

State of California
AIR RESOURCES BOARD

**PUBLIC HEARING TO CONSIDER PROPOSED CALIFORNIA REGULATION
AND CERTIFICATION PROCEDURES FOR LIGHT-DUTY ENGINE
PACKAGES FOR USE IN NEW LIGHT-DUTY SPECIALLY-PRODUCED
MOTOR VEHICLES FOR 2019 AND SUBSEQUENT MODEL YEARS**

STAFF REPORT: INITIAL STATEMENT OF REASONS

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TABLE OF CONTENTS

I.	INTRODUCTION AND BACKGROUND	1
II.	THE PROBLEM THAT THE PROPOSAL IS INTENDED TO ADDRESS	2
III.	THE SPECIFIC PURPOSE OF EACH ADOPTIONS, AMENDMENT, OR REPEAL.....	3
A.	Emissions Certification Engine Manufacturers	3
1.	Worst Case Vehicle Testing [13 CCR §2209.2(g)]	3
2.	Exhaust Emissions Standards [13 CCR §2209.2(d)(1) – (5)]	3
3.	Evaporative Emissions Standards [13 CCR §2209.2(e)]	5
4.	Zero Emissions Vehicle Certification Standards	6
B.	Certified Engine Packages Requirements	6
1.	Crankcase Emissions [13 CCR §2209.2(f)]	6
2.	Critical Emissions Control Components [13 CCR §2209.3(a)(1) & (2)]	6
3.	On-Board Diagnostic System [13 CCR §2209.2(i)]	7
4.	Engine Manufacturer Warranty	8
5.	Additional Certified Engine Package Requirements	12
6.	Engine Manufacturer Reporting Requirements [13 CCR §2209.4(j)]	14
C.	Requirements for SPMV manufacturer [13 CCR §2209.4]	14
1.	Installation and Affidavit [13 CCR §2209.4(c) & (k)]	14
2.	Reporting and Record Keeping [13 CCR §2209.4(g)-(i)]	14
3.	Installation Warranty [13 CCR §2209.4(j)]	15
D.	Other Regulation and Certification Procedure Sections	15
IV.	THE RATIONALE FOR CARB'S DETERMINATION THAT EACH ADOPTION, AMENDMENT, OR REPEAL IS REASONABLY NECESSARY	16
V.	BENEFITS ANTICIPATED FROM THE REGULATORY ACTION, INCLUDING THE BENEFITS OR GOALS PROVIDED IN THE AUTHORIZING STATUTE	21
VI.	AIR QUALITY	22
VII.	ENVIRONMENTAL ANALYSIS	22
VIII.	ENVIRONMENTAL JUSTICE	26
IX.	ECONOMIC IMPACTS ASSESSMENT]	27
X.	EVALUATION OF REGULATORY ALTERNATIVES.....	29
XI.	JUSTIFICATION FOR ADOPTION OF REGULATIONS DIFFERENT FROM FEDERAL REGULATIONS CONTAINED IN THE CODE OF FEDERAL REGULATIONS.....	30
XII.	PUBLIC PROCESS FOR DEVELOPMENT OF THE PROPOSED ACTION (PRE- REGULATORY INFORMATION)	30
XIII.	REFERENCES.....	31
XIV.	APPENDICES	32

List of Tables

Table 3.1: Exhaust Emissions Standards: 2019 and Subsequent Model Years	4
Table 3.2: Exhaust Emissions Standards: 50° F Exhaust Emissions Standards	5
Table 3.3: Exhaust Emissions Standards: Supplemental Highway Test	5
Table 3.4: Exhaust Emissions Standards: Highway NOx Test	5
Table 3.5: Vehicle Parameters	12
Table 3.6: Emissions Implications of Not Requiring SPMVs to Meet Evaporative System Leak Monitoring Requirements	26

Acronyms

CARB	California Air Resources Board
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CO	Carbon Monoxide
ECS	Emissions Control System
ECM	Engine Control Module
EGR	Exhaust Gas Recirculation
HC	Hydrocarbons
LEV	Low Emissions Vehicle program
MIL	Malfunction Indicator Light
N/V	Engine Speed to Vehicle Speed Ratio
NOx	Oxides of Nitrogen
OBD II	On-Board Diagnostics (as adopted in 1996)
ORVR	On-Board Refueling Vapor Recovery
PCV	Purge Control Valve
SAE	Society of Automotive Engineers
SEMA	Specialty Equipment Market Association
SPMV	Specially-Produced Motor Vehicles
U.S. EPA	United States Environmental Protection Agency
VECI	Vehicle Emissions Control Identification
VIN	Vehicle Identification Number
ZEV	Zero emission vehicle

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EXECUTIVE SUMMARY

The California Air Resources Board (CARB or the Board) staff is proposing the California Regulation and Certification Procedures for Light-Duty Engine Packages for Use in New Light-Duty Specially-Produced Motor Vehicles for 2019 and Subsequent Model Years (proposed regulation) to create a process for the certification of a specially-produced motor vehicle (SPMV), also referred to as a replica car, in California, which complies with applicable LEV II and LEV III emissions performance criteria. A SPMV resembles the body of a motor vehicle that had been commercially manufactured for sale not less than 25 years ago, such as replica versions of the Shelby Cobras and Ford GT40s. First, engine manufacturers would be allowed to certify a light-duty engine package intended for use in an SPMV, complete with emissions control systems (ECS), on-board diagnostics (OBD) equipment, installation instructions, and warranty. Second, SPMV manufacturers could purchase and install a certified engine package into an SPMV, and qualify for a CARB Executive Order (EO), which would enable them to sell those SPMVs to end users in California.

This proposed regulation will clarify California's treatment of an SPMV as enacted by Federal legislation in 2015. On December 4, 2015, United States (U.S.) lawmakers enacted legislation allowing SPMV manufacturers to sell up to 325 SPMVs per manufacturer per year, starting in 2017 (H.R. 22, the Surface Transportation Reauthorization and Reform Act, section 24405). These vehicles do not have to meet crash safety standards or be included in any applicable state's inspection and maintenance program (e.g. smog check in California), but they do need to meet most of the current federal emissions control rules. Currently, the United States Environmental Protection Agency (U.S. EPA) is developing guidance to implement this new federal law that will provide a path for SPMV manufacturers to sell into other states. This federal law does not in itself allow SPMV sales in California due to state law and the provisions of 209(b) of the Clean Air Act. Therefore, CARB staff is proposing a procedure which creates a simplified process for the SPMVs to be certified and sold in California while preserving the emissions performance integrity expected by new vehicle certification.

The proposed regulation would require engine packages to meet current Low Emissions Vehicle (LEV II and LEV III) exhaust standards and evaporative standards. Staff proposes the on-board diagnostic (OBD) system included with the engine package must comply with title 13 CCR section 1968.2 for the model year of the certified engine package with minor changes to the evaporative system leak monitoring. This new certification process for SPMVs would ease the burden on the manufacturers for these relatively low volume new vehicles.

The proposed regulation will likely result in new businesses and an increase in sales tax revenues. Regarding the former, information provided by the Specialty

Equipment Market Association (SEMA)¹, has indicated that 10 new companies have already shown interest in producing SPMVs in the state. Jobs created by this proposed regulation would be in the manufacturing, engineering, and warehousing sectors. The estimated retail price of SPMVs is around \$100,000². The additional sales tax and annual registration fee, which is based on the purchase price, will add to the state's revenues.

¹ SEMA's letter to Richard Corey, dated March 30, 2017

² Based on the following manufacturer's websites: Revology Cars. November 2017. *Retail Order Guide: 1966 Mustang GT Convertible*. <http://revologycars.com/wp-content/uploads/2018/07/66-GT-CV.pdf>
Regal Roadsters. July 10, 2018. *Regal T-Bird Turnkey*. <http://www.regalroadsters.com/factorycomplete.html>,
Brand New Muscle Car. July 10, 2018. *Bronco Replica* <http://www.brandnewmusclecar.com/bronco.html>, Brand
New Muscle Car. July 10, 2018. *MK4 Roadster "AC Cobra"* <http://www.brandnewmusclecar.com/cobra.html>

I. INTRODUCTION AND BACKGROUND

This Staff Report: Initial Statement of Reasons (Staff Report) for the California Regulation and Certification Procedures for Light-Duty Engine Packages for Use in New Light-Duty Specially-Produced Motor Vehicles for 2019 and Subsequent Model Years (proposed regulation) provides the basis for the California Air Resources Board (CARB or the Board) staff's proposal to adopt certification requirements for new light-duty certified engine packages for use in a specially-produced motor vehicle (SPMV), also known as a replica car, as well as procedures for an SPMV manufacturer to obtain a CARB Executive Order (EO) in order to be able to sell those vehicles in California.

Currently, in order to sell light-duty vehicles in California, a manufacturer certifies a whole vehicle to the current Low Emissions Vehicle (LEV) exhaust and evaporative emissions standards, as well as meet on-board diagnostic (OBD) requirements. Manufacturers are also required to meet strict National Highway Traffic and Safety Administration (NHTSA) safety standards to sell new vehicles. Manufacturers have requested a pathway to sell new replica cars, which will be referred to as SPMVs in this report, in California. California car culture values uniqueness and creativity in design, including the classic finned cars of the late 1950s, muscle cars of the 1960s and 1970s, and sporty and stately convertibles. As the fleet has aged, these old classics have become rare and expensive³. SPMV manufacturers have emerged with new vehicles meant to replicate these old classics, in the form of SPMVs⁴.

Unlike typical light-duty vehicle manufacturers, SPMV manufacturers do not make engines for their vehicles. There is no certification process for new light-duty certified engine packages in an SPMV. CARB currently certifies engines for use in medium-duty, heavy-duty, motorcycle, off-road applications, and specially constructed vehicles (SPCNs, discussed later in this report). An aftermarket parts approval process or exemption is available for replacement engines which are derived from current model year vehicles and designed for older mass produced vehicles⁵. However, aftermarket parts exemptions are applicable to older vehicles that met less stringent emission

³ Hemmings Motor News. July 10, 2018. *Classic Cars For Sale - Originals*. [https://www.hemmings.com/classifieds/?adtypeFacet=Vehicles for Sale&pub=mus&page_size=15&sort=price_desc](https://www.hemmings.com/classifieds/?adtypeFacet=Vehicles%20for%20Sale&pub=mus&page_size=15&sort=price_desc)

⁴ Based on the following manufacturer's websites: Revology Cars. November 2017. *Retail Order Guide: 1966 Mustang GT Convertible*. <http://revologycars.com/wp-content/uploads/2018/07/66-GT-CV.pdf>
Regal Roadsters. July 10, 2018. *Regal T-Bird Turnkey*. <http://www.regalroadsters.com/factorycomplete.html>,
Brand New Muscle Car. July 10, 2018. *Bronco Replica* <http://www.brandnewmusclecar.com/bronco.html>, Brand
New Muscle Car. July 10, 2018. *MK4 Roadster "AC Cobra"* <http://www.brandnewmusclecar.com/cobra.html>
Superformance. July 11, 2018. <https://www.superformance.com/>, Factory Five. July 11, 2018. *'33 Complete Kit*
<https://www.factoryfive.com/33-hot-rod/what-you-get-complete/>

⁵ Chevrolet. July 30, 2018. *Chevrolet Performance E-ROD LS3 6.2L System*
<https://www.chevrolet.com/performance/crate-engines/e-rod-lt1>

requirements and applicable to parts for used vehicles only, while SPMVs are new vehicles and subject to the current new vehicle standards and requirements.

Emission controls have come a long way since the 1950s and 1960s, and new light-duty vehicles are required to meet rigorous emissions standards. If SPMV manufacturers were required to test to the same safety standards as other car manufacturers, the testing would be cost prohibitive and would require substantial design compromises. This proposed regulation is intended to provide a path for these manufacturers who want to sell their new SPMVs in California, while still ensuring these vehicles meet current low emissions standards.

Kit cars are revered by hobbyists and enthusiasts throughout the car cultures of California. In 2012, the Board adopted certification procedures that ensured a hobbyist would be able to install a new light-duty engine in a kit car or a replica car built for personal use, referred to as a specially constructed vehicle (SPCN).⁶ These SPCN certification procedures applied to the engine manufacturers who produced the engine package, and included all the items necessary to control emissions at LEV II levels. This 2012 certification procedure laid the ground work for this rulemaking, and staff has used the same general framework when thinking through the requirements for SPMVs.

Similar to kit cars, some SPMV manufacturers typically do not build engines for their own vehicles, and are dependent on engine manufacturers (who are expected to be light-duty vehicle manufacturers) to supply engines. The difference between kit cars and SPMVs is that kit cars cannot be sold commercially and are built by an individual for their own enjoyment. The kit car regulations provided engine manufacturers flexibility to account for the broad vehicle designs that individuals may create. SPMVs, however, are built by a vehicle manufacturer who will sell them to the general public for profit. Therefore, this proposed regulation covers a broader range of considerations not addressed in the kit car regulations.

II. THE PROBLEM THAT THE PROPOSAL IS INTENDED TO ADDRESS

On December 4, 2015, United States (U.S.) lawmakers enacted legislation allowing SPMV manufacturers to sell up to 325 vehicles per manufacturer per year, starting in 2017 (H.R. 22, the Fixing America's Surface Transportation Act (FAST Act), section 24405).⁷ These vehicles, for the federal program, do not have to meet crash safety standards and are exempt from any applicable state's inspection and maintenance (I/M) program. However, they must meet current Clean Air Act standards for the model year in which they are produced by using a motor vehicle engine from a motor vehicle that is

⁶ California Air Resources Board (CARB). 2012. *Final Regulation Order: California Certification Procedures for Light-Duty Engine Packages for Use In Light-Duty Specially Constructed Vehicles for 2012 And Subsequent Model Years*. 13 CCR, Article 1.5. November 6, 2012
<https://www.arb.ca.gov/regact/2011/spcn11/spcn11finalcertpro.pdf>

⁷ H.R. 22. *Fixing America's Surface Transportation Act (FAST Act)*, section 24405. 2014.
<https://www.congress.gov/114/bills/hr22/BILLS-114hr22enr.pdf>

covered by a certificate of conformity or a CARB EO for the current model year for which the SPMV is produced.

Now, after the FAST Act has passed, NHTSA is working on a process to ensure SPMV manufacturers met minimum qualifications to sell vehicles. Staff anticipates NHTSA will verify that a SPMV manufacturer is qualified to produce SPMVs and that per the FAST Act's language, the SPMV produced resemble the body of another motor vehicle that was made at least 25 years ago. NHTSA will also review annual production reports submitted by the SPMV manufacturer along with other required information.

Additionally, SPMVs would be manufactured under a license agreement for the intellectual property rights for the replicated vehicle from the original manufacturer or its current owner, successor or assignee.

Staff is proposing to establish a certification process for new light-duty certified engine packages for use in an SPMV. These certified engine packages can be purchased by SPMV manufacturers and installed into an SPMV and then sold as a new current model year vehicle. In addition to the certified engine package receiving an EO, staff is proposing CARB issue an EO to the SPMV manufacturer for each production year SPMVs are built. In addition to the certification requirements for the SPMV manufacturer, staff is proposing warranty requirements for the engine installation and the supplied fuel tank assembly, fuel filler neck, gas cap, fuel hoses, fuel pump, and fuel sender unit.

III. THE SPECIFIC PURPOSE OF EACH ADOPTION, AMENDMENT, OR REPEAL

A. Emissions Certification for Engine Manufacturers

1. Worst Case Vehicle Testing [13 CCR §2209.2(g)]

Staff proposes compliance with emissions standards be done on an engine installed in a worst case (in terms of emissions) configuration test vehicle. When selecting the worst case vehicle, the engine manufacturer is to consider the following criteria: engine displacement, vehicle test weight, vehicle road load, vehicle frontal area, calibration, emissions control system (ECS) configuration and calibration, transmission, and engine speed to vehicle speed (N/V) ratio. Typically, the worst case vehicle for emissions is a vehicle with test weight, road load, frontal area, calibration, ECS configuration and calibration, engine displacement, and N/V ratio which (1) with respect to emissions deterioration over the vehicle's useful life, produces the greatest stress on the emissions related components or (2) with respect to certification testing, has the greatest probability of exceeding any of the applicable emissions standards. For evaporative emissions, a worst case vehicle is the one that produces the highest evaporative emissions. Worst case vehicle testing ensures that when the certified engine package is installed per the engine manufacturer's instructions, within the weight limits provided by the engine manufacturer, that the SPMV will, in effect, also be in compliance with the standards.

2. Exhaust Emissions Standards [13 CCR §2209.2(d)(1) – (5)]

Since engine manufacturers may create a certified engine package from a current model year certified vehicle, that may be certified to either LEV II or LEV III exhaust emissions standard, staff proposes that 2019 and subsequent model year certified engine packages meet the same low emission standards that are available to other small volume manufacturers, as shown in Table 3.1 below:

Table 3.1: Exhaust Emissions Standards: 2019 and Subsequent Model Year

LEV II Exhaust Emissions Standards

Model Years	Durability basis (mi)	NMOG (g/mi)	CO (g/mi)	NO_x (g/mi)	HCHO (mg/mi)	PM (g/mi)
2019 through 2021	50,000	0.075	3.4	0.05	15	n/a
	120,000	0.090	4.2	0.07	18	0.01

LEV III Exhaust Emissions Standards

Model Years	Durability basis (mi)	NMOG + NO_x (g/mi)	CO (g/mi)	HCHO (mg/mi)	PM (g/mi)
2019 through 2021	150,000	0.160	4.2	4	0.01

Model Years	Certification standard	Durability basis (mi)	NMOG + NO_x (g/mi)	CO (g/mi)	HCHO (mg/mi)	PM (mg/mi)
2022-2027	LEV III LEV	150,000	0.160	4.2	4	3
2028 and subsequent	LEV III ULEV	150,000	0.125	2.1	4	1

Staff also proposes that 2019 and subsequent model year certified engine packages certifying to the LEV III standards also meet the 50°F Exhaust Emissions Standards and the Supplemental Federal Test Procedure Off-Cycle Emissions Standards as described in title 13 section 1961(a)(1) and shown in Table 3.2 and 3.3 below:

Table 3.2: Exhaust Emissions Standards: 50° F Exhaust Emissions Standards

<i>Model Year</i>	<i>Standard</i>	Durability basis (mi)	<i>NMOG + NO_x</i> <i>(g/mi)</i>	<i>CO</i> <i>(g/mi)</i>	<i>HCHO</i> <i>(g/mi)</i>
2019 and subsequent	LEV III LEV	4,000	0.320	4.2	0.030

Table 3.3: Exhaust Emissions Standards: Supplemental Federal Test Procedure Off-Cycle Emissions Standards

Durability basis (mi)	US06		SC03	
	<i>NMOG+NO_x</i> <i>(g/mi)</i>	<i>CO</i> <i>(g/mi)</i>	<i>NMOG+NO_x</i> <i>(g/mi)</i>	<i>CO</i> <i>(g/mi)</i>
150,000	0.140	9.6	0.100	3.2

Staff is also proposing that an engine manufacturer certifying to either a LEV II or LEV III exhaust emissions standard must also certify to the appropriate LEV II or LEV III Highway NO_x or NMOG + NO_x emissions standards as shown in Table 3.4 below:

Table 3.4: Exhaust Emissions Standards: Highway NO_x Test

<i>Model Year</i>	<i>Standard</i>	<i>Durability</i> <i>(miles)</i>	<i>NO_x</i> <i>(g/mi)</i>	<i>NMOG+NO_x</i> <i>(g/mi)</i>
2019 through 2021 certifying to LEV II exhaust standards in 2209.2(d)(1)(A)	LEV II	50,000	0.07	
	LEV	120,000	0.09	
2019 and subsequent	LEV III LEV	150,000		0.160

NMOG: Non-Methane Organic Gases / CO: Carbon Monoxide / NO_x: Oxides of Nitrogen / HCHO: formaldehyde / PM: Particulate Matter

Greenhouse Gas Emissions. Greenhouse gas exhaust emissions requirements, credits/debits calculation and test procedures set forth in section 1961.3, title 13, CCR do not apply to a certified engine package for an SPMV.

3. Evaporative Emissions Standards [13 CCR §2209.2(e)]

The majority of a vehicle’s evaporative emissions result from fuel vapors escaping from the fuel system and permeation of the fuel through components such as the fuel tank

and fuel lines. Modern vehicles control these emissions by use of a carbon canister, and fuel tanks and lines made from advanced, non-permeable materials.

Typically, compliance with evaporative standards are all new vehicles and is demonstrated by measuring the vehicle's evaporative emissions over simulated real-world conditions. For example, evaporative emissions are measured in an enclosed chamber in which the vehicle is subjected to temperature swings that are intended to simulate exposure to hot days. Evaporative emissions are also measured during simulated driving conditions, and immediately after the engine is shut down. Specifically, compliance is demonstrated using a series of two specific test procedure sequences: 1) Three-Day Diurnal plus High-Temperature Hot Soak and Running Loss and, 2) Supplemental Two-Day Diurnal plus Hot Soak. Both of these procedures involve prescribed methods to suitably condition and stabilize the evaporative ECS components prior to the actual emissions tests. Moreover, certification compliance is also demonstrated by properly aging evaporative ECS components to the required useful life in advance of any certification tests.

Staff proposes that manufacturers of certified engine packages for SPMVs must demonstrate emissions full compliance with evaporative standards through testing of a worst case vehicle with the certified engine packages installed per the instructions.

Certified engine packages will be required to include evaporative controls like the evaporative canister to demonstrate compliance with the evaporative standards. The engine manufacturer will not include the fuel tank or fuel lines in the engine package they sell to SPMVs. However, engine manufacturers will be required to provide detailed instructions on the fuel tank size, vapor volume, and allowed fuel system materials, Society of Automotive Engineers (SAE) compliant fuel lines, and compliant on-board refueling vapor recovery (ORVR) system. Staff believes requiring engine certification in a worst case configuration will ensure evaporative emissions compliance for any vehicle in which (within the weight and size limits provided by the engine manufacturer) the engine is installed.

4. Zero Emissions Vehicle Certification Standards

As an alternative to the installation of an internal combustion engine, SPMV manufacturer may use battery electric or other zero emissions powertrain to certify to the "California Exhaust Emissions Standards and Test Procedures for 2018 and Subsequent Model Zero-Emissions Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," as of January 1, 2016 (last amended September 3, 2015). This option cannot be used for greenhouse gas or ZEV regulation credit generation.

B. Certified Engine Package Requirements

In addition to meeting the emissions test requirements described above, staff proposes that certified engine packages would be required to include critical emissions

control components, the engine control module (ECM); the modified OBD II system; be covered by a warranty; be accompanied by a thorough installation guidance manual, which would include an affidavit for the SPMV manufacturer; and have a vehicle emissions control identification (VECI) label.

1. Crankcase Emissions [13 CCR §2209.2(f)]

On an engine, no piston ring, new or old, can have a perfect seal. Leakage occurs when an engine runs, and emissions vapors flow into the engine's crankcase. Staff proposes that each engine sold must be equipped with a closed crankcase system that does not discharge crankcase emissions.

2. Critical Emissions Control Components [13 CCR §2209.3(a)(1) & (2)]

Critical emissions control components are those that are installed for the primary purpose of controlling emissions. Staff proposes that in addition to an emissions compliant engine, engine manufacturers need to include critical emissions components with each certified engine package. This will include an ECM, catalytic converter(s), exhaust gas recirculation (EGR) valve, intake and exhaust manifolds, connecting down pipes, oxygen sensors, mass airflow sensors and housing, evaporative emissions canister, purge control valve (PCV), purge logic, flow diagnostics, and OBD. The components required are consistent with exhaust and evaporative emissions controls required for new vehicles. Requiring engine manufacturers to provide the emissions control components in certified engine packages will help ensure the SPMVs stay compliant with applicable emissions standards throughout the life of the vehicle.

3. On-Board Diagnostic System [13 CCR §2209.2(i)]

New LEV II and LEV III compliant vehicles are equipped with OBD II systems consisting of software, sensors, and ECM designed into motor vehicle on-board computers that detects ECS malfunctions as they occur. The OBD II system monitors virtually every component and system that can cause increases in emissions. When an emissions-related malfunction is detected, the system alerts the driver by illuminating the malfunction indicator light MIL on the instrument panel. By alerting the driver of malfunctions as they occur, repairs can be made promptly, which result in fewer emissions from the vehicle. The OBD II system also stores important information that identifies the faulty component or system and the nature of the fault, which allows technicians to quickly diagnose and properly repair the problem. It also results in less expensive repairs and promotes repairs done correctly the first time, resulting in less costs to the vehicle owners. For 2000 and newer model year vehicles, the OBD II system is the dominant mechanism used in the smog check program to identify vehicles in need of emissions system repair and thus properly functioning OBD II systems are critical to maximize emissions reductions from in-use vehicles.

OBD II systems consist of a complex set of software routines in the engine control computer that run in the background while the vehicle is being operated and verify that each and every component related to emissions control is performing as designed. While some diagnostic routines are fairly straightforward (e.g., detecting a sensor that has a broken or disconnected wire), others are extremely complex and must take into account many parameters about how the vehicle is configured and how it is being driven while the diagnostic is attempting to complete. An example of a complex diagnostic is the evaporative system leak check. This diagnostic, on current production vehicles, is capable of detecting a leak as small as a hole with a diameter of 0.020 of an inch anywhere in the evaporative system from the gas cap, filler neck, gas tank, vapor lines, canister, or purge valve. To be able to robustly detect such a small leak in such a large vapor space, the system must make corrections for everything from the level of fuel in the tank, the amount of slosh currently happening in the tank, the cumulative volume of vapor space, the volatility of the fuel in terms of how much vapor it is currently generating, ambient temperature, fuel temperature, and ambient barometric pressure (to sense elevation changes that would affect fuel system vapor pressure measurements).

In a new vehicle certification, a vehicle manufacturer has control over many of these elements as they are fixed by design, and can modify an appropriate amount of calibration and development work to account for these factors. For SPMVs, however, the variances from vehicle model to model in things as simple as shape, size, and location of the gas tank are quite vast and cannot be accounted for ahead of time by a manufacturer of a certified engine package.

Such interactions between vehicle configuration and the OBD II system have necessitated requirements to make it feasible to design and certify an engine package that can accommodate a reasonable range of SPMV configurations. Accordingly, staff proposes to modify the existing OBD II requirements specifically for engines certified through this proposed regulation. The proposed modifications are limited to those which staff and engine manufacturers have identified as technically necessary to accommodate SPMVs, while the majority of the OBD II requirements for any other new production vehicle remain unchanged for SPMV. Evaporative system leak monitoring is an extremely complex OBD II function that is dependent on vehicle configuration and since SPMV are likely to vary greatly in terms of size and design and the engine packages do not include a fuel system, it is infeasible to replace all of the OBD II evaporative system diagnostics design requirements. As a result, OBD II diagnostic requirements for evaporative system leak monitoring will be limited to no less than detection of a missing fuel cap. As required in section 2209.2(i)(1), SPMVs will be required to be capable of off-board low pressure evaporative testing during Smog Check.

4. Engine Manufacturer Warranty

The proposed regulation include warranty and recall provisions for the engine and ECS included in the certified engine package that are similar to those for new cars.

These provisions are meant to ensure emissions compliance of the vehicle by having the engine manufacturer pay for defects or performance failures, and to ensure the SPMV, equipped with the new certified engine package, will pass smog check inspection. Staff proposes to require an emissions warranty from both manufacturers selling engine packages and SPMV manufacturers selling SPMVs. The warranty provisions are included in proposed Sections 2209.6 through 2209.10 and are discussed below.

**a) General Certified Engine Package
Manufacturer Warranty Coverage and
Requirements [13 CCR §2209.6(a)-(i) and
§2209.7(a)-(m)]**

All light-duty vehicles manufacturers are required to provide warranties with new vehicles sold in California. Warranties required by CARB pertain to emissions. When a defective part reduces the emissions performance of a vehicle, an engine manufacturer is liable for 3 years or 50,000 miles for emissions-related parts, or 7 years or 70,000 miles for high priced emissions-related parts. Because staff proposes these engines meet the same emissions standards as new vehicles, staff believes it is also appropriate to require the engine manufacturer to provide warranty coverage for all the parts included in the certified engine package that affect emissions.

Staff proposes the defects and performance warranties for engine manufacturers would begin on either the date of vehicle registration or 2 years after the engine purchase date, whichever occurs first, and would be valid for 3 years or 50,000 miles (7 years or 70,000 miles for high-priced emissions-related parts). This would allow SPMV manufacturers additional time to install an engine after purchase. As an alternative to this approach, engine manufacturers will be allowed to begin the warranty period when the certified engine package is purchased by the SPMV manufacturer, extending the warranty period from 3 years or 50,000 miles to 5 years or 50,000 miles. The warranties would be issued by the engine manufacturer and would ensure that the engine and ECS provided in the certified engine package are free from defects, and that the vehicle would be able to pass Smog Check inspection.

The defects and performance warranty requirements applicable to the certified engine package for SPMVs have been established to essentially mirror the requirements applicable to 1990 and newer passenger cars, light-duty trucks, and medium-duty vehicles. If warranted repairs are necessary due to failure of a warranted part or other emissions-related failures, staff proposes that the repairs (parts, labor and applicable taxes) must be made free of charge to the engine owner, at a facility authorized by the engine manufacturer to perform the repairs, otherwise known as a warranty station. Failures determined to be caused by abuse, neglect, or improper maintenance would not be covered under warranty. Diagnostic labor that leads to the determination of a warrantable condition would be required to be provided free of charge to the engine owner, and the engine manufacturer would be responsible for any damages that occur to other vehicle components as a result of warranted failures.

b) Certified Engine Package Owner Obligations [13 CCR §2209.6(j) and §2209.7 (n)]

Staff proposes to include a requirement that the SPMV owner be responsible for performance of all required scheduled maintenance specified in the engine manufacturer's written instructions. As with the other provisions in this section, this requirement is consistent with those for new passenger cars.

c) Warranty Card [13 CCR §2209.6(k)]

Warranty cards are an important tool in tracking warranty claims and providing the SPMV owner details regarding the warranty coverage.

Staff proposes to require the engine manufacturer to include a warranty card with each certified engine package. The warranty card would be completed by the owner in triplicate: one to be returned to the engine manufacturer, one to be provided to the SPMV manufacturer, and one for the owner to keep. The engine manufacturer would include general terms of warranty on the card, a place for the owner to sign in acknowledgement of those terms, and mailing address. The owner would then supply pertinent information: VIN, odometer reading, engine serial number, date of engine purchase and installation, date of vehicle registration, and information on the person or facility that installed the engine. Additional instructions regarding the warranty card or an electronic submission option are included in the proposed regulation.

d) Emissions Control Warranty Statement [13 CCR §2209.6(l)]

CARB requires engine manufacturers to provide an emissions control warranty statement which clarifies the owner's rights and responsibilities, as well as a description of the warranty coverage and terms. In addition to supplying a warranty card to the owners, staff proposes that the engine manufacturer would also be required to include the CARB emissions control warranty statement. The CARB warranty statement explains the owner's rights and responsibilities, as a layman's description of the emissions warranty coverage and terms. The specific statement required is included in the proposed regulation. The engine manufacturer shall also provide its warranty language to the owner. Copies of the engine manufacturer's warranty language shall be provided to staff for review and approval.

e) Mediation; Finding of Warrantable Condition [13 CCR §2209.6(m) and §2209.7(o)]

This provision provides a mechanism for engine owners to request that the Executive Officer mediate a warranty claim when there is an unresolved emissions warranty dispute between the owner and the engine manufacturer. The Executive Officer would examine the facts submitted by the parties concerned and determine if a warrantable condition exists. A finding of a warrantable condition would result in eligibility for warranty coverage as required by this section.

f) Engine Manufacturer Warranty Reporting Requirements [13 CCR §2209.8]

Staff proposes requiring engine manufacturers to retain and review warranty claims for each engine family on a production year basis and to submit warranty information reports to CARB quarterly when the warranty claim rate for a specific part exceeds one percent or 25 parts, whichever is larger. This is important for recall purposes, and establishes a system of checks and balances between CARB and the certifying engine manufacturer. The report would contain the following: engine manufacturer's name; an identification of the engine family; model year and description of the class or category of certified engine package; information on the number of warranty claims and percentage of total engines they represent; and the number of each type of certified engine package produced by the engine manufacturer for sale in California. An engine manufacturer may elect to use an alternative procedure to that described above, as long as the Executive Officer determines the alternative procedure will produce substantially equivalent results. Staff proposes that corrective action may be taken when the warranty claims for exhaust and/or evaporative emissions control components used in the engine manufacturer's regular production California-certified vehicles as well as engines certified through this proposed test procedure exceed four percent or 50 parts, as required in section 2143, title 13, CCR. Such corrective action may include an ordered recall, discussed below.

g) SPMV Manufacturer Warranty [13 CCR §2209.10(c)-(e)]

Staff proposes that the SPMV manufacturer shall provide an installation warranty and a parts warranty. The installation warranty will cover improper installation of the certified engine package or ECS for 1 year or 12,000 miles and it includes parts which may have been damaged due to the improper installation of the certified engine package or ECS. For the supplied fuel tank assembly, fuel filler neck, gas cap, fuel hoses, fuel pump, and fuel sender unit, the SPMV manufacturer shall warrant them free from defects in materials and workmanship which cause the failure, for a period of three years or 50,000 miles, whichever first occurs;

h) Recall Procedures [13 CCR §2209.9]

Staff proposes to include the same recall procedures as for new light-duty vehicles. A recall may be required if the Executive Officer has determined that the warranty claim thresholds described above have been reached. The thresholds are based on the engines certified through this proposed test procedure covered under a single Executive Order as well as the engine manufacturer's regular production California-certified engine systems with the same components. Since the engines certified through this proposed test procedure are expected to be smaller in number than those for regular production vehicles, and since typically the same or very similar engines are also certified for a much larger number of regular vehicles, it is appropriate

for any recall that affects regular production vehicles to also apply to the same or similar certified engine packages for SPMVs.

5. Additional Certified Engine Package Requirements

- a) Engine Installation Guidance and Engine Owner’s Manual [13 CCR §2209.3(b)(1), (2), & (6)]

Staff proposes that the engine manufacturer provide written instructions to the SPMV manufacturer on how to install the certified engine package. Engine manufacturers must also provide a statement to the SPMV manufacturer that the engine may only be installed in SPMVs, and also provide in the written instructions parameters for the SPMV on which the certified engine is to be installed. This is important because emissions testing will have been proven on a worst case vehicle, and a vehicle outside of the engine manufacturer’s parameters could result in greater emissions than expected and allowed by the certification. Below in Table 3.5 are the vehicle parameters required to be specified:

Table 3.5: Vehicle Parameters

Required Parameter	Reason
Highest allowed vehicle weight	The weight of a vehicle has a significant effect on the vehicle’s emissions. Typically passenger cars are not produced with truck engines, and trucks are not produced with passenger car engines. Engines produce an amount of power which highly correlates with the vehicle’s weight.
Highest allowed engine speed to vehicle speed (N/V) ratio	Engines are designed with a vehicle and drive load in mind. Placing an engine into a vehicle with a higher N/V ratio than recommended by the engine manufacturer will cause an increase in emissions.

To limit in-use evaporative emissions, staff proposes engine manufacturers must provide fuel tank specifications, e.g., tank material, maximum capacity and vapor volume, minimum distance from the engine, gas cap seals, filler neck, pressure/vacuum relief settings, as well as any other pertinent installation instructions affecting the vehicle’s evaporative emissions. Engine manufacturers also must include language in the installation manual that specifies that the certified engine package should be installed so that the final vehicle is able to be tested via a Smog Check test.

When an engine manufacturer applies for certification, staff proposes that the installation manual must also be submitted to the Executive Officer for approval.

In addition to the installation guidance, staff proposes that the engine manufacturer would also include an owner's manual for proper use and maintenance over the life of the engine. The owner's manual must comply with owner's manual requirements.

b) Engine Vehicle Emissions Control Information Label [13 CCR §2209.5]

Staff recognizes that certain emissions-related parts must be properly identified and maintained in order for a certified engine package to comply with the applicable emissions standards. All new production vehicles in California are required to place a Vehicle Emissions Control Information (VECI) label on each vehicle with pertinent information for vehicle owners and service mechanics for the proper maintenance of the vehicle.

Staff proposes that the engine manufacturer must provide a VECI label with each certified engine package to the SPMV manufacturer to be affixed to a fully assembled vehicle. The label must meet the emissions labeling requirements as new passenger vehicles. In addition to those requirements, staff proposes that the VECI label clearly state that the engine is intended only for installation in a SPMV. Engine manufacturers must also provide instructions to the SPMV manufacturer to affix the engine label in such a manner that it cannot be removed without destroying or defacing the label, can be easily identified, and shall not be affixed to any part that is likely to be replaced during the vehicle's useful life.

c) Other Information to be with the Certified Engine Package [13 CCR §2209.3(3), (4) & (7)]

Along with the requirements mentioned above, staff proposes that the engine manufacturer must provide the following statements with the certified engine package:

1. A statement that no changes may be made to the certified engine package and evaporative ECS, including, but not limited to: changes to the fuel metering system; changes to the ignition system, changes to the camshaft; and modifying, recalibrating, removing, or failing to properly install any other specified component. This statement may be included in the engine installation instructions.
2. A statement that failure to follow the vehicle parameters, installation guidelines, or changes made to the engine and components provided in the certified engine package will cause the vehicle to violate CARB's certification requirements for which monetary fines and other penalties can be applied. This statement may be included in the engine installation instructions.
3. A notice, printed on a separate sheet of paper explaining the documentation, record keeping, notification, access to records requirements for SPMV manufacturers in the state of California, explained

further below.

6. Engine Manufacturer Reporting Requirements [13 CCR §2209.4(j)]

Staff also proposes that engine manufacturers must report to CARB the number of certified engine packages produced each year, along with the engine serial number for each engine.

C. Requirements for SPMV Manufacturers [13 CCR §2209.4]

Staff proposes that the SPMV manufacturer must be currently registered with and approved by NHTSA and U.S. EPA to produce for the current model year of the SPMV certification application before submitting any paperwork to CARB.

For first time low volume manufacturers, a letter of intent must be submitted. The letter of intent will include information on the SPMV manufacturer, product offering, copies of filed federal registrations, and description of certified engine package to be installed, and contact information on low volume representative.

1. Installation and Affidavit [13 CCR §2209.4(c), (k)]

Staff proposes that the SPMV manufacturer be required to install the engine per the engine manufacturer's written instructions, and to place the provided label in a readily accessible location. Additionally, to ensure this proper installation to the engine manufacturer, staff proposes that the SPMV manufacturer must sign the affidavit provided by the engine manufacturer (explained above) that states under penalty of perjury that the engine has been installed per the engine manufacturer's given instructions. The SPMV manufacturer must mail the signed affidavit to the engine manufacturer, and provide a copy of the signed affidavit to the SPMV owner.

The SPMV manufacturer shall also permanently affix their own VECI label in a readily accessible and visible location on the SPMV and must meet the emissions labeling requirements as new passenger vehicles. In addition to those requirements, staff proposes that the label clearly states the SPMV manufacturer's name and address, state that the vehicle is a replica, and designate the make, model, model year such vehicle replicates, and build completion date.

2. Reporting and Record Keeping [13 CCR §2209.4(g)-(i)]

Reporting and record keeping are essential for enforcement and in-use compliance purposes. Though there will be no in-use testing required, staff proposes that SPMV manufacturers report to CARB the number of engines installed into SPMVs each year, as well as the vehicles' make, model, and engine serial numbers. In addition to reporting, staff proposes SPMV manufacturer must maintain photographic and written records, as well as each signed affidavit for each SPMV built with a certified engine package for no less than five years.

3. Installation Warranty [13 CCR §2209.4(j)]

Staff proposes to require an installation warranty, to be covered by the SPMV manufacturer, and to be effective for one year after engine installation or 12,000 miles, whichever occurs first. This would cover installation as it affects the SPMV's emissions, and help guarantee that the SPMV will be able to successfully pass Smog Check.

D. Other Regulation and Certification Procedure Sections

§ 2209.

Summary: This section describes the overall scope of the proposed regulation, the entities this proposed regulation apply to, allowed severability of each section of the proposed regulation, and explains what is included in the requirements of the proposed regulation.

§ 2209.1.

Summary: This section helps to define words that are used throughout section 2209 through section 2209.10 and provides clarity regarding which entities are regulated and what requirements apply to each said entity. Definitions in this section are consistent with other CARB mobile source regulations and definitions found in the California Vehicle Code and Health and Safety Code.

§ 2209.2.

Summary: This section describes the emission standards, test procedures, package requirements, and reporting requirements for new certified engine packages for Specially-Produced Motor Vehicles.

§ 2209.3.

Summary: This section describes the delivery of certified engine package to SPMV Manufacturers.

§ 2209.4.

Summary: This section describes the requirements for SPMV Manufacturers.

§ 2209.5.

Summary: This section describes the emission control labels on certified engine packages and Specially-Produced Motor Vehicles.

§ 2209.6.

Summary: This section describes the defects warranty requirements for certified engine packages for use in Specially-Produced Motor Vehicles.

§ 2209.7.

Summary: This section describes the performance warranty requirements for certified engine packages for use in Specially-Produced Motor Vehicles.

§ 2209.8.

Summary: This section describes the warranty reporting requirements for certified engine packages for use in Specially-Produced Motor Vehicles.

§ 2209.9.

Summary: This section describes the requirements for SPMV manufacturers.

§ 2209.10.

Summary: This section describes the requirements for specially-produced motor vehicle manufacturers who install certified engine packages for use in Specially-Produced Motor Vehicles.

IV. THE RATIONALE FOR CARB'S DETERMINATION THAT EACH ADOPTION, AMENDMENT, OR REPEAL IS REASONABLY NECESSARY

The proposed regulation would create a legal pathway to certify new light-duty engine packages for use in an SPMV that meet low vehicle emission standards. An SPMV is not meant to be a daily driver and will not replace a mass produced vehicle or sales of mass produced vehicles. SPMVs would also be subject to state titling and registration laws and regulations, including smog check and emissions compliance.

Section 2209. Applicability.

The proposed regulation applies to 2019 and subsequent model-year light-duty certified engine packages for use in a light-duty specially-produced motor vehicle (SPMV) and the manufacturers of SPMVs. Each part is severable, and in the event that any part of this chapter or article is held to be invalid, the remainder of this article continues in full force and effect. Documents incorporated by reference herein, includes provisions for certification, labeling requirements, emissions standard enforcement, and warranty.

Section 2209.1. Definitions.

For the list below, definitions are included in the proposed regulation:

ASTM, Certified Engine Package, Crankcase, Crankcase Emissions, Critical Components, Emission Control System, Engine Identification Codes, Engine Identification Number, Engine Manufacturer, Engine Package, Exhaust Emissions, Exhaust Emissions System, Light-Duty Motor Vehicle, Motor Vehicle Inspection and Maintenance Program, Purge Control Logic, Smog Check Inspection, Specially Produced Motor Vehicle, SPMV Manufacturer, SPMV Owner, Ultimate Purchaser, Useful Life, Warrantable Condition, Warranted Part, Warranty Period, Warranty Station, Worst Case Vehicle, Zero Emission SPMV, and ZEV.

Rationale for Section 2209.1:

The detailed definitions are necessary to ensure consistent interpretation of the terms used in the proposed regulation. The following terms include a more detailed definition: Specially Produced Motor Vehicle, SPMV Manufacturer, and Worst Case Vehicle. The detailed definitions ensure better clarification and understating of the term, such as Specially Produced Motor Vehicle, which defines this as a production replica car that was originally commercially manufactured for sale not less than 25 years ago with a 500 unit minimum production run, and scaling of 1:1 \pm 10%. These criteria are intended to exclude from the definition of SPMV vehicles which were either developed only as show cars or never sold to the public commercially. The "SPMV manufacturer" definition is designed to be consistent with the related federal legislation (the FAST Act), as applicable. The FAST Act is limited to vehicles with a gross vehicle weight rating (GVWR) at or below 8,500 pounds. Light-duty vehicles are primarily passenger cars and light-duty trucks as defined in CCR, Title 13, section 1900. The FAST Act also limited the use of the SPMV program to manufacturers who produce less than 5,000 vehicles worldwide annually. CARB proposed the 5,000 vehicle limit to make the program applicable to the same manufacturers in the United States. The definition for "worst case vehicle" is necessary because it lists vehicle details that engine manufacturers need for determining worst case exhaust and evaporative emissions, see page 3 above, section III (A)(1). The definition is consistent with the same definition used in the Specially Constructed Vehicle regulations. "Useful life" is the mileage or time period for which the manufacturer must show that the certified engine package would be compliant with the applicable emission standards. The time periods in the definition are consistent with current California regulations associated with the LEV II and LEV III emissions standards.

Section 2209.2. Emission Standards, Test Procedures, Package Requirements, and Reporting Requirements for New Certified Engine Packages for Specially-Produced Motor Vehicles.

This section applies to 2019 and subsequent model year new vehicle engine packages for SPMVs.

Rationale for Section 2209.2:

The section details applicable emission standards (LEV II and LEV III) , required testing procedures, engine package requirements, and reporting requirements an engine manufacturer must do in order to obtain a new vehicle engine package certification from CARB. The applicable emission standards proposed are consistent with the levels that small volume manufacturers would have available to them to use for certification of their new light-duty vehicles, as applicable to title 13 sections 1961 and 1961.2.

Section 2209.3. Delivery of certified engine package to SPMV Manufacturers.

This section applies to the information an engine manufacturer must include in a certified engine package when it is delivered to the SPMV manufacturer.

Rationale for Section 2209.3:

A certified engine package may be installed in various vehicle configurations; this section requires the engine manufacturer to include installation instructions with specifications for proper installation, the type of vehicle this engine package is designed for, an owner's manual, and an engine label. Also included is a warranty card for the vehicle owner, an affidavit of installation, and statements on compliance. Without this information, the certified engine packages may not operate as designed and may exceed emissions standards. The vehicle builder needs this information to properly integrate the certified engine package into the SPMV, to document the certified engine package installation, to contact the SPMV owner, and to ensure the SPMV has the information needed to maintain the certified engine package.

Section 2209.4. Requirements for SPMV Manufacturers.

This section applies to the SPMV manufacturer obtaining a CARB Executive Order.

Rationale for Section 2209.4:

An SPMV manufacturer is required to obtain an Executive Order in order to sell SPMVs. This section lists the compliance requirements for a SPMV manufacturer. They must currently be registered with and approved by National Highway Traffic and Safety Administration and registered with the United States Environmental Protection Agency

to ensure the manufacturers have met the safety requirements consistent with the FAST Act. This ensures the same manufacturers will meet California and federal requirements. The SPMV shall submit to CARB a letter of intent and an application that demonstrates their capability to properly install a certified engine package in a SPMV. The application should also include descriptions of labels design and installation, record keeping, the location of engine installation, and warranty information. To not include the current registration and approvals by National Highway Traffic and Safety Administration and the United States Environmental Protection Agency would require CARB staff to be responsible for those tasks, which would already be covered by the two federal agencies. If the proper information is not supplied to CARB by the SPMV manufacturer, CARB staff would not be able to have ensure compliance with the requirements and provide the appropriate oversight of the SPMV manufacturer.

Section 2209.5. Emission Control Labels on Certified Engine Packages and Specially-Produced Motor Vehicles.

Require engine manufacturers to provide a label to the SPMV manufacturer and require SPMV manufacturers to apply the certified engine label and the SPMV label to the SPMV with information needed to properly maintain certified engine packages.

Rationale for Section 2209.5:

This section lists the procedures and requirement the engine manufacturer must follow for the emissions control label that is provided with the certified engine package and its proper installation. An engine identification number is also a requirement of this section to track the compliant engines. To not include these requirements may result in an engine identification number not being present, not clearly visible, or readable and an emissions control label being affixed to the SPMV in an improper location. Labels are important for identification of compliant engines and vehicles for smog check testing and enforcement.

Section 2209.6. Defects Warranty Requirements for Certified Engine Packages for Use in Specially-Produced Motor Vehicles.

This section shall apply to 2019 and subsequent model year certified engine packages for use in SPMV.

Rationale for Section 2209.6:

This section lists the warranty requirements the engine manufacturer shall warrant to the ultimate purchaser of the SPMV and each subsequent SPMV owner. Included in this section is the general defects warranty coverage, high-priced warranted parts, and the resolution of unresolved warranty disputes on an emission-related part. An exclusion is provided in this section if the engine manufacturer demonstrates that the

engine has been abused, neglected, improperly installed, or improperly maintained, and that such abuse, neglect, improper installation, or improper maintenance was the direct cause of the need for the repair or replacement of the part. The proposed warranty requirements are similar to longstanding light-duty vehicle warranty requirements. Without this section, an SPMV owner would have to pay for the cost of repairing emission control defects to maintain emissions compliance during the warranty period. Engine manufacturers are responsible for remedying certain component failures or smog check related failures that may occur during the warranty period.

Section 2209.7. Performance Warranty Requirements for Certified Engine Packages for Use in Specially-Produced Motor Vehicles.

This section shall apply to 2019 and subsequent model year certified engine packages for use in SPMV.

Rationale for Section 2209.7:

This section states the engine manufacturer shall warrant that the certified engine will pass smog checks for the specified time and mileage period. It also includes the instructions for the required maintenance and use of the engine by the SPMV owner. Warranty claim procedures are also part of this section, along with owner obligations and mediation. To not require the information covered in this section may result in an SPMV owner not being made aware of warranty coverage for Smog Check failures, the type and frequency of maintenance required to be performed on their SPMV to maintain warranty coverage, and the process to request mediation on denied warranty claims.

Section 2209.8. Warranty Reporting Requirements for Certified Engine Packages for Use in Specially-Produced Motor Vehicles.

This section shall apply to 2019 and subsequent model year certified engine packages for use in SPMV.

Rationale for Section 2209.8:

This section states the requirements of warranty reporting by the engine manufacturer. Included in this section are the format of the report, tracking failing components and notification to Executive Officer. Without this section, no monitoring and notification to the Executive Officer of warranty claims would occur and no determination that a manufacturer's warranty claims have reached the level to require corrective action. As a result, an SPMV owner may be responsible for repair costs for the widespread failure of parts that fail after the warranty period has expired.

Section 2209.9. Recall Procedures for Certified Engine Packages for Use in Specially-Produced Motor Vehicles.

This section shall apply to 2019 and subsequent model year certified engine packages for use in SPMV.

Rationale for Section 2209.9:

This section states the process of recall and how the recall was determined. The proposed requirements mirror the longstanding recall requirements for light-duty vehicles, and reference the existing light-duty procedures in title 13 section 2141 through 2149. Recall may be triggered by confirmed four percent warranty claims. The warranty claim trigger has been established through the implementation of the light-duty emission warranty information reporting program.

Section 2209.10. Requirements for Specially-Produced Motor Vehicle manufacturers who install Certified Engine Packages for Use in Specially-Produced Motor Vehicles.

This section shall apply to an SPMV manufacturer of 2019 and subsequent model year SPMVs.

Rationale for Section 2209.10:

This section lists the requirements for the SPMV manufacturer when installing a certified engine package. Those requirements include an installation affidavit, record keeping, and installation warranty. This section ensures verification that each SPMV has been built correctly and includes the use of a certified engine package in an appropriate vehicle, that the owner has been made aware of the installation warranty, and that an extended warranty is provided for high priced emissions related parts. These provisions ensure that the engine certified package operates as designed and complies with applicable emissions standards.

V. BENEFITS ANTICIPATED FROM THE REGULATORY ACTION, INCLUDING THE BENEFITS OR GOALS PROVIDED IN THE AUTHORIZING STATUTE

The objective of the proposed regulation is intended to create a path for SPMV manufacturers to sell low emitting SPMVs in California as new vehicles. This proposed regulation achieves this by allowing engine manufacturers to certify engine packages that meet California's current LEV requirements for new vehicles, which will be made available for SPMV manufacturers to install into SPMVs. The proposed regulation also allows CARB to issue an EO to SPMV manufacturers who install certified engine packages into their vehicles. The proposed regulation provides the necessary flexibility needed for the unique characteristics of SPMVs, while ensuring new SPMVs are as low-emitting as other new production vehicles.

There are no expected benefits to the protection of public health and safety and worker safety.

VI. AIR QUALITY

Engines certified through the proposed procedure for use in an SPMV would be required to meet current LEV II or LEV III exhaust standards and evaporative emissions must not exceed the evaporative emissions standards applicable to new light-duty motor vehicles as specified in title 13 CCR section 1976. Engine manufacturers shall demonstrate on-board diagnostic (OBD) system that meets 13 CCR section 1968.2 for the model year of the certified engine package. Flexibility is proposed for evaporative system leak monitoring, which may be designed to detect a leak or leaks that cumulatively are greater than or equal to a leak caused by a missing fuel cap or a worse-case malfunction of a capless fuel storage system (e.g., capless sealing valve stuck open).

An SPMV is not meant to be a daily driver and will not replace a mass produced vehicle or sales of mass produced vehicles. The certified SPMVs will be low emissions vehicles like other light-duty vehicles from small volume manufacturers.

The relaxed OBD requirements for evaporative system leak monitoring would be considered insignificant due to the low production numbers of these vehicles. For additional information, see the analysis in Chapter VII below.

VII. ENVIRONMENTAL ANALYSIS

A. Introduction

This chapter provides an environmental analysis for the proposed regulation. Based on CARB's review, staff has determined that implementing the proposed regulation would not result in any potentially significant adverse impacts on the environment. This analysis provides the basis for reaching this conclusion. This section of the Staff Report also discusses environmental benefits expected from implementing the proposed regulation.

B. Environmental Review Process

CARB is the lead agency for the proposed regulation and has prepared this environmental analysis pursuant to its regulatory program certified by the Secretary of the Natural Resources Agency (14 CCR 15251(d); 17 CCR 60000-60008). In accordance with Public Resources Code section 21080.5 of the California Environmental Quality Act (CEQA), public agencies with certified regulatory programs are exempt from certain CEQA requirements, including but not limited to preparing environmental impact reports, negative declarations, and initial studies (14 CCR 15250). CARB has prepared

this environmental analysis (EA) to assess the potential for significant adverse and beneficial environmental impacts associated with the proposed regulation, as required by CARB's certified regulatory program (17 CCR 60005(b)). The resource areas from the CEQA Guidelines Environmental Checklist were used as a framework for assessing the potential for significant impacts (17 CCR 60005(b)).

If comments received during the public review period raise significant environmental issues, staff will summarize and respond to the comments in the Final Statement of Reasons (FSOR) prepared for the proposed regulation. The written responses to environmental comments will be approved prior to final action on the proposed regulation (17 CCR 60007(a)). If the proposed regulation is adopted, a Notice of Decision will be posted on CARB's website and filed with the Secretary of the Natural Resources Agency for public inspection (17 CCR 60007(b)).

C. Proposed Regulation

The proposed regulation is an optional certification procedure to allow manufacture and sale of new light-duty engine packages for use in SPMVs, as well as manufacture and sale of SPMVs themselves. Engine manufacturers need only certify engines per the procedure if they choose to produce engine packages for use in SPMVs. Similarly, vehicle manufacturers need only comply with the certification procedures if they choose to manufacture SPMVs for sale in California.

D. Environmental Impacts

Staff has concluded that the proposed regulation would not have a significant adverse effect on the environment. This analysis does not include a discussion of alternatives or mitigation measures that could reduce adverse environmental impacts because there are no significant adverse environmental impacts identified.

As noted above, the proposed regulation involves an optional certification procedure for new light-duty engine packages for use in SPMVs, as well as certification procedures for SPMVs. Engine manufacturers need only certify engines per the procedure if they choose to produce engine packages for use in SPMVs. Similarly, vehicle manufacturers need only comply with the certification procedures if they choose to manufacture SPMVs for sale in California. The proposed regulation does not require any action that could, either directly or indirectly, cause any significant adverse impacts on the environment. The optional certification procedure created by the proposed regulation does not require or result in any new development or require modifications to buildings or other structures, affect operations at existing facilities, or cause any new land use designation. Therefore, the proposed regulation is not expected to result in any adverse impacts that would result from physical development including aesthetics, air quality, agricultural and forestry resources, biological resources, cultural resources, geology and soils, greenhouse gases, land use planning, mineral resources, population and housing, public services, recreation, or traffic and transportation. Further, the proposed regulation does not involve any activity that would involve or affect hazardous material,

hydrology and water quality, noise, or population and housing because it is an optional certification procedure for engines and vehicles, and does not mandate any action that could affect these resources.

However, the proposed regulation would provide an additional certification pathway for a sub-category of motor vehicles which emit air pollutants. Therefore, CARB staff has analyzed the potential for air quality impacts.

Air Quality

CARB has conducted an initial air quality analysis to determine whether the proposed regulation has the potential to cause a significant air quality impact. This analysis has demonstrated that the proposed regulation does not have the potential to cause such an impact.

As described above, SPMVs would be required to meet all current light-duty motor vehicle emissions standards (LEV II or LEV III, depending on model year), including evaporative performance standards. They would also be required to meet all on-board diagnostics requirements, with the exception of the evaporative system leak monitor. Evaporative system leak monitoring would be designed to detect a leak or leaks that cumulatively are greater than or equal to a leak caused by a missing fuel cap or a worst-case malfunction of a capless fuel storage system (e.g., capless sealing valve stuck open).

From an emissions perspective, the key difference between SPMVs and other modern California-certified vehicles produced by licensed major manufacturers is the flexibility of an evaporative system leak monitor. As such, CARB staff calculated the possible evaporative emissions implications of the proposed regulation. As part of its 1994 OBD I rulemaking, CARB staff previously reviewed the potential emissions resulting from small leaks in the evaporative emission system.⁸ This analysis, which is hereby incorporated by reference, used a test fleet of 1,936 vehicles, with model years ranging from 1970 through 1989. Out of this fleet, 7.8 percent had leaks between 0.020 and 0.040 inch in diameter. While early data suggested that a leak of this size could yield 35 grams per test,⁹ the emissions implications of such a leak were later revised to 3 grams per test.¹⁰

Evaporative emissions system leaks can be caused by improper or incomplete vehicle repairs after collisions, removal of engines or other powertrain components for

⁸ California Air Resources Board (CARB). 1994. *Initial Statement of Reasons for Rulemaking: Technical Status and Proposed Revisions to Malfunction and Diagnostic System Requirements for 1994 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-duty Vehicles and Engines (OBD II)*. <https://www.arb.ca.gov/regact/1994/obd2/obd2isor.pdf>

⁹ *Id.* at 16.

¹⁰ *Id.* at 21

rebuilding, using used parts for repairs, and manufacturing problems.¹¹ The benefit of small-leak detection systems is the early detection of leaks.¹² However, as vehicle design and materials progress, these advances help minimize leaks by better resisting the damage that causes leaks.¹³

CARB staff expects that if the proposed regulation were adopted, 400 to 500 SPMVs may be purchased in California over a one year timeframe. Given that SPMVs are “lifestyle” vehicles, these vehicles would be expected to displace trips from other similar vehicles owned. They also are expected to be low-mileage vehicles, given their limited practicality – designed more for sport and nostalgia, they are not “daily driver” type vehicles. SPMVs are also expected to spend most of their lives in garages. Staff expects that 7.8 percent of the SPMVs may encounter evaporative system leaks in a per year timeframe.

Staff conservatively calculated the “worst-case” evaporative emissions implications of not requiring SPMVs to meet the evaporative system leak monitor requirements otherwise applicable to new light-duty vehicles produced by licensed manufacturers. This analysis resulted in the following emissions estimates:

¹¹ *Id.* at 20.

¹² *Id.* at 18.

¹³ *Id.* at 16.

Table 3.6: Emissions Implications of Not Requiring SPMVs to Meet Evaporative System Leak Monitoring Requirements

Timeframe (years after proposed regulation becomes effective)	Total Vehicle Population with an Evaporative Emissions Leak (Est.)	Total Evaporative Emissions, TPY (Est.) ¹⁴
1 year	39	0.05
10 years	300	0.4
26 years	480	0.6

Air district CEQA significance thresholds for volatile organic compounds (VOC) / reactive organic gases (ROG) in ozone nonattainment areas tend to be around 55 pounds per day, or 10 tons per year (TPY).^{15,16} As Table 3.6 above demonstrates, even after 26 years of SPMVs being sold into the marketplace, and even assuming the worst-case evaporative emissions profile (i.e., no fuel cap or equivalent emissions) for the proportion of vehicles that reasonably would be expected to develop evaporative emissions system leaks, the total statewide emissions implications of those evaporative emissions would remain far below a single air district’s significance threshold. Such emissions would also be consistent with the adopted State Implementation Plan, given the very low worst-case evaporative emissions from these vehicles (even compared against vehicles with full evaporative system leak monitoring requirements), and given that these emissions would displace emissions from driving other “lifestyle” vehicles, which themselves have some level of evaporative emissions.

Note that Staff’s calculations conservatively assume these evaporative emissions are new, rather than replacing the emissions from a fully-uncontrolled vehicle registered out of state. Staff believes it is likely that some of the SPMVs authorized through these proposed regulation would replace higher-polluting, fully uncontrolled vehicles. While staff has attempted to generate a good-faith estimate of the proposed regulation’s emissions implications, it would be speculative to predict with any accuracy the difference in emissions between the emissions from a given SPMV and whatever other vehicle it would be replacing. This is due to the highly-specialized nature of SPMVs, and the variation in potential SPMV buyers’ tastes. Regardless, real-world net emissions levels resulting from the proposed regulation are expected to be lower than shown in this conservative analysis.

¹⁴ This data is based on CARB staff’s determination that a worst-case evaporative emissions leak would result in 3 grams of emissions.

¹⁵ South Coast Air Quality Management District (SCAQMD). March 2015. *SCAQMD Air Quality Significance Thresholds*. <http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf>

¹⁶ San Joaquin Valley Air Pollution Control District (SJVAPCD). March 19, 2015. *Air Quality Thresholds of Significance – Criteria Pollutants*. <http://www.valleyair.org/transportation/0714-GAMAQI-Criteria-Pollutant-Thresholds-of-Significance.pdf>

VIII. ENVIRONMENTAL JUSTICE

State law defines environmental justice as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (Government Code, section 65040.12, subdivision (c)). CARB is committed to making environmental justice an integral part of its activities. The Board approved its Environmental Justice Policies and Actions (Policies) on December 13, 2001, to establish a framework for incorporating environmental justice into CARB's programs consistent with the directives of State law.¹⁷ These policies apply to all communities in California, but recognize that environmental justice issues have been raised more in the context of low-income and minority communities.

Over the past twenty years, the CARB, local air districts, and federal air pollution control programs have made substantial progress towards improving the air quality in California.¹⁸ However, some communities continue to experience higher exposures than others as a result of the cumulative impacts of air pollution from multiple mobile and stationary sources and thus may suffer a disproportionate level of adverse health effects.

The emissions reductions resulting from adoption of the proposed regulation will affect a small subset of on-road vehicles statewide. To the extent that communities have a disproportionate population of SPMVs with certified engine packages, the benefits of the proposed regulation may provide relatively greater air quality benefit to these communities.

IX. ECONOMIC IMPACTS ASSESSMENT

This proposed regulation provides a new certification path for SPMV manufacturers. Engine manufacturers, if they choose to participate would not incur additional costs resulting from this proposal, but instead would have a system in place to certify engines to sell to SPMV manufacturers. SPMV manufacturers would face minor costs if they choose to participate, which could lead to a path to sell SPMVs in California and thereby generate revenue. The SPMV manufacturer's costs are primarily due to administrative cost associated with the submission of required paperwork to CARB.

CARB staff believe that only one or two established light-duty vehicle manufacturers may certify engine packages for SPMVs and up to ten SPMV vehicle manufacturers may certify SPMVs. This is the highest level of interest anticipated based on

¹⁷ California Air Resources Board (CARB). December 13, 2001. *Policies and Actions for Environmental Justice*. <http://www.arb.ca.gov/ch/programs/ej/ejpolicies.pdf>

¹⁸ California Air Resources Board (CARB). October 22, 2014. *History of Air Resources Board*. <http://www.arb.ca.gov/knowzone/history.htm>

discussions with industry and SEMA. As a comparison, in 2012, CARB adopted similar regulations to certify engine packages for specially constructed vehicles (kit cars). Only one established light-duty vehicle manufacturer certified an engine package for specially constructed vehicles. CARB staff believe the number of new manufacturers and the associated added workload may be more similar to specially constructed vehicles and thus, can be absorbed with current resources.

However, if the level of interest exceeds what is anticipated and many more engine manufacturers request engine package certification and there is a significant increase in the number of SPMV manufacturers requesting SPMV certification, there may be a need for CARB to request additional staff at that time.

Effect on Jobs/Businesses:

Two types of businesses may be directly impacted: Engine manufacturers¹⁹ of certified engine packages and SPMV manufacturers²⁰ (those that build and sell the vehicles). Engine manufacturers will likely use engines already certified to meet California's new vehicle standards. The engine manufacturer would carry over existing specification data from the production vehicle to meet these engine certification requirements, and would incur no additional costs. Businesses that manufacture SPMVs would be impacted by new reporting requirements, and would also be allowed to sell new vehicles in California. 15 businesses are currently manufacturing or selling SPMVs and could be directly affected by the proposed regulation. Five of these are located in California, which currently sell parts or kits to individuals. Four of the California-based businesses are considered to be small businesses because they are independently owned and operated, with fewer than 100 employees.²¹ Light-duty engine manufacturers already meet the California standards, thus would not incur any additional costs as a result of the proposed regulation.

Costs as a result of the proposed regulation result from annual reporting requirements. SPMV manufacturers would incur additional reporting costs if they choose to produce vehicles for sale in California, but would only do so if it is in their financial best interest. Annual reporting costs are estimated to be \$2,000 based on an hourly wage of \$50 (includes overhead) for office personnel to compile and submit required paperwork to CARB, and approximately 40 hours would be needed to prepare the required paperwork. This process requires no initial costs to perform. The lifetime costs for the five California businesses to comply with this regulation is estimated to be \$50,000. \$2,000 in annual costs x 5 CA SPMV manufacturers x 5 years = \$50,000. Given these costs, staff does not expect an impact on the creation, elimination, or expansion of businesses in the State of California. Furthermore, there is not expected to be a significant adverse impact to businesses in California.

¹⁹ NAICS 3361 and 3363: Automobile manufacturing or motor vehicle parts manufacturing.

²⁰ NAICS 3361, 3363, and 4411: Automobile manufacturing, motor vehicle parts manufacturing, or car dealer.

²¹ AB-1033 Economic impact assessment: small business definition.

https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB1033

Individuals are not directly impacted by the proposed regulation. The annual reporting costs incurred by manufacturers could be passed through to individuals who purchase SPVMs in California resulting in an indirect impact to individuals in California. The proposed regulation is expected to result in annual sales of 400 to 500 SPMVs at an average vehicle estimated sale price of \$100,000. Given the small reporting costs and large vehicle price, any costs passed through are anticipated to be negligible.

Potential job creation resulting from this proposed regulation includes manufacturing, engineering, warehousing, and other support staff as needed. Staff estimated this could result in 30 to 50 new jobs in California over the five year lifetime of the regulation.

Benefits

There are no quantified benefits to the protection of public health and safety or to worker safety as a result of this rulemaking. However, CARB staff expects some SPMV sales to displace higher-emitting, non-California certified replica vehicles that are brought into and appealed in California. A detailed assessment of the benefits and environmental impact of this rulemaking can be on page 21-25 of this Initial Statement of Reasons.

X. EVALUATION OF REGULATORY ALTERNATIVES

Government Code section 11346.2, subdivision (b)(4) requires CARB to consider and evaluate reasonable alternatives to the proposed regulatory action and provide reasons for rejecting those alternatives. This section discusses alternatives evaluated and provides reasons why these alternatives were not included in the proposal. As explained below, no alternative proposed was found to be less burdensome and equally effective in achieving the purposes of the regulation in a manner than ensures full compliance with the authorizing law. The Board has not identified any reasonable alternatives that would lessen any adverse impact on small business.

The main alternative considered by staff was to not adopt the proposed regulation. With no specific procedures for engine manufacturers to certify an engine package, SPMV manufacturers would have to comply with all the light-duty vehicle certification procedures. An SPMV manufacturer would have to meet the applicable full new vehicle emissions requirements of exhaust emissions, evaporative emissions, and OBD.

As a second alternative, staff considered exempting SPMVs from CARB regulations. This would allow SPMV manufacturers to build and sell ready to use vehicles in the state that do not meet past or current exhaust and evaporative emissions standards, or have any type of on-board diagnostics. This could result in a negative emissions impact because SPMV manufacturers could use uncontrolled crate engines.

As a third alternative, staff considered incorporating federal SPMV program without further California-specific modifications. Staff believes the federal program will allow SPMV manufacturers to use an engine package from any new vehicle certified to either

a federal or California standards. SPMV manufacturers would have to pull engines, emissions controls and on-board diagnostics from new vehicles in their entirety, and incorporate them into the SPMV. The regulation would need to exempt SPMVs from the state's smog check program.

Small Business Alternative

The Board has not identified any reasonable alternatives that would lessen any adverse impact on small business.

Performance Standards in Place of Prescriptive Standards

The proposed regulation would not mandate the use of specific technologies. This regulation does not mandate any actions by engine manufacturers or low volume manufacturers, but instead provides a new optional certification path. Engine manufacturers are not obliged to build and certify engine packages per the new regulations and procedures.

XI. JUSTIFICATION FOR ADOPTION OF REGULATIONS DIFFERENT FROM FEDERAL REGULATIONS CONTAINED IN THE CODE OF FEDERAL REGULATIONS

There are no comparable federal regulations.

XII. PUBLIC PROCESS FOR DEVELOPMENT OF THE PROPOSED ACTION (PRE-REGULATORY INFORMATION)

Consistent with Government Code sections 11346, subdivision (b), and 11346.45, subdivision (a), and with the Board's long-standing practice, CARB staff held a public workshop and other meetings with interested persons during the development of the proposed regulation. These informal pre-rulemaking discussions provided staff with useful information that was considered during development of the regulation that is now being proposed for formal public comment.

To support development of this proposed regulation, CARB staff held a public workshop on August 24, 2017, to obtain input from industry and other stakeholders. Staff held additional meetings with stakeholder to discuss specific topics.

XIII. REFERENCES

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XIV. APPENDICES

Appendix A: Proposed amendments to California Code of Regulations Title 13. Division 3, Chapter 4, Article 1.4: Certification of Engine Packages for New Specially-Produced Motor Vehicles

Appendix B: California Certification Procedures for Light-Duty Engine Packages for Use in New Light-Duty Specially-Produced Motor Vehicles for 2019 and Subsequent Model Years