certified
- Potential Benefits to Participation
- Delivery of Certified Vehicle Engine Package
Vehicle Engine Certification - Proposed Procedures

Proposed Certified Vehicle Engine Package

• Fully Assembled and Functioning Engine (Including but not limited to)
  • Air Intake System
  • Fuel Regulator and Pump
  • All Applicable Catalysts
  • All Emission Control Components
  • All Exhaust Connecting Pipes with Oxygen Sensors
  • OBD Sensors
  • Radiator Thermostat
  • Electronic Control Module(s)
  • Wiring Harness
  • Gas Pedal
  • Evaporative Control System
  • All Fuel and Vapor Hoses Needed for Proper Installation

• Emission Label

• Other Items for Discussion
  • Radiator
  • Fuel Tank and Filler Neck
  • Transmission
Vehicle Engine Certification - Proposed Procedures

Exhaust Emissions
• LEV 3 Exhaust Emission Standards for applicable light-duty vehicles (section 1961.2, title 13, CCR)

Evaporative Emissions
• LEV 3 Evaporative Standards for applicable light-duty vehicles (section 1976, title 13, CCR)

OBD
• Current OBD requirements for applicable light-duty vehicles (section 1968.2, title 13, CCR) with exceptions to be discussed

Certification must be obtained for each new model year (MY).
• Data may be carried over from previous MY
• Production may span two years minus 1 day (January 2, 2018 to December 31, 2019 is a 2019 MY)
Proposed OBD Requirements for SPMVs

- Requirements for OEMs
  - Fully Assembled and Functioning Engine
    - Must include all necessary control modules, inputs and outputs from the chassis for a fully compliant OBD II system
    - E.g., clutch switch, gear position sensor, vehicle speed, ABS module, body module, etc.
  - Installation instructions must be prescriptive enough to maintain a fully compliant OBD II system
    - Fuel tank volume and design specs, purge lines, canister specs
    - No modifications to the OEM system is allowed (e.g., changing the location of O2 sensors and catalysts)
Vehicle Engine Certification - Proposed Procedures

OBD Requirements for SPMVs (cont’d)

Evaporative System Leak Monitoring Requirements

– **Current OBD II Requirement:** Monitor the complete evaporative system for leaks (e.g., 0.020 inch and 0.040 inch or 0.020 inch and 0.090 inch).

– **Potential Issue:** May be difficult to maintain evaporative system leak monitor robustness on SPMVs due to the sensitivity of the monitor to fuel system configuration differences from OEM designs.

– **Proposal:** Evaporative system leak monitor requirement only for 0.040 inch leak detection (instead of both 0.020 inch and 0.040 inch) with in-use monitoring performance ratios of 0.260 (instead of 0.520).
OBD Requirements for SPMVs (cont’d)

- **Automatic Transmission Monitoring Requirements:**
  Falls under comprehensive component monitoring requirements.

  - **Current Requirement:** Monitor for malfunction of any electronic powertrain component/system not otherwise described in the OBD regulation that either provides input to (directly or indirectly) or receives commands from an on-board computer or smart device, and: (1) can affect emissions, (2) is used as part of the diagnostic strategy for any other monitored system or component, or (3) is used as part of an inducement strategy on diesel vehicles.

  - **Potential Issue:** Some Replica engine manufacturers will only supply engines and not transmissions so support of transmission OBD systems could be problematic.

  - **Proposal:** Typically engines are certified together with transmissions. Staff is requiring OEM powertrain suppliers for SPMVs to also certify engine/transmission combinations if transmission inputs and outputs are used by the OBD II system. Keep current OBD II requirements.
OBD Requirements for SPMVs (cont’d)

• Various OBD Testing Requirements:
  – Durability Demonstration Vehicle (DDV): Data can be carried over from vehicle that the powertrain was derived from
  – Production Vehicle Evaluation (PVE):
    » Verification of Standardized Requirements (J1)
      • One unique production vehicle required to be tested by SPMV manufacturer
    » Verification of Monitoring Requirements (J2)
      • Data can be carried over from OEM powertrain supplier
    » Verification and Reporting of In-use Monitoring Performance (J3)
      • Must provide data for at least ten percent of the total vehicles produced for sale in California or 15 vehicles, whichever is less
Vehicle Engine Certification - Proposed Procedures

OBD Requirements for SPMVs (cont’d)

• **CARB staff proposing to keep the rest of the OBD requirements unchanged including the following:**
  – Emission Thresholds for Major Monitors
  – In-use Monitoring Performance Requirements except for evaporative system leak monitor
  – Diagnostic Connector Location Requirements
  – Manufacturer Indicator Light (MIL) Specifications
  – Vehicle Identification Number (VIN) Requirements
Vehicle Engine Certification - Proposed Procedures

How is a Certified Vehicle Engine Package Certified?

• The same certification process as used for new vehicle certification
• Engine manufacturer may use data that was generated from a California certified vehicle, as applicable
• Worst case configuration used for certification
• Emissions data may be carried over from earlier model year vehicles
Potential Benefits to Participation

• Vehicle Engine certification data can be used to generate Aftermarket Part Executive Orders covering 1995 and older model year vehicle engine changes

• Vehicle Engine certification data may be used to generate Specially Constructed New Vehicle Executive Orders
Vehicle Engine Certification - Proposed Procedures

Proposed List Of Items To Be Included On The Delivery Of Certified Vehicle Engine Package

- All Parts Mentioned On Slide Nine
- Installation Manual
  - Including how items must be installed in order to be smog check friendly
  - How and where to place emissions label
- Specifications for Emissions Related Items
  - Fuel tank and filler neck
  - N/V ratio
  - Vehicle Class and GVWR Limits
  - Other limitations that may be required by the engine manufacturer and approved by CARB
- Owner’s Manual
- Warranty Card
  - Make/model
  - Serial # of engine
  - Date of installation
  - Low-volume vehicle manufacturer name
  - Mailing address to where card is to be sent
- No changes shall be made to the certified vehicle engine package
Low-Volume Vehicle Manufacturer - Proposed Procedures

- Proposed SPMV Certification Requirements
- Responsibilities of Low-Volume Vehicle Manufacturers
Low-Volume Vehicle Manufacturer - Proposed Procedures

Proposed SPMV Certification Requirements

- Registration
- Letter of intent
- Manufacturer’s information
- Report sales U.S. and worldwide for the past 5 years
- Description of models, including how models meet SPMV definition
- Submit a list of the Certified Vehicle Engine Packages to be installed and how they are appropriate for the installation into the SPMV
- Description of fuel tank system to incorporate with Certified Vehicle Engine Package to maintain evaporative emissions compliance
Low-Volume Vehicle Manufacturer - Proposed Procedures

Proposed SPMV Certification Requirements (continued)

- Notify CARB
  - Production locations of the SPMVs and location, where Certified Vehicle Engine Packages will be installed into a SPMV
  - Where inspections may be conducted
  - Where records are kept
  - Prior year California production and sales reports
    - Include
      » Vehicle make and model
      » Engine make, model, serial #, engine manufacturer test group
      » SPMV’s vehicle identification number
- Vehicle warranty
  - Describe how emissions warranty will be handled and copy of any signed agreement between vehicle engine manufacturer and vehicle manufacturer
  - List of high priced warranted emission parts
  - Includes coverage for both Certified Vehicle Engine Package & SPMV
- Include statement “Installed in accordance to engine manufacturer’s installation instructions”
- Certified Vehicle Engine manufacturer sign off of installation
- Restrictions on engine build date vs. completed vehicle build date
Low-Volume Vehicle Manufacturer - Proposed Procedures

Proposed Responsibilities of the low-volume vehicle manufacturer to be in compliance

• Install Appropriate Certified Vehicle Engine Package, according to installation instructions provided by vehicle engine manufacturer
  • Use all parts provided / or specified by the engine manufacturer
  • In a SPMV that meets engine manufacturer’s specifications
    – Vehicle class, N/V ratio, and curb weight
• Do not modify the Certified Vehicle Engine Package
• Install Emissions Label
• Maintain written and photographic records of SPMV for minimum of 2 years
  – N/V ratio
  – Curb Weight
  – Frontal Area
  – Evaporative Canister Installation
  – Fuel tank / fuel filler neck system
  – Installation of emissions label
  – Appearance of finished SPMV from both right and left sided
  – Oxygen sensors installation
After Vehicle is Sold

Proposed Defects Warranty Requirements for Certified Vehicle Engine Package in SPMV

- Vehicle Engine Manufacturer responsible for reporting defects
- Vehicle Engine Manufacturer shall describe where warranty repairs will be performed and how repairs data will be collected and submitted to CARB

Proposed Motor Vehicle Inspection and Maintenance Program

- The SPMV shall be required to go to a Smog Check station one year after purchase, after the first year it will be subject to biennial inspection starting in the third year

- A SPMV shall be treated like other vehicles, for purposes of Smog Check, as it relates to title transfers or previously registered outside the state.
Next Steps

• Submit Comments by September 11th to
  • Richard Muradliyan – Staff Engineer, Aftermarket Parts Section, (626) 575-6798, richard.muradliyan@arb.ca.gov

• CARB Staff is available for meeting through mid-September

• Economic Analysis
  • CARB will be seeking required information on size of California business and financial impact, as part of the rule making process.

• A Published Proposed Regulation May Be Available For Comment By Early October

• Board Hearing – Spring 2018
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Questions