

Attachment B

EMA Exhibit F Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses

This attachment contains the table of EMA comments presented in Exhibit F of EMA's December 9, 2021, letter. The following table columns provide a verbatim transcription¹ of the combined text of the several Microsoft Excel Worksheets comprising Exhibit F in their entirety: "CARB's Proposed Amendments as transcribed by EMA," "EMA Issue / Comment," and "EMA Proposed Changed Text." The "Agency Response" table column provides CARB's response to each EMA Exhibit F comment. The "Agency Response Number" table column was added for ease of reference. The originally-submitted EMA letter with Exhibit F is included in its entirety in the rulemaking record and is available in the Board Meeting Comments Log at the following [CARB website](https://ww2.arb.ca.gov/applications/public-comments?p=comm&s=bccommlog&l=sore2021): <https://ww2.arb.ca.gov/applications/public-comments?p=comm&s=bccommlog&l=sore2021>.

The majority of EMA's Exhibit F comments are identical or substantively identical to the comments submitted by OPEI in Annex A of OPEI's November 29, 2021, letter. CARB carefully compared the EMA and OPEI comments to identify differences and described the differences in the Agency Response column. Examples of nonsubstantive differences include EMA replacing "OPEI" with "EMA" in comment text in the Issue/Comment column, and EMA not including text specific to handheld engines in the Issue/Comment column. Examples of substantive differences include EMA adding comments to the Proposed Changed Text column that were not in OPEI Annex A, and EMA adding comments for regulatory sections not included in OPEI Annex A. For every EMA comment that is identical or substantively identical to an OPEI comment, the following table provides a reference to the Agency Response to the corresponding OPEI comment in Attachment A instead of repeating the response in this Attachment B.

¹ All typographical errors are as stated in EMA Exhibit F and have not been corrected here.

EMA Exhibit F Comments to CARB’s 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses

Agency Response Number	CARB’s Proposed Amendments as transcribed by EMA	EMA Issue / Comment	EMA Proposed Changed Text	Agency Response
B-1	<p>Small Off-Road Engine Regulations: Transition to Zero Emissions Appendix A § 2401. Definitions.</p> <p><u>(19) “Engine” means a complete, operational engine. Any engine block or kit with the parts necessary to assemble an engine block with or without an installed crankshaft is also considered an engine. Gas turbine engines are excluded from this definition.</u></p> <p>(19) <u>(20) “Engine family” is a subclass of a basic engine based on similar emission characteristics or a subclass of zero-emission small off-road equipment based on similar performance characteristics.</u> The engine family is the grouping of engines or zero-emission small off-road equipment that is used for the purposes of certification.</p> <p>(20) <u>(21) “Engine family name” means a multi-character alphanumeric sequence that represents certain specific and general information about an engine family.</u></p> <p>(21) <u>(22) “Engine manufacturer” means the manufacturer granted certification.</u></p>	<p>CARB’s definition of an engine is too vague. An engine block without a crankshaft should not be considered an engine. Furthermore, a kit that contains engine components may be considered a replacement engine for regulatory purposes. Additionally, unassembled parts could not be assigned an assembly date. EMA recommends the definition is harmonized with EPA. The definition itself is inconsistent. First it defines an engine as a "complete, operational engine", but also suggests "any engine block or kit with the parts necessary to assemble an engine block with or without an installed crankshaft is also considered an engine." EMA is also concerned how or why an engine block would be assembled without a crankshaft. EMA is concerned that definition and rational will prevent users from servicing and maintaining their products, even with "authorized" parts, which is inconsistent with the Administrations push for Right to Repair legislation. EMA is not aware of the concern and issues provided in the rational regarding complete sets of counterfit parts that could be assembled as an engine. Industry seeks additional information about this concern and or examples, and would like to discuss this concern further before adopting a definition that is not harmonized with EPA requirements. The scenario does not consider the date of manufacturer for groups of parts not assembled - What would CARB consider the DOM in the event the requirement is changed? The scenario does not consider application of the emissions label.</p>	<p>Engine means an engine block with an installed crankshaft, or a gas turbine engine. The term engine does not include engine blocks without an installed crankshaft, nor does it include any assembly of reciprocating engine components that does not include the engine block. (Note: For purposes of this definition, any component that is the primary means of converting an engine’s energy into usable work is considered a crankshaft, whether or not it is known commercially as a crankshaft.)</p>	<p>This comment is identical to the comment in Agency Response Number 1 in Attachment A: OPEI Annex A Comments to CARB’s 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to “OPEI” have been changed to “EMA.” Please see the agency response at Agency Response Number 1 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

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		<p>Emission label cannot be installed to components which do not represent a certified configuration. Emissions labels may not be able to be affixed to components due to durability requirements and material compability of the parts that are by the proposed definition considered an engine.</p> <p>The definition is not practical because a box of parts could be used on multiple families.</p>		
B-2	<p>(24) (25) "Family emission level" or "FEL" means an emission level that is declared by the manufacturer to serve for the averaging, banking, and trading program and in lieu of an emission standard for certification. The FEL serves as the engine family's emission standard for emissions compliance efforts. If the manufacturer does not declare an FEL for an engine family, the applicable emissions standard must be treated as that engine family's FEL for the purposes of any provision of this Article.</p>	<p>The FEL definition is not harmonized with EPA - The terminology is inconsistent.</p>	<p>(25) "Family emission limit level" or "FEL" means an emission limit level that is declared by the manufacturer to serve for the averaging, banking, and trading program and in lieu of an emission standard for certification. The FEL serves as the engine family's emission standard for emissions compliance efforts. If the manufacturer does not declare an FEL for an engine family, the applicable emissions standard must be treated as that engine family's FEL for the purposes of any provision of this Article.</p>	<p>This comment is identical to the comment in Agency Response Number 2 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 2 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-3	<p><u>(29) "Generator" means off-road equipment that exclusively produces electric power.</u></p>	<p>The ISOR (pg 24 under section F. Technological Feasibility) and SRIA (pg 53 under iv. Generators section) both provide explanation saying that stationary generators are excluded from the SORE Rule. However, the proposed Small Off-Road Engine Exhaust Emission Regulations do not make this clear. You can get to that conclusion by looking through definitions like below</p> <p>(29) "Generator" means off-road equipment that exclusively produces electric power.</p> <p>Generator = Off-Road Equipment</p> <p>(37) "Off-road vehicle" or "Off-road equipment" means any non-stationary device, powered by an internal combustion engine or motor, used primarily off the highways to propel, move, or draw persons or property including any device propelled, moved, or drawn exclusively by human power, and used in, but not limited to,</p>	<p>"Generator" means off-road equipment that exclusively produces electric power. This excludes stationary generators. "Stationary generator" - remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A stationary source would not have the following features wheels and carrying handles.</p>	<p>This comment is identical to the comment in Agency Response Number 3 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 3 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

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		<p>any of the following applications: Marine Vessels, Construction/Farm Equipment, Locomotives, Small Off-Road Engines, Off-Road Motorcycles, and Off-Highway Recreational Vehicles.</p> <p>Off-Road Equipment = non-stationary (mobile) Therefore...</p> <p>Generator = non-stationary (mobile)</p> <p>By updating the "Generator" definition it could help clear up any confusion.</p>		
B-4	(30) "Generator engine" means an engine installed exclusively in a generator.	General purpose small engines may be used in multiple applications, which may cause certification issues and confusion considering the proposed definition.	(30) "Generator engine family" means an engine installed exclusively in a generator.	This comment is identical to the comment in Agency Response Number 4 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 4 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-5	<p>(32) "Handheld" means relating to off-road equipment using an engine with displacement less than or equal to 80 cc that meets either of the following criteria: (A) It is carried by the operator throughout the performance of the manufacturer's intended function.</p> <p>(B) It has a combined engine and equipment dry weight under 16.0 kilograms, has no more than one wheel, and the operator provides support or attitudinal control for the equipment throughout the performance of the manufacturer's intended function. Support means to hold a piece of equipment in position to prevent it from falling, slipping, or sinking, without carrying it. Attitudinal control involves regulating the horizontal or vertical position of the equipment.</p>	The handheld definition is not harmonized with EPA.	<p>Handheld means relating to equipment that meets any of the following criteria:</p> <p>(1) It is carried by the operator throughout the performance of its intended function.</p> <p>(2) It is designed to operate multi-positionally, such as upside down or sideways, to complete its intended function.</p> <p>(3) It has a combined engine and equipment dry weight under 16.0 kilograms, has no more than two wheels, and at least one of the following attributes is also present:</p> <p>(i) The operator provides support or carries the equipment throughout the performance of its intended function. Carry means to completely bear the weight of the equipment, including the engine. Support means to hold a piece of equipment in position to prevent it from falling, slipping, or sinking, without carrying it.</p> <p>(ii) The operator provides support or attitudinal control for the equipment throughout the performance of its intended function. Attitudinal control</p>	This comment is identical to the comment in Agency Response Number 5 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 5 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.

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			<p>involves regulating the horizontal or vertical position of the equipment.</p> <p>(4) It is an auger with a combined engine and equipment dry weight under 22.0 kilograms.</p> <p>(5) It is used in a recreational application with a combined total vehicle dry weight under 20.0 kilograms.</p> <p>(6) It is a hand-supported jackhammer or rammer/compactor. This does not include equipment that can remain upright without operator support, such as a plate compactor.</p>																																																																															
B-6(a)	<p>§ 2403. Exhaust Emission Standards and Test Procedures – Small Off-Road Engines.</p> <p>Exhaust Emission Standards for Spark-Ignition Engines, Except Generator Engines (grams per kilowatt-hour)</p> <table border="1" data-bbox="243 667 646 816"> <thead> <tr> <th>Model Year</th> <th>Displacement Category</th> <th>Durability Period (hours)</th> <th>Hydrocarbon plus Oxides of Nitrogen⁽¹⁾⁽²⁾</th> <th>Carbon Monoxide⁽¹⁾</th> <th>Particulate Matter⁽¹⁾</th> </tr> </thead> <tbody> <tr> <td>2024 and subsequent</td> <td>< 50 cc</td> <td>300</td> <td>0.00</td> <td>536</td> <td>0.00⁽³⁾</td> </tr> <tr> <td>2024 and subsequent</td> <td>50-80 cc, inclusive</td> <td>300</td> <td>0.00</td> <td>536</td> <td>0.00⁽³⁾</td> </tr> <tr> <td>2024 and subsequent</td> <td>> 80 cc - < 225 cc</td> <td>500</td> <td>0.00</td> <td>549</td> <td>NA</td> </tr> <tr> <td>2024 and subsequent</td> <td>225-825 cc, inclusive</td> <td>1,000</td> <td>0.00</td> <td>549</td> <td>NA</td> </tr> <tr> <td>2024 and subsequent</td> <td>> 825 cc</td> <td>1,000</td> <td>0.00</td> <td>20.6</td> <td>NA</td> </tr> </tbody> </table>	Model Year	Displacement Category	Durability Period (hours)	Hydrocarbon plus Oxides of Nitrogen ⁽¹⁾⁽²⁾	Carbon Monoxide ⁽¹⁾	Particulate Matter ⁽¹⁾	2024 and subsequent	< 50 cc	300	0.00	536	0.00 ⁽³⁾	2024 and subsequent	50-80 cc, inclusive	300	0.00	536	0.00 ⁽³⁾	2024 and subsequent	> 80 cc - < 225 cc	500	0.00	549	NA	2024 and subsequent	225-825 cc, inclusive	1,000	0.00	549	NA	2024 and subsequent	> 825 cc	1,000	0.00	20.6	NA	EMA does not agree with this strategy.	<p>C</p> <table border="1" data-bbox="1125 605 1541 719"> <thead> <tr> <th colspan="6">Exhaust Emission Standards for Spark-Ignition Engines, Except Generator Engines (grams per kilowatt-hour)</th> </tr> <tr> <th>Model Year</th> <th>Displacement Category</th> <th>Durability Period (hours)</th> <th>Hydrocarbon plus Oxides of Nitrogen⁽¹⁾⁽²⁾</th> <th>Carbon Monoxide⁽¹⁾</th> <th>Particulate Matter⁽¹⁾</th> </tr> </thead> <tbody> <tr> <td>2024 and subsequent</td> <td>< 50 cc</td> <td>300/300/300</td> <td>0.00</td> <td>536</td> <td>0.00⁽³⁾</td> </tr> <tr> <td>2024 and subsequent</td> <td>50-80 cc, inclusive</td> <td>300/300/300</td> <td>0.00</td> <td>536</td> <td>0.00⁽³⁾</td> </tr> <tr> <td>2024 and subsequent</td> <td>> 80 cc - < 225 cc</td> <td>500</td> <td>0.00</td> <td>549</td> <td>NA</td> </tr> <tr> <td>2024 and subsequent</td> <td>225-825 cc, inclusive</td> <td>1,000</td> <td>0.00</td> <td>549</td> <td>NA</td> </tr> <tr> <td>2024 and subsequent</td> <td>> 825 cc</td> <td>1,000</td> <td>0.00</td> <td>20.6</td> <td>NA</td> </tr> </tbody> </table>	Exhaust Emission Standards for Spark-Ignition Engines, Except Generator Engines (grams per kilowatt-hour)						Model Year	Displacement Category	Durability Period (hours)	Hydrocarbon plus Oxides of Nitrogen ⁽¹⁾⁽²⁾	Carbon Monoxide ⁽¹⁾	Particulate Matter ⁽¹⁾	2024 and subsequent	< 50 cc	300/300/300	0.00	536	0.00 ⁽³⁾	2024 and subsequent	50-80 cc, inclusive	300/300/300	0.00	536	0.00 ⁽³⁾	2024 and subsequent	> 80 cc - < 225 cc	500	0.00	549	NA	2024 and subsequent	225-825 cc, inclusive	1,000	0.00	549	NA	2024 and subsequent	> 825 cc	1,000	0.00	20.6	NA	<p>This comment proposes an alternative to the Proposed Amendments, recommending that CARB adopt more stringent, but non-zero, exhaust standards for SORE in some displacement categories, beginning with MY 2025. It further implicitly recommends that zero emission standards not be adopted in this rulemaking for implementation at any date. CARB made no changes in response to this comment.</p> <p>The emissions durability periods and emission standards proposed by the commenter to be effective beginning with MY 2025 are identical to the current emissions durability periods and emission standards for engines under 50 cc displacement, and for 50-80 cc displacement, inclusive. For engines above 80 cc to below 225 cc and engines from 225 cc to 825 cc, inclusive, the emissions durability periods and HC + NO_x emission standards proposed by the commenter are similar to those considered in Alternative 2, described on pages 125-135 of the ISOR, although with implementation of the more stringent but non-zero emission standards delayed by a year, and no subsequent phase-in of emission standards of zero proposed by the commenter. For engines above 825 cc displacement, the emissions durability period proposed by the commenter is similar to that proposed in Alternative 2, and the HC+NO_x emission standards</p>
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				<p>proposed by the commenter is more stringent than current regulations but less stringent than either the Proposed Amendments or Alternative 2, and with no subsequent phase-in of emission standards of zero proposed by the commenter. For all displacement categories, the CO emission standards proposed by the commenter are identical to current standards. The PM standards proposed by the commenter, if any, are also identical to current emission standards for all displacement categories. Finally, the table of proposed standards is labeled as "Exhaust Emission Standards for Spark-Ignition Engines, Except Generator Engines." The commenter did not include proposed emission standards for generator engines in this comment. EMA's comment addressed in Agency Response Number B-6(b) of this attachment states, "EMA proposal does not have different emission standards for generator and non generator engines."</p> <p>Altogether, these proposed standards amount to requesting a "no action" alternative for SORE with displacement less than or equal to 80 cc and possibly for generator engines regardless of displacement, and requesting an alternative somewhat similar to, but less stringent than, Alternative 2 considered in the ISOR for the remaining engine displacement categories. Under either reading, with respect to generators, the overall proposal is more stringent than current exhaust regulations, but less stringent than Alternative 2, which CARB analyzed on pages 125-135 of the ISOR and rejected. CARB's reasons for rejecting Alternative 2 are that it is less cost-effective than the Proposed Amendments, that it fails to maximize available health benefits, and that it would make it more difficult for CARB to achieve its air quality goals both under EO N-79-20 and the 2016 State SIP Strategy and would make less progress toward statewide commitments. As</p>

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				<p>provided in CARB's enabling statutory authority, "[t]he control and elimination of ... air pollutants is of prime importance for the protection and preservation of the public health and well-being, and for the prevention of irritation to the senses, interference with visibility, and damage to vegetation and property." (HSC section 43000, subd. b)). Therefore, since public health benefits are one of the primary purposes of CARB's statutory mandate for adopting and implementing regulations, like the Proposed Amendments, and since the proposed alternative is even less stringent than an alternative CARB analyzed and rejected in part for failure to maximize health benefits to the same extent as the Proposed Amendments, the proposed alternative would not be consistent with HSC section 43000, subsection (b), and it must be rejected for this reason.</p>																																																																		
B-6(b)	<p style="text-align: center;">Exhaust Emission Standards for Generator Engines (grams per kilowatt-hour)</p> <table border="1" data-bbox="239 824 653 1068"> <thead> <tr> <th>Model Year</th> <th>Displacement Category</th> <th>Durability Period (hours)</th> <th>Hydrocarbon (as Codes of Nitrogen)^a</th> <th>Carbon Monoxide^b</th> <th>Particulate Matter^c</th> </tr> </thead> <tbody> <tr> <td>2024 through 2027</td> <td>< 50 cc</td> <td>500</td> <td>6.0</td> <td>400</td> <td>2.0*</td> </tr> <tr> <td>2024 through 2027</td> <td>50-80 cc inclusive</td> <td>500</td> <td>6.0</td> <td>400</td> <td>2.0*</td> </tr> <tr> <td>2024 through 2027</td> <td>> 80 cc <= 225 cc</td> <td>500</td> <td>6.0</td> <td>400</td> <td>NA</td> </tr> <tr> <td>2024 through 2027</td> <td>> 225 cc inclusive</td> <td>1,000</td> <td>3.0</td> <td>200</td> <td>NA</td> </tr> <tr> <td>2024 through 2027</td> <td>> 825 cc</td> <td>1,000</td> <td>0.80</td> <td>20.6</td> <td>NA</td> </tr> <tr> <td>2028 and subsequent</td> <td>< 50 cc</td> <td>300</td> <td>0.00</td> <td>400</td> <td>0.00*</td> </tr> <tr> <td>2028 and subsequent</td> <td>50-80 cc inclusive</td> <td>300</td> <td>0.00</td> <td>400</td> <td>0.00*</td> </tr> <tr> <td>2028 and subsequent</td> <td>> 80 cc <= 225 cc</td> <td>500</td> <td>0.00</td> <td>400</td> <td>NA</td> </tr> <tr> <td>2028 and subsequent</td> <td>> 225 cc inclusive</td> <td>1,000</td> <td>0.00</td> <td>200</td> <td>NA</td> </tr> <tr> <td>2028 and subsequent</td> <td>> 825 cc</td> <td>1,000</td> <td>0.00</td> <td>20.6</td> <td>NA</td> </tr> </tbody> </table>	Model Year	Displacement Category	Durability Period (hours)	Hydrocarbon (as Codes of Nitrogen) ^a	Carbon Monoxide ^b	Particulate Matter ^c	2024 through 2027	< 50 cc	500	6.0	400	2.0*	2024 through 2027	50-80 cc inclusive	500	6.0	400	2.0*	2024 through 2027	> 80 cc <= 225 cc	500	6.0	400	NA	2024 through 2027	> 225 cc inclusive	1,000	3.0	200	NA	2024 through 2027	> 825 cc	1,000	0.80	20.6	NA	2028 and subsequent	< 50 cc	300	0.00	400	0.00*	2028 and subsequent	50-80 cc inclusive	300	0.00	400	0.00*	2028 and subsequent	> 80 cc <= 225 cc	500	0.00	400	NA	2028 and subsequent	> 225 cc inclusive	1,000	0.00	200	NA	2028 and subsequent	> 825 cc	1,000	0.00	20.6	NA	Remove	EMA proposal does not have different emission standards for generator and non generator engines.	<p>This comment recommends that the table of emission standards for MY 2024 and later generator engines in the Proposed Amendments be removed, and states that the commenter's proposal does not have different emission standards for generator and non generator engines. CARB made no changes in response to this comment. The issues raised by this comment are addressed in Agency Response Number B-6(a) of this attachment.</p>
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B-6(c)	<p>§ 2403. Exhaust Emission Standards and Test Procedures – Small Off-Road Engines.</p> <p>(2) (A) A new small off-road engine equal to or greater than 225 cc, intended solely to replace an engine in a piece of off-road equipment that was originally produced with an engine manufactured prior to the applicable implementation date as described in paragraph (b), shall not be subject to the emissions requirements of paragraph (b) provided that:</p> <p>1. The engine manufacturer has ascertained that no engine produced by itself or the manufacturer of the engine that is being replaced, if different, and certified to the</p>	This is inconsistent with EPA labeling and will result in the need for separate labels for EPA and CARB with identical information. EMA recognizes CARB desire to meet accessibility needs, however this change needs to be organized cooperatively with EPA and Industry in order to maintain a single 50-state emissions label.	3. The replacement engine is clearly labeled with the following language, or similar alternate language approved in advance by the Executive Officer: THIS ENGINE DOES NOT COMPLY WITH CALIFORNIA OFF-ROAD OR ON-HIGHWAY EMISSION REQUIREMENTS. SALE OR INSTALLATION OF THIS ENGINE FOR ANY PURPOSE OTHER THAN AS A REPLACEMENT ENGINE IN AN OFF-ROAD VEHICLE OR PIECE OF OFF-ROAD EQUIPMENT WHOSE ORIGINAL ENGINE WAS NOT CERTIFIED IS A VIOLATION OF CALIFORNIA LAW SUBJECT TO CIVIL PENALTY.	This comment is identical to the comment in Agency Response Number 6(b) in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 6(b) in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.																																																																		

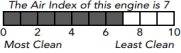
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	<p>requirements of this article, is available with the appropriate physical or performance characteristics to repower the equipment; and</p> <p>2. Unless an alternative control mechanism is approved in advance by the Executive Officer, the engine manufacturer or its agent takes ownership and possession of the engine being replaced; and</p> <p>3. The replacement engine is clearly labeled with the following language, or similar alternate language approved in advance by the Executive Officer:</p> <p>THIS ENGINE DOES NOT COMPLY WITH CALIFORNIA OFF-ROAD OR ON-HIGHWAY EMISSION REQUIREMENTS. SALE OR INSTALLATION OF THIS ENGINE FOR ANY PURPOSE OTHER THAN AS A REPLACEMENT ENGINE IN AN OFF ROAD VEHICLE OR PIECE OF OFF-ROAD EQUIPMENT WHOSE ORIGINAL ENGINE WAS NOT CERTIFIED IS A VIOLATION OF CALIFORNIA LAW SUBJECT TO CIVIL PENALTY. <u>This Engine Does Not Comply with California Off-Road or On-Highway Emission Requirements. Sale or Installation of this Engine for Any Purpose Other Than as a Replacement Engine in an Off-Road Vehicle or Piece of Off-Road Equipment Whose Original Engine Was Not Certified Is a Violation of California Law Subject to Civil Penalty.</u></p>			
B-7	<p>§ 2404. Emission Control Labels and Consumer Information – 1995 and Later Small Off-Road Engines.</p> <p>(c) Engine Label Content and Location.</p> <p>(1) A plastic or metal tune-up label must be welded, riveted or otherwise permanently attached by the engine manufacturer to an area on the engine (i.e., block or crankcase) in such a way that it will be readily visible to the average person after installation of the engine in the equipment. If such an attachment is not feasible, the Executive Officer may allow the label to be attached on components of the engine or equipment assembly (as applicable) that satisfy the requirements of Subsection (c)(2). Such labels must be attached on all engine assemblies (incomplete and complete) that are produced by an engine manufacturer.</p> <p>(2) In selecting an acceptable location, the engine manufacturer must consider the possibility of accidental damage (e.g.,</p>	<p>This is inconsistent with EPA labeling and will result in the need for separate labels for EPA and CARB with identical information. EMA recognizes CARB desire to meet accessibility needs, however this change needs to be organized cooperatively with EPA and Industry in order to maintain a single 50-state emissions label.</p>	<p>The engine label information must be written in the English language and use block letters and numerals (i.e., sans serif, upper-case characters) that must be of a color that contrasts with the background of the label.</p>	<p>This comment is identical to the comment in Agency Response Number 7 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 7 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

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	<p>possibility of tools or sharp instruments coming in contact with the label). Each engine label(s) must be affixed in such a manner that it cannot be removed without destroying or defacing the label, and must not be affixed to any engine (or equipment, as applicable) part that is likely to be replaced during the engine's (or equipment's, as applicable) useful life. The engine label must not be affixed to any engine (or equipment, as applicable) component that is easily detached from the engine. If the manufacturer claims there is inadequate space to affix the label, the Executive Officer will determine a suitable location.</p> <p>(3) The engine label information must be written in the English language and use block sans serif letters and numerals (i.e., sans serif, upper-case characters) that must be of a color that contrasts with the background of the label.</p>			
B-8	<p>(4) The engine label must contain the following information:</p> <p>(A) The label heading must read: "IMPORTANT ENGINE INFORMATION" "Important Engine Information"; or "IMPORTANT EMISSION INFORMATION" "Important Emissions Information"; or "EMISSION CONTROL INFORMATION" "Emission Control Information".</p> <p>(B) The full corporate name or trademark of the engine manufacturer.</p> <p>1. An engine manufacturer may request the Executive Officer's approval to delete its name and trademark, and substitute the name and trademark of another engine manufacturer, original equipment manufacturer, or third-party distributor.</p> <p>2. Such an approval does not relieve the engine manufacturer granted an engine family Executive Order of any requirements imposed on the applicable engines by this Article.</p> <p>(C) For alternate-fuel or dual-fuel engines, "THIS ENGINE IS CERTIFIED TO OPERATE ON (specify operating fuel(s))." "This engine is certified to operate on (specify operating fuel(s))."</p> <p>(D) Identification of the Exhaust Emission Control System. The method utilized to identify the exhaust emission control systems must conform to the emission-related nomenclature and abbreviations method provided in the</p>	<p>This is inconsistent with EPA labeling and will result in the need for separate labels for EPA and CARB with identical information. EMA recognizes CARB desire to meet accessibility needs, however this change needs to be organized cooperatively with EPA and Industry in order to maintain a single 50-state emissions label.</p>	<p>(A) The label heading must read: "IMPORTANT ENGINE INFORMATION"; or "IMPORTANT EMISSION INFORMATION"; or "EMISSION CONTROL INFORMATION".</p> <p>(C) For alternate-fuel or dual-fuel engines, "THIS ENGINE IS CERTIFIED TO OPERATE ON (specify operating fuel(s))."</p>	<p>This comment is identical to the comment in Agency Response Number 8 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 8 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

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	<p>Society of Automotive Engineers' recommended practice SAE J1930, "Electrical/Electronic Systems Diagnostic Terms, Definitions, Abbreviations and Acronyms - Equivalent to ISO/TR 15031-2: April 30, 2002", April 2002 Revised March 2017, and which is incorporated by reference in this Article; and as specified in Section 1977, Title 13, California Code of Regulations.</p>			
B-9	<p>(E) For otto-cycle engines, the maintenance specifications and adjustments recommended by the engine manufacturer, including, as applicable: valve lash, ignition timing, idle air/fuel mixture setting procedure and value (e.g., idle CO, idle speed drop), and high idle speed. For diesel-cycle engines, the specifications and adjustments recommended by the engine manufacturer, including, as applicable: initial injection timing, and fuel rate (in mm³ /stroke) at rated power. These specifications must indicate the proper transmission position, (if applicable), during tune-up and what accessories, if any, should be in operation, and what systems, if any (e.g., vacuum advance, air pump), should be disconnected during the tune-up. If the engine manufacturer does not recommend adjustment of the foregoing specifications, the engine manufacturer may include in lieu of the "specifications" the single statement "NO OTHER ADJUSTMENTS NEEDED." "No other adjustments needed." For all engines, the instructions for tune-up adjustments must be sufficiently clear on the engine label to preclude the need for a mechanic or equipment owner to refer to another document in order to correctly perform the adjustments.</p> <p>(F) Any specific fuel or engine lubricant requirements (e.g., lead content, research octane number, engine lubricant type).</p> <p>(G) The date of engine manufacture (month and year).</p> <p>(H) An unconditional statement of compliance with the appropriate calendar year (for 1995-1999) or model year(s) (for 2000 and later) California regulations; for example, "THIS ENGINE MEETS 2005 CALIFORNIA EXH EMISSION REGULATIONS FOR SMALL OFF-ROAD ENGINES." "This engine meets 2021 California exh emission regulations for small off-</p>	<p>This is inconsistent with EPA labeling and will result in the need for separate labels for EPA and CARB with identical information. EMA recognizes CARB desire to meet accessibility needs, however this change needs to be organized cooperatively with EPA and Industry in order to maintain a single 50-state emissions label.</p>	<p>(H) An unconditional statement of compliance with the appropriate calendar year (for 1995-1999) or model year(s) (for 2000 and later) California regulations; for example, "THIS ENGINE MEETS 2005 CALIFORNIA EXH EMISSION REGULATIONS FOR SMALL OFF-ROAD ENGINES." For engines certified to emission standards subject to a durability period as set forth in §2403(b), the durability period must be stated in the owner's manual.</p>	<p>This comment is identical to the comment in Agency Response Number 9 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 9 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

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	<p>road engines." For engines certified to emission standards subject to a durability period as set forth in §2403(b), the durability period must be stated in the owner's manual.</p> <p>(I) Engine displacement (in cubic centimeters) of the engine upon which the engine label is attached.</p> <p>(J) The engine family identification (i.e., engine family name).</p>			
B-10	<p>(5) If there is insufficient space on the engine to accommodate an engine label that contains all of the information required in Subsection (4) above, the Executive Officer may allow the engine manufacturer to modify the engine label as follows:</p> <p>(A) Exclude the information required in Subsections (4)(C), (D), (E), (F), and (I) from the engine label. The fuel or lubricant information must be specified elsewhere on the engine, or in the owner's manual.</p> <p>(B) Substitute the information required in Subsection (4)(E) with the statement: "REFER TO OWNER'S MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS." "Refer to owner's manual for maintenance specifications and adjustments." When such a statement is used, the information required by Subsection (4)(E) must appear in the owner's manual.</p> <p>(C) Exclude the information required by Subsection (4)(G) on the engine label if the date the engine was manufactured is stamped permanently on the engine, and this stamped date is readily visible.</p> <p>(D) Make such other reasonable modifications or abbreviations as may be approved by the Executive Officer.</p> <p>(d) An engine label may state that the engine conforms to any applicable federal, Canadian, or European emission standards for new equipment engines; or any other information that the engine manufacturer deems necessary for, or useful to, the proper operation and satisfactory maintenance of the engine.</p> <p>(e) Supplemental Engine Label Content and Location.</p> <p>(1) When a final equipment assembly that is marketed to any ultimate purchaser is manufactured and the engine label attached by the engine manufacturer is obscured (i.e., not readily visible), the manufacturer of the final</p>	<p>This is inconsistent with EPA labeling and will result in the need for separate labels for EPA and CARB with identical information. EMA recognizes CARB desire to meet accessibility needs, however this change needs to be organized cooperatively with EPA and Industry in order to maintain a single 50-state emissions label.</p>	<p>(B) Substitute the information required in Subsection (4)(E) with the statement: "REFER TO OWNER'S MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS." When such a statement is used, the information required by Subsection (4)(E) must appear in the owner's manual.</p>	<p>This comment is identical to the comment in Agency Response Number 10 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 10 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

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	equipment assembly (i.e., original equipment manufacturer) must attach a supplemental engine label upon the engine or equipment. The supplemental engine label must be plastic or metal, must meet the visibility, durability and formatting requirements of paragraphs (f), (g) and (h), and must be welded, riveted or otherwise attached permanently to an area of the engine or equipment assembly so as to be readily visible to the average person.																							
B-11	<p>(l) Air Index Label Content and Location. For engines certified to emission standards subject to a durability period as set forth in §2403(b) and for engines used to meet the requirements of §2403(c), each engine manufacturer must make Air Index and durability period information available to potential ultimate purchasers.</p> <p>(1) The Air Index for each engine family is determined by the following formula: Air Index = FEL x 3 / Standard, rounded to the nearest whole number in accordance with ASTM E 29-93a (May 1993), where FEL= the Family Emission Limit Level (or standard, if averaging is not being used) for the engine; and Standard = The HC+NO_x emissions standard, as applicable in § 2403 (b).</p> <p>(2) The emissions durability period must be indicated by the actual hours, by the descriptive terms shown in the table below, or by both.</p> <table border="1" data-bbox="241 998 651 1101"> <thead> <tr> <th colspan="2">For 2000 through 2004 model year small off-road engines:</th> </tr> <tr> <th>Descriptive term</th> <th>Applicable to Emissions Durability Period</th> </tr> </thead> <tbody> <tr> <td>Moderate</td> <td>50 hours (0-65 cc, inclusive) 125 hours (greater than 65 cc)</td> </tr> <tr> <td>Intermediate</td> <td>125 hours (0-65 cc, inclusive) 250 hours (greater than 65 cc)</td> </tr> <tr> <td>Extended</td> <td>300 hours (0-65 cc, inclusive) 500 hours (greater than 65 cc)</td> </tr> </tbody> </table> <table border="1" data-bbox="241 1128 651 1242"> <thead> <tr> <th colspan="2">For 2005 and subsequent through 2023 model year small off-road engines:</th> </tr> <tr> <th>Descriptive term</th> <th>Applicable to Emissions Durability Period</th> </tr> </thead> <tbody> <tr> <td>Moderate</td> <td>50 hours (0-80 cc, inclusive) 125 hours (greater than 80 cc)</td> </tr> <tr> <td>Intermediate</td> <td>125 hours (0-80 cc, inclusive) 250 hours (greater than 80 cc)</td> </tr> <tr> <td>Extended</td> <td>300 hours (0-80 cc, inclusive) 500 hours (greater than 80 cc) 1000 hours (225 cc and greater)</td> </tr> </tbody> </table> <p>(3) The Air Index information must include a graphical representation of the Air Index, information regarding the significance of the Air Index, and an indication of the emissions durability period of the engine.</p> <p>(A) The Air Index information should be conveyed in the general the form of the following example.</p> <p>(B) The Executive Officer, upon request, may waive or modify the form of the Air Index</p>	For 2000 through 2004 model year small off-road engines:		Descriptive term	Applicable to Emissions Durability Period	Moderate	50 hours (0-65 cc, inclusive) 125 hours (greater than 65 cc)	Intermediate	125 hours (0-65 cc, inclusive) 250 hours (greater than 65 cc)	Extended	300 hours (0-65 cc, inclusive) 500 hours (greater than 65 cc)	For 2005 and subsequent through 2023 model year small off-road engines:		Descriptive term	Applicable to Emissions Durability Period	Moderate	50 hours (0-80 cc, inclusive) 125 hours (greater than 80 cc)	Intermediate	125 hours (0-80 cc, inclusive) 250 hours (greater than 80 cc)	Extended	300 hours (0-80 cc, inclusive) 500 hours (greater than 80 cc) 1000 hours (225 cc and greater)	EMA is not aware of the required hearing to assess the consumer awareness of air index information in purchasing decisions § 2404 (l) (4). As a result, these labeling requirements should be removed.	Strike the entirety of § 2404 (l).	This comment is identical to the comment in Agency Response Number 11 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 11 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
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	<p>information or may approve alternative forms, provided that the intent of providing Air Index information is met.</p>  <p>The Air Index of this engine is 7</p> <p>Note: The lower the Air Index, the less pollution.</p> <p>This engine is certified to be emissions compliant for the following use:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Moderate [or appropriate hours, or both] <input checked="" type="checkbox"/> Intermediate [or appropriate hours, or both] <input type="checkbox"/> Extended [or appropriate hours, or both] <p><i>Check the owner's manual for further details.</i></p> <p>(4) No earlier than January 1, 2003, the Executive Officer will conduct a hearing to assess consumer awareness of Air Index information in purchasing decisions.</p> <p>(A) At such hearing the Executive Officer will compare the degree of consumer awareness of Air Index information by purchasers of engines not meeting specifications (A)-(C) in subsection (l)(5) to the degree of consumer awareness of Air Index information by purchasers of engines substantially meeting specifications (A)-(C) of subsection (l)(5). If the Executive Officer determines that the degree of consumer awareness is statistically equivalent, the provisions of subsections (l)(1-3) shall remain in effect and the Executive Officer will not require engine manufacturers to meet the requirements of subsection (l)(5).</p> <p>(B) If the Executive Officer determines that there are insufficient engines meeting specifications (A)-(C) in subsection (l)(5) to make the above comparison, the Executive Officer will compare the degree of consumer awareness of Air Index information by purchasers of engines not meeting specifications (A)-(C) in subsection (l)(5) to other similar consumer information programs including, but not limited to, the passenger car Smog Index labeling program. If the Executive Officer determines that the degree of consumer awareness is statistically equivalent to other similar consumer information programs, the provisions of subsections (l) (1-3) shall remain in effect and the Executive Officer will not require engine manufacturers to meet the requirements of subsection (l)(5).</p> <p>(C) If the Executive Officer determines that the degree of consumer awareness is not statistically equivalent under (A) and (B), then no earlier than at the beginning of the first full</p>			

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	<p>model year following the Executive Officer's final determination, provided that manufacturers have no less than 9 months of lead time, the Executive Officer will require engine manufacturers to meet the requirements of subsection (l)(5).</p> <p>(5) If the Executive Officer has made the determination in subsection (l)(4)(C), then the following requirements apply:</p> <p>(A) All information required on the Air Index Label must be no smaller than 2 millimeters in height.</p> <p>(B) The Air Index Label must be noticeable from a distance of 150 centimeters (59 inches) without any obstructions by equipment or engine parts, including all engine manufacturer or original equipment manufacturer (as applicable) available optional equipment. For engines that are installed in an engine compartment that is easily accessible to the ultimate purchaser, this subsection (l)(5)(B) may be satisfied by a generic label or hang tag stating "LOOK INSIDE THE ENGINE COMPARTMENT FOR IMPORTANT EMISSIONS INFORMATION," "Look inside the engine compartment for important emissions information," or by other means, subject to the Executive Officer's approval.</p> <p>(C) The Air Index Label must be located in at least one of the following locations:</p> <ol style="list-style-type: none"> 1. included on the engine label; 2. included as an additional engine label, designed and intended for removal only by the ultimate purchaser; or 3. included as an engine or equipment hang-tag designed or intended for removal only by the ultimate purchaser; <p>(D) For engines 0-65 cc (up to 80 cc beginning with the 2005 model year), inclusive, the engine manufacturer must also arrange for a label with the engine family's Air Index to be attached to the equipment packaging.</p> <p>(E) The Executive Officer, upon request, may waive or modify the form of the Air Index Label or may approve alternative forms, sizes or locations, provided that the intent of the Air Index Label requirement is met.</p> <p>(6) The labeling and consumer information provisions of subsection (l) shall not apply to engines that are not the primary power source of the equipment in which they are installed or</p>			

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	to engines that are installed in equipment that the engine or equipment manufacturer can demonstrate, to the Executive Officer's reasonable satisfaction, are used almost exclusively in commercial applications in which consumer information are not likely to affect a purchasing decision.			
B-12	<p>§ 2405. Defects Warranty Requirements for 1995 and Later Small Off-Road Engines.</p> <p>(e) Each manufacturer must furnish with each new engine written instructions for the maintenance and use of the engine by the owner. The instructions must be consistent with this article and applicable regulations contained herein.</p> <p>(f) Each engine manufacturer must submit the documents required by Subsections (d) <u>and (e)</u> with the engine manufacturer's application for engine certification for approval by the Executive Officer. Approval by the Executive Officer of the documents required by Subsections (d) <u>and (e)</u> is a condition of certification.</p> <p>he Executive Officer will approve or disapprove the documents required by Subsections (d) <u>and (e)</u> within 90 days of the date such documents are received from the engine manufacturer. Any disapproval must be accompanied by a statement of the reasons thereof. In the event of disapproval, the engine manufacturer may file for an adjudicative hearing pursuant to Title 17, California Code of Regulations, Section 60040 et seq., to review the decision of the Executive Officer.</p> <p>(g) In the application for engine certification, each engine manufacturer must include a statement regarding the maintenance of the engine for clean air. The statement must include, but not be limited to, information on carburetor adjustment, air filter care and replacement schedule, spark plug maintenance and inspection, proper fuel/oil ratio for low emissions, use of appropriate fuel, proper fueling and fuel mixing, proper method of disposing of oil and oil containers, engine maintenance, and a maintenance schedule to ensure that the owner returns to a servicing center to check for deposits, debris build-up, etc.</p>	<p>EMA is seeking clarification if the intent of the inclusion of section (e) in section (f) is requiring that the complete manual is provided, or just the relative sections?</p> <p>The manual may not be available at the time of application for certification. The manual may be revised for reasons unrelated to the emissions and maintenance information. What will need to be provided in these cases?</p>	Recommend to maintain current language.	<p>This comment is identical to the comment in Agency Response Number 12 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA" and that the "proposed text" column explicitly states a recommendation to maintain current language. Please see the agency response at Agency Response Number 12 in Attachment A for discussion of the other issues raised in this comment. The purpose and rationale for the change are described on pages 174-175 of the ISOR. CARB disagrees with commenter's recommendation to maintain current language for the same reasons given for proposing the change in the ISOR. CARB made no changes based on this comment.</p>

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B-13	<p>§ 2406. Emission Control System Warranty Statement.</p> <p>(a) Each manufacturer must furnish a copy of the following statement with each new 1995 and later small off-road engine, using those portions of the statement applicable to the engine.</p> <p>CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS <u>California Emission Control Warranty Statement Your Warranty Rights and Obligations</u></p> <p>The California Air Resources Board (and manufacturer's name, optional) is pleased to explain the emission control system warranty on your (year(s)) (equipment type or small off-road) engine. In California, new small off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. (Manufacturer's name) must warrant the emission control system on your (equipment type or small off-road) engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your small off-road engine.</p> <p>Your emission control system may include parts such as the carburetor or fuel-injection system, the ignition system, and catalytic converter. Also included may be hoses, belts, connectors and other emission-related assemblies. Where a warrantable condition exists, (manufacturer's name) will repair your (equipment type or small off-road) engine at no cost to you including diagnosis, parts and labor.</p> <p>MANUFACTURER'S WARRANTY COVERAGE:- <u>Manufacturer's Warranty Coverage:</u></p> <p>The 1995 and later small off-road engines are warranted for two years. If any emission-related part on your engine is defective, the part will be repaired or replaced by (manufacturer's name).</p>	<p>This is inconsistent with EPA and will result in the need for separate warranties for EPA and CARB with identical information. EMA recognizes CARB desire to meet accessibility needs, however this change needs to be organized cooperatively with EPA and Industry in order to maintain a single 50-state emissions warranty.</p>	<p>(a) Each manufacturer must furnish a copy of the following statement with each new 1995 and later small off-road engine, using those portions of the statement applicable to the engine.</p>	<p>This comment is identical to the comment in Agency Response Number 13 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 13 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-14	<p>OWNER'S WARRANTY RESPONSIBILITIES: <u>Owner's Warranty Responsibilities:</u></p> <p>- As the (equipment type or small off-road) engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. (Manufacturer's name) recommends that you retain all receipts covering maintenance on your (equipment type or small off-road) engine, but (manufacturer's name) cannot deny warranty solely for the lack of receipts or for your failure to ensure the</p>	<p>This is inconsistent with EPA labeling and will result in the need for separate labels for EPA and CARB with identical information. EMA recognizes CARB desire to meet accessibility needs, however this change needs to be organized cooperatively with EPA and Industry in order to maintain a single 50-state emissions label. Additionally, inclusion of "but (manufacturer's name) cannot deny</p>	<p>Owner's Warranty Responsibilities:</p> <p>- As the (equipment type or small off-road) engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. (Manufacturer's name) recommends that you retain all receipts covering maintenance on your (equipment type or small off-road) engine, but (manufacturer's name) cannot deny warranty solely for the lack of receipts or for your failure to ensure</p>	<p>This comment is identical to the comment in Agency Response Number 14 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 14 in</p>

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	<p>performance of all scheduled maintenance.</p> <p>- As the (equipment type or small off-road) engine owner, you should however be aware that (manufacturer's name) may deny you warranty coverage if your (equipment type or small off-road) engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.</p> <p>- You are responsible for presenting your (equipment type or small off-road) engine to a (manufacturer's name) distribution center as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.</p> <p>If you have any questions regarding your warranty rights and responsibilities, you should contact (Insert chosen manufacturer's contact) at 1-XXX-XXX-XXXX.</p> <p>(b) Warranty Contact Requirement</p> <p>(1) Commencing with the 1995 calendar year, each manufacturer must furnish with each new engine a warranty statement that generally describes the obligations and rights of the manufacturer and owner under this article. Manufacturers must also include in the warranty statement a phone number the consumer may use to obtain their nearest franchised United States service center.</p> <p>(2) The service center phone number must be staffed with at least one English speaking contact. The contact must be able to respond to inquiries in real time or if the volume of calls precludes a real time response, within one business day.</p>	<p>warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance" in the current language is inconsistent with EPA 1054.120(d) which allow denial of warranty claims if the operator caused the problem through improper maintenance or use. Finally, the requirement is inconsistent with 15 USC Chapter 50 - Consumer Product Warranties, Section 2304 - As follows:</p> <p>(c) Waiver of standards</p> <p>The performance of the duties under subsection (a) shall not be required of the warrantor if he can show that the defect, malfunction, or failure of any warranted consumer product to conform with a written warranty, was caused by damage (not resulting from defect or malfunction) while in the possession of the consumer, or unreasonable use (including failure to provide reasonable and necessary maintenance).</p>	<p>the performance of all scheduled maintenance.</p>	<p>Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-15	<p>§ 2407. New Engine Compliance and Production Line Testing – New Small OffRoad Engine Selection, Evaluation, and Enforcement Action.</p> <p>(a) Compliance Test Procedures.</p> <p>(1) The Executive Officer may, with respect to any new engine family or subgroup being sold, offered for sale, or manufactured for sale in California, order an engine manufacturer to make available for compliance testing and/or inspection a reasonable number of one or more engines, and may direct that the engines be delivered to the state board at <u>4001 Iowa Street, Riverside, CA 92507</u> the Haagen-Smit Laboratory, 9528 Telstar Avenue, El Monte, California or where</p>	<p>Manufacturers demonstrate ongoing compliance with Production Line Testing process, calculated by the Cum-Sum method. This on-going manufacturer compliance testing allows deviation to account production variability. By removing the U-factor and allowing CARB to determine new engine compliance based on one engine, it is a significant increase in stringency versus what is permitted with the PLT program.</p> <p>Changing the number of engines tested to one is a significant deviation and inconsistent with EPA's procedure and manufacturers may be unable to</p>	<p>Keep original test and process or align with EPA CFR 40 Part 1680 Subpart E - Selective Enforcement Auditing</p>	<p>This comment is identical to the comment in Agency Response Number 15 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 15 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

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	<p>specified by the Executive Officer. The Executive Officer may also, with respect to any new engine family or subgroup being sold, offered for sale, or manufactured for sale in California, have an engine manufacturer compliance test and/or inspect a reasonable number of one or more engines at the engine manufacturer's facility under the supervision of an CARB Enforcement Officer. Engines must be selected at random from sources specified by the Executive Officer according to a method approved by the Executive Officer, that, insofar as practical, must exclude engines that would result in an unreasonable disruption of the engine manufacturer's distribution system. A subgroup may be selected for compliance testing only if the Executive Officer has reason to believe that the emissions characteristics of that subgroup are substantially in excess of the emissions of the engine family as a whole.</p> <p>(8) Engines must be tested in groups of five until a "Pass" or "Fail" decision is reached for each pollutant independently for the engine family or subgroup in accordance with the following table:</p> <table border="1" data-bbox="235 836 653 943"> <thead> <tr> <th></th> <th>Decide "Fail"</th> <th>Decide "Pass"</th> </tr> </thead> <tbody> <tr> <td>Number of Engines Tested</td> <td>If "U" is greater than or equal to</td> <td>If "U" is less than or equal to</td> </tr> <tr> <td>5</td> <td>2.18</td> <td>0.13</td> </tr> <tr> <td>10</td> <td>2.11</td> <td>0.54</td> </tr> <tr> <td>15</td> <td>2.18</td> <td>0.88</td> </tr> <tr> <td>20</td> <td>2.29</td> <td>1.16</td> </tr> </tbody> </table> <p>where:</p> $U = \frac{\sum_{i=1}^n (x_i - \mu_0)}{\sqrt{\sum_{i=1}^n (x_i - \mu_0)^2}}$ <p>x_i = the projected emissions of one pollutant for the ith engine tested. μ_0 = the applicable calendar year emission standard for that pollutant. n = the number of engines tested.</p> <p>(9) (8) The Executive Officer will find that a group of engines has failed the compliance testing pursuant to the above table if the Executive Officer finds that the average emissions of the any engines within the selected engine family or subgroup exceed the applicable calendar model year new engine emission standard for at least one pollutant.</p> <p>(10) If no decision can be reached after 20 engines have been tested, the Executive Officer will not make a "Fail" decision for the selected engine family or subgroup on the basis of these</p>		Decide "Fail"	Decide "Pass"	Number of Engines Tested	If " U " is greater than or equal to	If " U " is less than or equal to	5	2.18	0.13	10	2.11	0.54	15	2.18	0.88	20	2.29	1.16	<p>meet both the state and federal test requirements for one family, which would be inconsistent with Section 202(a) of the Clean Air Act.</p>		
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	<p>20 tests alone. Under these circumstances the Executive Officer will elect to test 10 additional engines. If the average emissions from the 30 engines tested exceed any one of the exhaust emission standards for which a "Pass" decision has not been previously made, the Executive Officer will render a "Fail" decision.</p> <p>(11) (9) If the Executive Officer determines, in accordance with the procedures set forth in Subsection (a) that an engine family or any subgroup within an engine family, exceeds the emission standards for one or more pollutants, the Executive Officer will:</p> <p>(A) Notify the engine manufacturer that the engine manufacturer may be subject to revocation or suspension of the Executive Order authorizing sales and distribution of the noncompliant engines in the State of California, or enjoined from any further sales or distribution, of the noncompliant engines in the State of California pursuant to Section 43017 of the Health and Safety Code. Prior to revoking or suspending the Executive Order, or seeking to enjoin an engine manufacturer, the Executive Officer will consider production line test results, if any, and any additional test data or other information provided by the engine manufacturers and other interested parties, including the availability of emission reductions credits to remedy the failure.</p> <p>*****</p>			
B-16	<p>(3) Engine Sample Selection</p> <p>*****</p> <p>(B) 1. Prior to the beginning of the 2000 model year, if an engine manufacturer cannot provide actual California sales data, it must provide its total production and an estimate of California sales at the end of the model year. The engine manufacturer must also provide supporting material for its estimate.</p> <p>2. For the 2000 and later model years, engine manufacturers must provide actual California sales, or other information acceptable to the Executive Officer, including, but not limited to, an estimate based on market analysis and federal production or sales. <u>Information supporting the manufacturer's market analysis and any other information forming the basis of a manufacturer's determination of sales must be provided to the Executive Officer within 30 days</u></p>	<p>The proposed lanugage may be misinterpreted to include suggest additional requirements of criteria. Revise the sentence to simply say information is required within 30 days of request</p>	<p>Information supporting the manufacturer's market analysis and any other information forming the basis of a manufacturer's determination of sales <u>The information</u> must be provided to the Executive Officer within 30 days upon request.</p>	<p>This comment is identical to the comment in Agency Response Number 16 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 16 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

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	upon request. *****			
B-17	<p>§ 2408. Emission Reduction Credits – Certification Averaging, Banking, and</p> <p>(a) Applicability. The requirements of this section are applicable to all small off-road engines produced in the 2000 and later model years. Engines certified to the voluntary standards in subsection 2403(b)(2) are not eligible for participation in this program. Participation in the averaging, banking and trading program is voluntary, but if a manufacturer elects to participate, it must do so in compliance with the regulations set forth in this section. The provisions of this section are limited to HC+NO_x (or NMHC+NO_x, as applicable), CO, and Particulate Matter emissions.</p> <p>(b) General provisions.</p> <p>(1) The certification averaging, banking, and trading provisions for HC+NO_x, CO, and Particulate Matter emissions from eligible engines are described in this section.</p> <p>(2) An engine family may use the averaging, banking and trading provisions for HC+NO_x, and NMHC+NO_x, CO, and Particulate Matter emissions if it is subject to regulation under this article with certain exceptions specified in paragraph (3) of this section.</p> <p>(3) A manufacturer must not include in its calculation of credit generation and may exclude from its calculation of credit usage, any new engines that are exported from California, or that are not destined for California, unless the manufacturer has reason or should have reason to believe that such engines have been or will be imported in a piece of equipment.</p> <p>(4) For an engine family using credits, a manufacturer may, at its option, include its entire production of that engine family in its calculation of credit usage for a given model year.</p>	There is no need for CO ABT with if the current CO limits are maintained.	Remove CO ABT	This comment is identical to the comment in Agency Response Number 17 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures. Please see the agency response at Agency Response Number 17 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-18	(5) A manufacturer may certify engine families at Family Emission Limits Levels (FELs) above or below the applicable emission standard subject to the limitation in paragraph (6) of this section, provided the summation of the manufacturer's projected balance of credits from all credit transactions for	See FEL definition comment above.		This comment is identical to the comment in Agency Response Number 18 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB

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	<p>each engine class in a given model year is greater than or equal to zero, as determined under paragraph (f).</p> <p>(A) A manufacturer of an engine family with an FEL exceeding the applicable emission standard must obtain positive emission credits sufficient to address the associated credit shortfall via averaging, banking, or trading.</p> <p>(B) An engine family with an FEL below the applicable emission standard may generate positive emission credits for averaging, banking, or trading, or a combination thereof.</p> <p>(C) In the case of a production line test failure, credits may be used to cover subsequent production of engines for the family in question if the manufacturer elects to recertify to a higher FEL. Credits may be used to remedy a nonconformity determined by production line testing or new engine compliance testing, at the discretion of the Executive Officer.</p> <p>(D) In the case of a production line testing failure pursuant to section 2407, a manufacturer may revise the FEL based upon production line testing results obtained under section 2407 and upon Executive Officer approval. The manufacturer may use certification credits to cover both past production and subsequent production as needed.</p> <p>(6) No engine family may have an FEL that is greater than the emission levels in the table below.</p>			<p>Responses. Please see the agency response at Agency Response Number 18 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-19	<p>(h) Maintenance of records.</p> <p>(1) The manufacturer must establish, maintain, and retain the following adequately organized and indexed records for each engine family:</p> <p>(A) CARB engine family identification code,</p> <p>(B) Family Emission Limit Level (FEL) or FELs where FEL changes have been implemented during the model year,</p> <p>(C) Maximum modal power for each configuration sold or an alternative approved by the Executive Officer.</p> <p>(D) Projected sales volume for the model year, and</p> <p>(E) Records appropriate to establish the quantities of engines that constitute eligible sales for each power rating for each FEL.</p> <p>(2) Any manufacturer producing an engine family participating in trading reserved credits must maintain the following records on a quarterly basis for each such engine family:</p>	See FEL definition comment above.		<p>This comment is identical to the comment in Agency Response Number 19 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 19 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

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	<p>(A) The engine family, (B) The actual quarterly and cumulative applicable production/sales volume, (C) The values required to calculate credits as given in paragraph (f), (D) The resulting type and number of credits generated/required, (E) How and where credit surpluses are dispersed, and (F) How and through what means credit deficits are met.</p>			
B-20	<p>§ 2408.1 Emission Reduction Credits – Zero-Emission Equipment Credits Averaging, Banking, and Trading Provisions. (4) A manufacturer of zero-emission small off-road equipment that wishes to generate zero-emission <u>zero-emission</u> equipment credits must certify zero-emission equipment engine families at Family Emission Limits <u>Levels</u> (FEL) of zero grams per kilowatt-hour. (A) A manufacturer of zero-emission small off-road equipment which certifies an engine family as a zero-emission equipment engine family may generate positive zero-emission equipment credits for averaging, banking, or trading, or a combination thereof. (B) Except as noted in section 2408.1(b)(4)(C), an engine family certified as a zero-emission equipment engine family must meet the following durability requirements: 1. 300 hours for zero-emission small off-road equipment that functions and performs equivalently to equipment using spark-ignition engines with a displacement of less than or equal to 80cc, 2. 500 hours for zero-emission small off-road equipment that functions and performs equivalently to equipment using spark-ignition engines with a displacement between 80cc and 225cc. (C) An engine family that is certified as a zero-emission equipment engine family, but cannot achieve the full durability period, may generate 75 percent of the zero-emission equipment credits if the zero-emission equipment engine family can meet a minimum of 75 percent up to 99 percent of the durability period. The amount of zero-emission credits would be calculated as 75 percent of the result obtained using the equation in section 2408.1(f). This</p>	See FEL definition comment above.		This comment is identical to the comment in Agency Response Number 20 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 20 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.

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	allowance will remain in effect through the 2012 model year, after which all zero-emission small off-road equipment will be required to meet the full durability requirement specified in subsection 2408.1(b)(4)(B).			
B-21	<p>(h) Maintenance of records.</p> <p>(1) The manufacturer of zero-emission small off-road equipment must establish, maintain, and retain the following adequately organized and indexed records for each engine family:</p> <p>(A) CARB engine family identification code,</p> <p>(B) Family Emission Limit Level (FEL),</p> <p>(C) Maximum equivalent modal power for each configuration sold or an alternative approved by the Executive Officer,</p> <p>(D) Projected sales volume for the model year,</p> <p>(E) Records appropriate to establish the quantities of equipment that constitute eligible sales for each power rating for each FEL, and</p> <p>(F) Records of standard battery package sales per equipment sales, if batteries were sold separately from the equipment.</p> <p>(2) Any manufacturer of zero-emission small off-road equipment participating in trading reserved zero-emission equipment credits must maintain the following records on a quarterly basis for each such engine family:</p> <p>(A) The engine family,</p> <p>(B) The actual quarterly and cumulative applicable production/sales volume,</p> <p>(C) The values required to calculate zero-emission equipment credits as given in subsection 2408.1(f),</p> <p>(D) The resulting number of zero-emission equipment credits generated, and</p> <p>(E) How and where zero-emission equipment credit surpluses are dispersed.</p>	See FEL definition comment above.		This comment is identical to the comment in Agency Response Number 21 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 21 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-22	<p>§ 2408.2 Emission Reduction Credits – Zero-Emission Generator Credits Averaging, Banking, and Trading Provisions.</p> <p><u>(a) Applicability. The requirements of this section 2408.2 are applicable to all zero-emission generators as defined in section 2401 produced in the 2022 through 2026 model years. Participation in this program is voluntary, but if a manufacturer elects to participate, it must do so in compliance with the provisions set forth in this section 2408.2. The provisions of this section 2408.2 are limited to HC+NO_x (or NMHC+NO_x, as applicable) emissions. (b)</u></p>	Remove 2026 sunset date to continue to incentivize transition. EMA is additionally interested in understanding how and when new credit programs will be initiated. Seeking feedback how the programs will be initiated as early as 2022.	...produced in the 2022 through 2027 model years.	This comment is identical to the comment in Agency Response Number 22 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA" and that a reference to 2027 as a date through which transition should be incentivized, present in the OPEI comment is not included here. Please

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	<p>General provisions.</p> <p><u>(1) Zero-emission generator credits may be used to offset emissions for any engine family comprised of generator engines.</u></p> <p><u>(2) A manufacturer must only include in its calculation of zero-emission generator credit generation zero-emission generators that are sold and used in California.</u></p> <p><u>(3) For an engine family using zero-emission generator credits to compensate for negative certification emission credits, a manufacturer may, at its option, include its entire production of that engine family in its calculation of credit usage for a given model year.</u></p> <p><u>(4) A manufacturer of zero-emission generators that wishes to generate zero-emission generator credits must certify zero-emission generators at a family emission level (FEL) of zero grams per kilowatt-hour.</u></p> <p><u>(A) A manufacturer of zero-emission generators that certifies an engine family as a zero-emission generator engine family may generate positive zero-emission generator credits for averaging, banking, or trading, or a combination thereof.</u></p> <p><u>(B) Except as noted in section 2408.2(b)(5)(C), an engine family certified as a zero-emission generator engine family must meet the durability requirements listed in Table 1 of this section 2408.2.</u></p>			<p>see the agency response at Agency Response Number 22 in Attachment A for discussion of the other issues raised in this comment. CARB made no changes based on this additional comment.</p>																				
B-23(a)	<p>Table 1. Minimum Requirements for Zero-Emission Generator Credit Eligibility.</p> <table border="1" data-bbox="239 1021 653 1305"> <thead> <tr> <th>Product Type</th> <th>Durability Period</th> <th>Energy and Power Requirements</th> <th>Credit Eligibility</th> </tr> </thead> <tbody> <tr> <td>Level 1 zero-emission generator</td> <td>500 hours</td> <td>Supply: 2.5 kWh over 8 hours Surge capability: 3,000 watts for 10 seconds</td> <td>Exhaust 1,500 g HC+NO_x</td> </tr> <tr> <td>Level 2 zero-emission generator</td> <td>500 hours</td> <td>Supply: 4 kWh over 8 hours Surge capability: 3,000 watts for 10 seconds</td> <td>Exhaust 2,200 g HC+NO_x</td> </tr> <tr> <td>Level 3 zero-emission generator</td> <td>500 hours</td> <td>Supply: 12 kWh over 8 hours Surge capability: 5,000 watts for 10 seconds</td> <td>Exhaust 3,200 g HC+NO_x</td> </tr> <tr> <td>Level 4 zero-emission generator</td> <td>500 hours</td> <td>Supply: 25 kWh over 8 hours Surge capability: 5,000 watts for 10 seconds</td> <td>Exhaust 4,700 g HC+NO_x</td> </tr> </tbody> </table>	Product Type	Durability Period	Energy and Power Requirements	Credit Eligibility	Level 1 zero-emission generator	500 hours	Supply: 2.5 kWh over 8 hours Surge capability: 3,000 watts for 10 seconds	Exhaust 1,500 g HC+NO _x	Level 2 zero-emission generator	500 hours	Supply: 4 kWh over 8 hours Surge capability: 3,000 watts for 10 seconds	Exhaust 2,200 g HC+NO _x	Level 3 zero-emission generator	500 hours	Supply: 12 kWh over 8 hours Surge capability: 5,000 watts for 10 seconds	Exhaust 3,200 g HC+NO _x	Level 4 zero-emission generator	500 hours	Supply: 25 kWh over 8 hours Surge capability: 5,000 watts for 10 seconds	Exhaust 4,700 g HC+NO _x	<p>Credit Eligibility should be raised so that it is closer to a 1:1 ratio to encourage use of the ZE Generator Credit program.</p> <p>1 IC Generators Sales – similar to Level 1 ZE Generator</p> <p>SORE Credits = (Standard – FEL) x Sales x Power x EDP x Load Factor</p> <p>SORE Credits = (0 g/kWhr – 6.0 g/kWhr) x 1 unit x 4 kW x 500 hours x 0.47 SORE Credits = -5640 g</p> <p>ZE Generators Sales to generate credits to cover an IC Generator Sales</p> <p>Zero-emission generator credits = Credit eligibility as specified in Table 1 of this section x Sales</p> <p>Zero-emission generator credits = 1,500 g HC+NO_x * Sales</p> <p>Zero-emission generator credits = 5640 g = 1,500 g HC+NO_x * Sales</p> <p>Sales = 3.7 units</p>	<p>Level 1 Credit Eligibility: Exhaust 5,000 g HC+NO_x</p> <p>Level 2 Credit Eligibility: Exhaust 15,000 g HC+NO_x</p> <p>Level 3 Credit Eligibility: Exhaust 20,000 g HC+NO_x</p> <p>Level 4 Credit Eligibility: Exhaust 30,000 g HC+NO_x</p>	<p>This comment is identical to the comment in Agency Response Number 23 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 23 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
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B-24	<p>Appendix B 2700 EVAP §2750. Purpose.</p> <p>(b) In order to give manufacturers maximum flexibility, certification programs are available beginning the 2006 model year. The two options are identified in section 2754(a) and in section 2754(b), and require running loss emissions to be controlled during engine operation, which results in greater evaporative emissions reductions. Manufacturers must select one option for each evaporative family they certify <u>through the 2023 model year. Beginning with model year 2024, manufacturers must certify each evaporative family to meet the hot soak plus diurnal emission standards in section 2754(a).</u></p>	EMA believes the component based certification is effective and necessary for certain types of equipment and the non-intergrated nature of the SORE industry and manufacturing process for many products. EMA believes the enforcement of the 2017 evaporative amendments have addressed non-compliance with ground-supported products. CARB has not conducted testing or provided data to show that the 2017 evaporative amendments are not effective.	No changes to limits and procedures included in to current evaporative rules.	The concerns expressed in this comment are identical to those raised in Agency Response Number 24 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses except that references to "OPEI" have been changed to "EMA" and EMA did not include the second and third paragraph of OPEI's issue/comment related to handheld products. Please see the agency response at Agency Response Number 24 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-25	<p>§2751. Applicability.</p> <p>(c) This Article does not apply to:</p> <p>(1) engines or equipment that use compression-ignition engines, or engines or equipment powered with compressed natural gas (CNG), propane, liquefied petroleum gas (LPG), or liquefied natural gas (LNG).</p>	CARB has proposed to allow credit generation for compressed natural gas (CNG), propane, liquefied petroleum gas (LPG), or liquefied natural gas (LNG) engines.	EMA does not object to this change, however this part must now be applicable to engines / equipment for these fuel types.	This comment is identical to the comment in Agency Response Number 25 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 25 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-26	<p>§2752. Definitions.</p> <p>(a)(5) "CP-902" means Certification Procedure for Evaporative Emission Control Systems on Small Off-Road Engines With Displacement Greater Than 80 Cubic Centimeters, adopted July 26, 2004, and last amended September 18, 2017 [insert amended date].</p>	As discussed in these comments, component based certification is needed for many products. As a result, CP-901 needs to be retained beyond 2023 for products certified by "design-based" method. CP-901 should be reviewed and updated accordingly.	"CP-902" means Certification Procedure for Evaporative Emission Control Systems on Small Off-Road Engines With Displacement Greater Than 80 Cubic Centimeters, adopted July 26, 2004, and last amended September 18, 2017 [insert amended date].	This comment is identical to the comment in Agency Response Number 26 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern present in the OPEI comment

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B-27	<u>(a)(22) "Passively-Purged Carbon Canister" means a carbon canister which draws in ambient air to purge adsorbed compounds using a vacuum created within the fuel tank by normal diurnal temperature variations.</u>	Passively-purged carbon canisters are also purged during engine operation	"Passively-Purged Carbon Canister" means a carbon canister which draws in ambient air to purge adsorbed compounds using a vacuum created within the fuel tank by normal diurnal temperature variations and when the engine is running.	This comment is identical to the comment in Agency Response Number 27 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 27 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-28(a)	(a)(35) "TP-901" means Test Procedure for Determining Permeation Emissions from Small Off-Road Engine Fuel Tanks, adopted July 26, 2004, and last amended May 6, 2019 <u>[insert amended date]</u> .	As discussed in these comments, component based certification is needed for many products. As a result, CP-901 needs to be retained beyond 2023 for products certified by "design-based" method. CP-901 should be reviewed and updated accordingly.		This comment is identical to the comment in Agency Response Number 28 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here. Please see the agency response at Agency Response Number 28 in Attachment A for discussion of the other issues raised in this comment. CARB made no changes based on this additional comment.
B-28(b)		Fixed mount generators are a part of a vehicle, they are designed to be used that way, they should be treated the same as the vehicle, and not as something different. Portables are not critical to the function of a vehicle; they can be removed and used as needed, or outside the vehicle. A fixed generator is installed within the vehicle because it is critical to running the essential auxiliary functions in that vehicle. Regarding the use of a portable in an RV, in place of a fixed mount generator: Portables used in an RV are	(New) Fixed Mount Generator: A generator which is intended for installation in a vehicle or similar mobile application for the purpose of directly providing energy for functions other than the propulsion of that vehicle or mobile applicaion. The generators are integrated into the vehicle's mechanical and electrical systems (e.g. built-in exhaust system, fuel systems, house wiring, etc.) such that the generator cannot be separated or used apart from the vehicle in a portable generator type application. These generators are designed for use only in a vehicle.	This comment requests that CARB add a definition for "Fixed-Mount Generator" to the Proposed Amendments referring to generators designed to be permanently installed in, and mechanically and electrically integrated with, a vehicle or other mobile equipment. This request is submitted in connection with the comment at Agency Response Number B-34(b) in this attachment, which requests that a provision be added specifying that evaporative limits do not apply to Fixed-Mount Generators that make use of the vehicle's fuel system. CARB made no

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		<p>not designed for a case where the RV would be lived in for a 'long time' w/o plug in power. The applications for fixed mount generators require being able to be off the grid for substantial periods of time. This is true for recreational vehicles as well as for commercial mobile applications. Portables have a relatively short run time. By being integrated into the vehicle, fixed mount generators provide for much longer run times. In applications where fixed mount generators are used, power generation is required, not just power usage.</p>		<p>changes based on this comment.</p> <p>Under the Proposed Amendments, section 2766, subsection (c), is revised to read as follows:</p> <p>“(c) Equipment Fueled by a Vehicle Fuel Tank – Generators that are fueled from the fuel tank of an on-road motor vehicle or marine vessel are exempt from the diurnal emission, <u>hot soak plus diurnal emission</u>, fuel tank permeation, and carbon canister design standards in section 2754. However, these generators must use fuel lines that meet the design standard specified in section 2754.”</p> <p>Generators that are fueled from the fuel tank of an on-road motor vehicle are already exempted from diurnal, carbon canister design, and fuel tank permeation standards in the current regulations, and the Proposed Amendments exempt them from the hot soak plus diurnal emission standards. The exemption in the SORE regulations and the Proposed Amendments is clear, and the commenter’s proposed definition and footnote would not increase clarity. There is no need to add an additional definition or a duplicate or total exemption in section 2754. As described in the ISOR on pages ES-7 to ES-8, 24-26, and 31-35, and in the Purpose and Rationale statements for individual provisions of the Proposed Amendments on pages 160-171 and 223-229, CARB recognizes that generators in general need more time to transition to zero-emission technology, and the Proposed Amendments allow more time for generators to meet emission standards of zero. A new exemption for generators installed in vehicles or similar mobile applications is beyond the scope of the Proposed Amendments.</p>
B-29	<p>§2753. Certification Requirements and Procedures. (a) Certification Small off-road engines or equipment that use small off-road engines subject to this Article must contain evaporative emission control</p>	<p>As discussed in these comments, component based certification is needed for many products. As a result, CP-901 needs to be retained beyond 2023 for products certified by "design-based" method. CP-901</p>	<p>No changes to current language.</p>	<p>This comment is identical to the comment in Agency Response Number 29 in Attachment A: OPEI Annex A Comments to CARB’s 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification</p>

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	<p>systems. The evaporative emission control systems must be certified annually to the evaporative emission standards set out in sections 2754 through 2757 of this Article by the <u>California</u> Air Resources Board. An Executive Order of Certification for such engines or equipment must be obtained prior to the sale or lease, or the offering for sale or lease, for use or operation in California or the delivery or importation for introduction into commerce in California. Engine manufacturers or equipment manufacturers may apply for an Executive Order of Certification. For model years 2006-2019, applicants must follow the certification procedures outlined in CP-901, Certification and Approval Procedure for Small Off-Road Engine Fuel Tanks, adopted July 26, 2004, or CP-902, Certification and Approval Procedure for Evaporative Emission Control Systems, adopted July 26, 2004, as applicable, which are incorporated by reference herein. For model years 2020 and subsequent model years through 2023, applicants must follow the certification procedures outlined in CP-901, adopted July 26, 2004, and amended September 18, 2017, or CP-902, adopted July 26, 2004, and amended September 18, 2017, as applicable, which are incorporated by reference herein. For model year 2018 and 2019, an applicant may follow the certification procedures outlined in CP-901, adopted July 26, 2004, and amended September 18, 2017, or CP-902, adopted July 26, 2004, and amended September 18, 2017, as applicable, in lieu of those in CP-901, adopted July 26, 2004, or CP-902, adopted July 26, 2004, as applicable. <u>For model year 2024 and subsequent model years, applicants must follow the certification procedures outlined in CP-902, adopted July 26, 2004, and last amended [insert amended date], which is incorporated by reference herein. For model year 2022 and 2023, an applicant may follow the certification procedures outlined in CP-902, adopted July 26, 2004, and last amended [insert amended date], in lieu of those in CP-901, adopted July 26, 2004, and amended September 18, 2017, or CP-902, adopted July 26, 2004, and amended September 18, 2017, as applicable. An applicant following the certification procedures</u></p>	<p>should be reviewed and updated accordingly.</p>		<p>Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA," that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here, and the "proposed text" column explicitly states a request for "No changes to current language." CARB disagrees with the commenter's suggestion to make no changes to current language. Please see the agency response at Agency Response Number 29 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this comment.</p>

Agency Response Number	CARB's Proposed Amendments as transcribed by EMA	EMA Issue / Comment	EMA Proposed Changed Text	Agency Response
	<p>outlined in CP-902, adopted July 26, 2004, and last amended [insert amended date], for model year 2022 or 2023 must meet the emission standards for model year 2024 and subsequent model years, as shown in Table 2 or 3 of Section 2754, as applicable. An applicant must also meet the bond requirements in section 2774 before an Executive Order of Certification will be issued for model year 2020 and subsequent model year evaporative families.</p>			
B-30	<p>(b) Certification of Complete Systems for Engines or Equipment using engines with displacement greater than 80 cc <u>through model year 2023</u>. Certification of a complete evaporative emission control system is required. An application for certification of an evaporative emission control system to the diurnal emission standards in section 2754 or 2757 of this Article must include a determination of the engine or equipment model in the evaporative family that is expected to exhibit the highest diurnal emission rate relative to the applicable diurnal emission standard and detail the criteria used to make that determination. The applicant must also include one of the following for the engine or equipment model in the evaporative family that is expected to exhibit the highest diurnal emission rate relative to the applicable diurnal emission standard: *****</p>	<p>As discussed in these comments, component based certification is needed for many products beyond 2023.</p>	<p>No changes to current language.</p>	<p>This comment is identical to the comment in Agency Response Number 30 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here, and the "proposed text" column explicitly states a request for "No changes to current language." CARB disagrees with the commenter's suggestion to make no changes to current language. Please see the agency response at Agency Response Number 30 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this comment.</p>
B-31	<p>(c) Certification of Complete Systems for Engines or Equipment using engines with displacement less than or equal to 80 cc <u>through model year 2023</u>. *****</p>	<p>As discussed in these comments, component based certification is needed for many products beyond 2023.</p>	<p>No changes to current language.</p>	<p>This comment is identical to the comment in Agency Response Number 31 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here, and the "proposed text" column explicitly states a request for "No changes to current language." CARB disagrees with the commenter's suggestion to make no changes to current language. Please see the agency response at Agency Response Number 31 in Attachment A for discussion of the issues raised in this</p>

Agency Response Number	CARB's Proposed Amendments as transcribed by EMA	EMA Issue / Comment	EMA Proposed Changed Text	Agency Response
				comment. CARB made no changes based on this comment.
B-32	<p><u>(d) Certification of Complete Systems for Engines or Equipment using small off-road engines for model year 2024 and subsequent model years.</u> <u>Certification of a complete evaporative emission control system is required. An application for certification of an evaporative emission control system to the hot soak plus diurnal emission standards in section 2754 of this Article must include a determination of the engine or equipment model in the evaporative family that is expected to exhibit the highest hot soak plus diurnal emission rate relative to the applicable hot soak plus diurnal emission standard and detail the criteria used to make that determination. The applicant must also include a test report for a test performed according to TP-902 for the engine or equipment model in the evaporative family that is expected to exhibit the highest hot soak plus diurnal emission rate relative to the applicable hot soak plus diurnal emission standard.</u></p>	As discussed in these comments, component based certification is needed for many products beyond 2023 and this new section needs additional consideration.		This comment is identical to the comment in Agency Response Number 32 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here. Please see the agency response at Agency Response Number 32 in Attachment A for discussion of the other issues raised in this comment. CARB made no changes based on this additional comment.
B-33	<p>(f) Manufacturers meeting the requirements of section 2766 of this Article must be certified annually by the California Air Resources Board by submitting a Letter of Conformance. The Letter of Conformance must include, at a minimum, a statement citing the basis for complying with section 2766. An Executive Order of Certification for such engines or equipment must be obtained prior to the sale or lease, or the offering for sale or lease, or the delivery or importation for introduction into commerce in California of such engines or equipment in California.</p>	The language of Sec. 2753(e)(2) requires a new CP-902 certification process for any modifications of evaporative control systems except fuel lines. "New certification" implies a full test with 140-day preconditioning is needed. However, CP-902 Sec. 5.11 accepts a document-only running change for modifications which do not override the worst case. Therefore, Sec. 2753(e)(2) should be revised to harmonize with or simply refer CP-902 Sec. 5.11.		This comment is identical to the comment in Agency Response Number 33 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 33 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-34(a)	<p>(g) A Holder whose Executive Order has been suspended or revoked must submit diurnal <u>or hot soak plus diurnal</u> emission test results, determined using TP-902, for all evaporative families using engines with displacement greater than 80 cc, as described in subsection (b) <u>or (d)</u> of this section, <u>as applicable</u>, according to the following schedule:</p>	As discussed in these comments, component based certification is needed for many products beyond 2023.		This comment is identical to the comment in Agency Response Number 34 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here. Please see the agency response at Agency Response

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				Number 34 in Attachment A for discussion of the other issues raised in this comment. CARB made no changes based on this additional comment.															
B-34(b)	§2754. Diurnal and Hot Soak Plus Diurnal Emission and Design Standards. Table 1	Rational listed under definition of Fixed Mount Generator.	(New) ⁴ Evaporative limits do not apply to Fixed Mount Generators that make use of the vehicle fuel system. These products will transition to ZEE when the vehicle requirements transition to ZEE.	The concerns raised in this comment are substantially addressed by the Agency Response at Agency Response Number B-28(b) in this document. CARB made no changes in response to this comment.															
B-35	(a)(1) Table 1 below specifies the diurnal emission and design standards for small off-road engines, and equipment that use small off-road engines, with displacements greater than 80 cc, on and after the model years indicated, <u>through the 2023 model year. The standards in Table 1 shall continue to apply to large spark-ignition engines subject to section 2433(b)(4)(B) in Title 13, Chapter 9, Article 4.5 of the California Code of Regulations after the 2023 model year.</u>	EMA appreciates the flexibility and clarification of the added text.		This comment is identical to the comment in Agency Response Number 35 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 35 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.															
B-36	(a)(3) Table 2, below, specifies the hot soak plus diurnal emission standards for small off-road engines on and after the model years indicated, <u>except for generator engines.</u>	As discussed in these comments, component based certification is needed for many products beyond 2023.		This comment is identical to the comment in Agency Response Number 36 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here. Please see the agency response at Agency Response Number 36 in Attachment A for discussion of the other issues raised in this comment. CARB made no changes based on this additional comment.															
B-37	<p style="text-align: center;">Table 2 Hot Soak Plus Diurnal Emission Standards for Small Off-Road Engines, Except Generator Engines</p> <table border="1" data-bbox="239 1295 653 1393"> <thead> <tr> <th>Displacement Category</th> <th>Effective Date/Model Year</th> <th>Hot Soak Plus Diurnal Emission Standards⁴ (g organic material hydrocarbon equivalent/test⁴)</th> </tr> </thead> <tbody> <tr> <td>≤ 80 cc</td> <td>2024</td> <td>0.00</td> </tr> <tr> <td>> 80 cc - < 225 cc Walk-Behind Mowers</td> <td>2024</td> <td>0.00</td> </tr> <tr> <td>> 80 cc - < 225 cc (except Walk-Behind Mowers)</td> <td>2024</td> <td>0.00</td> </tr> <tr> <td>≥ 225 cc</td> <td>2024</td> <td>0.00</td> </tr> </tbody> </table> <p><small>⁴The standards for hot soak plus diurnal emissions are measured in grams of organic material hydrocarbon equivalent per test, which includes both the hot soak test and the 24-hour diurnal test, as specified in TP-902.</small></p>	Displacement Category	Effective Date/Model Year	Hot Soak Plus Diurnal Emission Standards ⁴ (g organic material hydrocarbon equivalent/test ⁴)	≤ 80 cc	2024	0.00	> 80 cc - < 225 cc Walk-Behind Mowers	2024	0.00	> 80 cc - < 225 cc (except Walk-Behind Mowers)	2024	0.00	≥ 225 cc	2024	0.00	See EMA Comments regarding technical feasibility of ZEE. Limits need to be retained to allow use of currently banked credits. Generally, the exhaust credits will limit the number of new products from 2024, as discussed in the ISO, so evaporative limits do not need to change. EMA believes the impact of the 2017		The concerns expressed in this comment are identical to those raised in Agency Response Number 37 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed
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≥ 225 cc	2024	0.00																	

Agency Response Number	CARB's Proposed Amendments as transcribed by EMA	EMA Issue / Comment	EMA Proposed Changed Text	Agency Response																		
		<p>evaporative amendments needs to be considered before it can be determined if lower evaporative limits are needed to meet SIP goals for all products.</p>		<p>to "EMA," EMA does not refer to the exact comment numbers as OPEI does, and EMA omits the third part of four of the OPEI comment pertaining to ABT programs for handheld evaporative emissions and exhaust credits. Please see the agency response at Agency Response Number 37 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>																		
B-38	<p><u>(a)(4)On or after the model year set out in Table 2 of this section, hot soak plus diurnal emissions from any small off-road engine, except generator engines, must not exceed the hot soak plus diurnal emission standard specified in Table 2 of this section. The emission standards in Table 2 of this section are optional for model years 2022 and 2023.</u></p>	<p>As discussed in these comments, component based certification is needed for many products beyond 2023.</p>		<p>This comment is identical to the comment in Agency Response Number 38 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here. Please see the agency response at Agency Response Number 38 in Attachment A for discussion of the other issues raised in this comment. CARB made no changes based on this additional comment.</p>																		
B-39	<p><u>(a)(5) Table 3, below, specifies the hot soak plus diurnal emission standards for generator engines on and after the model years indicated.</u></p> <p style="text-align: center;"><small>Table 3 Hot Soak Plus Diurnal Emission Standards for Generator Engines</small></p> <table border="1" data-bbox="239 1003 653 1105"> <thead> <tr> <th>Displacement Category</th> <th>Effective Date Model Year</th> <th>Hot Soak Plus Diurnal Emission Standards (g organic material hydrocarbon equivalent/test¹)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">≤ 80 cc</td> <td>2024</td> <td>0.50</td> </tr> <tr> <td>2028</td> <td>0.00</td> </tr> <tr> <td rowspan="2">> 80 cc - < 225 cc</td> <td>2024</td> <td>0.60</td> </tr> <tr> <td>2028</td> <td>0.00</td> </tr> <tr> <td rowspan="2">≥ 225 cc</td> <td>2024</td> <td>0.70</td> </tr> <tr> <td>2028</td> <td>0.00</td> </tr> </tbody> </table> <p><small>¹The standards for hot soak plus diurnal emissions are measured in grams of organic material hydrocarbon equivalent per test, which includes both the hot soak test and the 24 hour diurnal test, as specified in TP-902.</small></p>	Displacement Category	Effective Date Model Year	Hot Soak Plus Diurnal Emission Standards (g organic material hydrocarbon equivalent/test ¹)	≤ 80 cc	2024	0.50	2028	0.00	> 80 cc - < 225 cc	2024	0.60	2028	0.00	≥ 225 cc	2024	0.70	2028	0.00	<p>EMA believes the component based certification is effective and necessary for certain types of equipment and the non-intergrated nature of the SORE industry and manufacturing process for many products. EMA believes the enforcement of the 2017 evaporative amendments have addressed non-compliance with ground-supported products. CARB has not conducted testing or provided data to show that the 2017 evaporative amendments are not effective. EMA believes the impact of the 2017 evaporative amendments needs to be considered before it can be determined if lower evaporative limits are needed to meet SIP goals for all products.</p>		<p>This comment is identical to the comment in Agency Response Number 39 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 39 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
Displacement Category	Effective Date Model Year	Hot Soak Plus Diurnal Emission Standards (g organic material hydrocarbon equivalent/test ¹)																				
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	2028	0.00																				
B-40	<p>(f) For model years 2020 and subsequent model years through 2023, all fuel lines must be securely connected to prevent fuel leakage throughout the useful life of the evaporative</p>	<p>The regulation states "all" fuel lines; however, EMA's standard exempts fuel lines as stated below: "- Fuel lines of less than 50 mm</p>	<p>Revise as follows: Section 2754 (f) – "all fuel lines subjected by the section 4.4 of ANSI/EMA B71.10-2013 or section 4.2.1 of</p>	<p>This comment is substantially similar to the comment in Agency Response Number 40 in Attachment A: OPEI Annex A Comments to CARB's 45-Day</p>																		

Agency Response Number	CARB's Proposed Amendments as transcribed by EMA	EMA Issue / Comment	EMA Proposed Changed Text	Agency Response
	<p>emission control system. Fuel line assembly testing shall be conducted in accordance with the Fuel Line Assembly Tensile Test in section 5.4 of ANSI/EMA B71.10-2013, which is incorporated by reference herein or the Fuel line connection tensile test in section 5.5 of ANSI/EMA B71.10-2018.</p>	<p>(2 inches) in length and which are held in place by compression after assembly; - Fuel line assembly connections which cannot reasonably be exposed to a tensile pull in the end use." ANSI/EMA B71.10-2018 test procedures applies to the gasoline fuel systems for off-road ground-supported outdoor power equipment with spark ignition engines of less than one liter displacement. Off-road ground-supported outdoor power equipment for which this standard may apply include walk-behind and riding lawn-mowers, snow throwers, powered log-splitters, shredders/grinders and tillers.</p>	<p>ANSI/EMA B71.10-2018" Section 2754 (g) – "all fuel lines subjected by the section 4.2.1 of ANSI/EMA B71.10-2018"</p>	<p>Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA," and EMA omitted a comment by OPEI related to an exemption being needed for handheld products. It seems that the commenter's changing "OPEI" to "EMA" resulted in the commenter misrepresenting the name of the standards referenced in the text of the Proposed Amendments and in the commenter's issue/comment and proposed changed text. CARB has not previously adopted or approved, and California regulations do not incorporate by reference, any standard matching the designation of "ANSI/EMA B71.10-2013." CARB is not proposing to adopt or incorporate by reference any standard matching the designation of "ANSI/EMA B71.10-2018." CARB has been unable to locate a copy of any standard bearing either designation for review or consideration, and the commenter does not provide the text of any standard bearing this designation. Please see the agency response at Agency Response Number 40 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
<p>B-41</p>	<p><u>(g) For model year 2024 and subsequent model years, all fuel lines must be securely connected to prevent fuel leakage throughout the useful life of the evaporative emission control system. Fuel line assembly testing shall be conducted in accordance with the Fuel line connection tensile test in section 5.5 of ANSI/EMA B71.10-2018.</u></p>	<p>ANSI/EMA B71.10-2018 test procedures applies to the gasoline fuel systems for off-road ground-supported outdoor power equipment with spark ignition engines of less than one liter displacement. Off-road ground-supported outdoor power equipment for which this standard may apply include walk-behind and riding lawn-mowers, snow throwers, powered log-splitters, shredders/grinders and tillers.</p>		<p>This comment is identical to the comment in Agency Response Number 41 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA," and EMA omitted a comment by OPEI related to an exemption being needed for handheld products. Please see the agency response at Agency Response Number 41 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

Agency Response Number	CARB's Proposed Amendments as transcribed by EMA	EMA Issue / Comment	EMA Proposed Changed Text	Agency Response
B-42	(h)An applicant certifying engines or equipment to comply with the hot soak plus diurnal emission standards under this section shall submit a determination in the certification application that running loss emissions are controlled from being emitted into the atmosphere. The Executive Officer must approve the determination for an Executive Order of Certification to be issued. Approval by the Executive Officer is not required if actively-purged carbon canisters meeting the requirements of this Article are used. To demonstrate that running loss emissions are controlled from being emitted into the atmosphere, an applicant shall follow the procedure in section 2.4 of TP-902.	As discussed in these comments, component based certification is needed for many products beyond 2023.		This comment is identical to the comment in Agency Response Number 42 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here. Please see the agency response at Agency Response Number 42 in Attachment A for discussion of the other issues raised in this comment. CARB made no changes based on this additional comment.
B-43	§2754.1. Certification Averaging, and Banking, and Trading. (b)(3) A Holder shall not include in its calculation of credit generation and may exclude from its calculation of credit usage, any new engines or equipment not subject to this Article. <u>Small off-road engines powered with compressed natural gas (CNG), propane, liquefied petroleum gas (LPG), or liquefied natural gas (LNG) may be certified under this Article, in order to generate evaporative emission credits. CNG, propane, LPG, and LNG engines must meet all applicable requirements in this Article to earn evaporative emission credits.</u>	2751 (c), needs to be adjusted to include optional applicability to gaseous product.		This comment is identical to the comment in Agency Response Number 43 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 43 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-44	(f)(1) For each evaporative family, diurnal evaporative emission credits (positive or negative) are to be calculated according to the following equations and rounded to the nearest tenth of a gram. Consistent units with two significant digits are to be used throughout the equations. EFELD = Applicable diurnal or hot soak plus diurnal emission standard – EMEL Credits = EFELD × Production Volume Where: EMEL = the declared evaporative model emission limit for the model tested within the evaporative family in grams EFELD = the calculated evaporative family emission limit differential for the evaporative family in grams Production Volume is as defined in section 2752(a)(24) (25)	Proposed text is unclear with regards to handling rounding of digits. Generally the number of significant digit reporting is correlated to the number of significant digits of the standard. That said, rounding ABT evaporative credits to hundredths of a gram is insignificant.	For each evaporative family, diurnal evaporative emission credits (positive or negative) are to be calculated according to the following equations and rounded to <u>the same number of significant digits as the published standard.</u> Consistent units with two significant digits are to be used throughout the equations. EFELD = Applicable diurnal or hot soak plus diurnal emission standard – EMEL Credits = EFELD × Production Volume Where: EMEL = the declared evaporative model emission limit for the model tested within the evaporative family in grams EFELD = the calculated evaporative family emission limit differential for the evaporative family in grams	This comment is identical to the comment in Agency Response Number 44 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 44 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.

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B-45	<p>§2754.3. Evaporative Emission Reduction Credits – Zero-Emission Generator Credits Averaging, Banking, and Trading Provisions.</p> <table border="1" data-bbox="243 302 646 659"> <caption>Table 1. Minimum Requirements for Zero-Emission Generator Credit Eligibility.</caption> <thead> <tr> <th>Product Type</th> <th>Useful Life</th> <th>Energy and Power Requirements</th> <th>Credit Eligibility</th> </tr> </thead> <tbody> <tr> <td>Level 1 zero-emission generator</td> <td>5 years</td> <td>Supply: 2.5 kWh over 8 hours Surge capability: 3,000 watts for 10 seconds</td> <td>0.5 g organic material hydrocarbon equivalent/day¹ or 0.5 g organic material hydrocarbon equivalent/test¹</td> </tr> <tr> <td>Level 2 zero-emission generator</td> <td>5 Years</td> <td>Supply: 6 kWh over 8 hours Surge capability: 3,000 watts for 10 seconds</td> <td>0.5 g organic material hydrocarbon equivalent/day¹ or 0.5 g organic material hydrocarbon equivalent/test¹</td> </tr> <tr> <td>Level 3 zero-emission generator</td> <td>5 Years</td> <td>Supply: 12 kWh over 8 hours Surge capability: 5,000 watts for 10 seconds</td> <td>0.6 g organic material hydrocarbon equivalent/day¹ or 0.6 g organic material hydrocarbon equivalent/test¹</td> </tr> <tr> <td>Level 4 zero-emission generator</td> <td>5 Years</td> <td>Supply: 25 kWh over 8 hours Surge capability: 5,000 watts for 10 seconds</td> <td>0.6 g organic material hydrocarbon equivalent/day¹ or 0.6 g organic material hydrocarbon equivalent/test¹</td> </tr> </tbody> </table>	Product Type	Useful Life	Energy and Power Requirements	Credit Eligibility	Level 1 zero-emission generator	5 years	Supply: 2.5 kWh over 8 hours Surge capability: 3,000 watts for 10 seconds	0.5 g organic material hydrocarbon equivalent/day ¹ or 0.5 g organic material hydrocarbon equivalent/test ¹	Level 2 zero-emission generator	5 Years	Supply: 6 kWh over 8 hours Surge capability: 3,000 watts for 10 seconds	0.5 g organic material hydrocarbon equivalent/day ¹ or 0.5 g organic material hydrocarbon equivalent/test ¹	Level 3 zero-emission generator	5 Years	Supply: 12 kWh over 8 hours Surge capability: 5,000 watts for 10 seconds	0.6 g organic material hydrocarbon equivalent/day ¹ or 0.6 g organic material hydrocarbon equivalent/test ¹	Level 4 zero-emission generator	5 Years	Supply: 25 kWh over 8 hours Surge capability: 5,000 watts for 10 seconds	0.6 g organic material hydrocarbon equivalent/day ¹ or 0.6 g organic material hydrocarbon equivalent/test ¹	<p>Credit Eligibility should be raised so that it is closer to a 1:1 ratio to encourage use of the ZE Generator Credit program. These changed credit eligibility values more closely match the diurnal plus hot soak emission standards for the generators these ZE generator would be replacing. The current credit eligibility doesn't increase with each level generator. OEMs should receive an increase in credit eligibility for higher level generators to encourage use of the program. The adjusted values are calculated by Fuel Consumption x 8 hours and then applying the current EVAP standard to a fuel tank that holds that amount of fuel. This creates equivalency for the 8 hour run time between a portable generator and ZEE product.</p>	<p>Level 1 = 2.0 g/day Level 2 = 3.0 g/day Level 3 = 4.0 g/day Level 4 = 6.0 g/day</p>	<p>This comment is identical to the comment in Agency Response Number 45 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 45 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
Product Type	Useful Life	Energy and Power Requirements	Credit Eligibility																					
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B-46	<p>§2755. Permeation Emission Standards. Permeation Emission Standards. On or after the model year set out herein, and through model year 2023, fuel tanks and fuel lines used on equipment subject to this section must not exceed the following permeation rates:</p>	<p>As discussed in these comments, component based certification is needed for many products beyond 2023.</p>		<p>This comment is identical to the comment in Agency Response Number 46 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here. Please see the agency response at Agency Response Number 46 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>																				
B-47	<p>§2756. Fuel Cap Performance Standard. On or after the model year set out herein, no person shall sell, supply, offer for sale or manufacture for sale fuel caps for fuel tanks for small off-road engines or equipment that use small off-road engines with displacements > 80 cc subject to this Article that do not meet the following performance standards unless exempted in an Executive Order issued pursuant to section 2767 of the Article:</p>	<p>As discussed in these comments, component based certification is needed for many products beyond 2023.</p>		<p>This comment is identical to the comment in Agency Response Number 47 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here. Please see the agency response at Agency Response Number 47 in Attachment A for</p>																				

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				discussion of the issues raised in this comment. CARB made no changes based on this additional comment.										
B-48	<p><u>(d) Fuel cap tether must meet the durability requirements in TP-902.</u></p> <p><small>Engines Subject to the Fuel Cap Performance Standards</small></p> <table border="1" data-bbox="239 367 648 529"> <thead> <tr> <th data-bbox="239 367 327 402">Effective Date Model Year</th> <th data-bbox="327 367 648 402">Applicability</th> </tr> </thead> <tbody> <tr> <td data-bbox="239 402 327 435">2007</td> <td data-bbox="327 402 648 435">Fuel caps for all small off-road engines > 80 cc to < 225 cc (must meet subsections (a) and (b) only)</td> </tr> <tr> <td data-bbox="239 435 327 467">2008</td> <td data-bbox="327 435 648 467">Fuel caps for all small off-road engines ≥ 225 cc (must meet subsections (a) and (b) only)</td> </tr> <tr> <td data-bbox="239 467 327 500">2020</td> <td data-bbox="327 467 648 500">Fuel caps for all small off-road engines > 80 cc (must meet subsections (a), (b), and (c))</td> </tr> <tr> <td data-bbox="239 500 327 529">2024</td> <td data-bbox="327 500 648 529">Fuel caps for all small off-road engines (must meet subsections (a), (b), (c), and (d))</td> </tr> </tbody> </table>	Effective Date Model Year	Applicability	2007	Fuel caps for all small off-road engines > 80 cc to < 225 cc (must meet subsections (a) and (b) only)	2008	Fuel caps for all small off-road engines ≥ 225 cc (must meet subsections (a) and (b) only)	2020	Fuel caps for all small off-road engines > 80 cc (must meet subsections (a), (b), and (c))	2024	Fuel caps for all small off-road engines (must meet subsections (a), (b), (c), and (d))	<p>Fuel cap splash requirements are unnecessary. EMA does not believe it is typical to fill full fuel tanks and the issues experienced by CARB in testing are not reflective of typical practice. Additionally, external tethers may pose catch and snag risks on some products due to operating environments. EMA believes as a result external tethers would be more frequently tampered with.</p> <p>See comment to TP-902.</p>	Remove tether drip requirements.	<p>This comment is identical to the comment in Agency Response Number 48 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 48 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
Effective Date Model Year	Applicability													
2007	Fuel caps for all small off-road engines > 80 cc to < 225 cc (must meet subsections (a) and (b) only)													
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2024	Fuel caps for all small off-road engines (must meet subsections (a), (b), (c), and (d))													
B-49	<p>§2758. Test Procedures.</p> <p><u>(b)(3) for model years 2020 and subsequent model years 2021,</u></p>	<p>As discussed in these comments, component based certification is needed for many products. As a result, TP-901 needs to be retained beyond 2023 for products certified by "design-based" method. If TP-901 is updated accordingly, these transition dates must also be updated.</p>		<p>This comment is identical to the comment in Agency Response Number 49 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here. Please see the agency response at Agency Response Number 49 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>										
B-50	<p><u>(b)(4) for model years 2022 and 2023, (A) One of the following:</u></p> <p><u>1. TP-901, adopted July 26, 2004, and amended May 6, 2019,</u></p> <p><u>or</u></p> <p><u>2. TP-901, adopted July 26, 2004, and last amended [insert amended date], which is incorporated by reference herein,</u></p> <p><u>and</u></p> <p><u>(B) One of the following:</u></p> <p><u>1. SAE J1737,</u></p> <p><u>2. SAE J30, or</u></p> <p><u>3. SAE J1527, or</u></p> <p><u>4. only for fuel lines with inner diameter 4.75 mm or less, SAE J2996.</u></p>	<p>As discussed in these comments, component based certification is needed for many products. As a result, TP-901 needs to be retained beyond 2023 for products certified by "design-based" method. If TP-901 is updated accordingly, these transition dates must also be updated.</p>		<p>This comment is identical to the comment in Agency Response Number 50 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here. Please see the agency response at Agency Response Number 50 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>										

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B-51	<p>§2759. Equipment and Component Labeling. (c)(4)(A)The label heading must read: <u>"IMPORTANT EMISSIONS INFORMATION."</u> <u>"Important Emissions Information."</u> When combined with an exhaust label, <u>"EMISSIONS"</u> <u>"Emissions"</u> relates to both exhaust and evaporative emissions.</p>	<p>This is inconsistent with EPA requirements and will result in the need for separate labels and documents for EPA and CARB with identical information. EMA recognizes CARB desire to meet accessibility needs, however this change needs to be organized cooperatively with EPA and Industry in order to maintain a single 50-state emissoins label and documents.</p>	<p>No change to current language.</p>	<p>This comment is identical to the comment in Agency Response Number 51 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses except that references to "OPEI" have been changed to "EMA," and that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here and a suggestion to make no change to current language is included here. Please see the agency response at Agency Response Number 51 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-52	<p>(c)(4)(E) An unconditional statement of compliance with the appropriate model year(s) (for 2006 and later) California regulations; for example, <u>"THIS ENGINE MEETS 2006 CALIFORNIA-EVP-EMISSION REGULATIONS FOR SMALL-OFF-ROAD ENGINES"</u> <u>"This engine meets 2006 California evp emission regulations for small off-road engines"</u>.</p>	<p>This is inconsistent with EPA requirements and will result in the need for separate labels and documents for EPA and CARB with identical information. EMA recognizes CARB desire to meet accessibility needs, however this change needs to be organized cooperatively with EPA and Industry in order to maintain a single 50-state emissoins label and documents.</p>	<p>No change to current language.</p>	<p>This comment is similar to the comment in Agency Response Number 52 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA," and that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here and a suggestion to make no change to current language is included here. Please see the agency response at Agency Response Number 52 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-53	<p>§2764. Evaporative Emission Control System Warranty Statement. (b) <u>CALIFORNIA-EVAPORATIVE-EMISSION CONTROL-WARRANTY-STATEMENT-YOUR-WARRANTY-RIGHTS-AND-OBLIGATIONS</u> <u>California Evaporative Emission Control System Warranty Statement Your Warranty Rights and Obligations</u> and <u>MANUFACTURER'S-WARRANTY-COVERAGE:</u> <u>Manufacturer's Warranty Coverage:</u></p>	<p>This is inconsistent with EPA requirements and will result in the need for separate warranty documents for EPA and CARB with identical information. EMA recognizes CARB desire to meet accessibility needs, however this change needs to be organized cooperatively with EPA and Industry in order to maintain a single 50-state emissoins warranty document.</p>	<p>No change to current language.</p>	<p>This comment is identical to the comment in Agency Response Number 53 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA," and that a reference to handheld products as a particular subject of</p>

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	<p>and OWNER'S WARRANTY RESPONSIBILITIES: Owner's Warranty Responsibilities: As the (equipment type) owner, you are responsible for performance of the required maintenance listed in your owner's manual. (Holder's name) recommends that you retain all receipts covering maintenance on your (equipment type), but (Holder's name) cannot deny warranty coverage solely for the lack of receipts <u>or for your failure to ensure the performance of all scheduled maintenance.</u></p>	<p>Additionally, inclusion of "but (manufacturer's name) cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance" in the current language is inconsistent with EPA 1054.120(d) which allow denial of warranty claims if the operator caused the problem through improper maintenance or use. Finally, the requirement is inconsistent with 15 USC Chapter 50 - Consumer Product Warranties, Section 2304 - As follows: (c) Waiver of standards The performance of the duties under subsection (a) shall not be required of the warrantor if he can show that the defect, malfunction, or failure of any warranted consumer product to conform with a written warranty, was caused by damage (not resulting from defect or malfunction) while in the possession of the consumer, or unreasonable use (including failure to provide reasonable and necessary maintenance).</p>		<p>concern present in the OPEI comment is not included here and a suggestion to make no change to current language is included here. Please see the agency response at Agency Response Number 53 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-54	<p>§2768. [Repealed]Variances. §2768. [Repealed]Variances. (a) Any manufacturer of small off-road engines or equipment that use small off-road engines subject to this Article that cannot meet the requirements set forth in sections 2754 through 2757 of this Article, due to extraordinary reasons beyond the manufacturer's reasonable control, may apply in writing for a variance. The variance application must set forth: (1) The provisions of the regulations for which a variance is sought; (2) the specific grounds upon which the variance is sought; (3) the proposed date(s) by which compliance will be achieved; and (4) a compliance plan detailing the method(s) that will achieve compliance. (b) Within 75 calendar days of receipt of a variance application containing the information required in subsection (a), the Executive Officer or his nominee shall hold a public hearing to determine whether, under what conditions, and to what extent, a variance is necessary and</p>	<p>Variances need to be retained due to complexity of industry and interpretations of regulations. In order to take measures for extraordinary circumstances beyond their reasonable control, such as pandemics, natural disasters (earthquakes, floods, wildfires), supplier shortages, etc., variances should be kept.</p>	Retain this section.	<p>This comment is identical to the comment in Agency Response Number 54 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 54 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

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	<p>should be allowed. Notice of the time and place of the hearing must be sent to the applicant by certified mail not less than 30 days before the hearing. Notice of the hearing must also be submitted for publication in the California Regulatory Notice Register and sent to every person who requests such a notice, not less than 30 days before the hearing.</p> <p>The notice must state that the parties may, but are not required to, be represented by counsel at the hearing. At least 30 days before the hearing, the variance application must be made available to the public for inspection. Interested members of the public must be allowed a reasonable opportunity to testify at the hearing and their testimony must be considered.</p> <p>(c) No variance may be granted unless all of the following findings are made: (1) that, due to reasons beyond the reasonable control of the applicant, compliance would result in extraordinary economic hardship; (2) that the public interest in mitigating the extraordinary hardship to the applicant by issuing the variance outweighs the public interest in avoiding any increased emissions of air contaminants that would result.</p>			
B-55	<p>Appendix C TP901 5 EQUIPMENT Equipment</p> <p>(a) A handheld, thermostatically controlled, Teflon-coated aluminum hot plate (handheld fusion welder) and coupons of the same material as the tank. Both the hand held fusion welder and coupons must be of sufficient diameter to completely cover the opening(s) of the tank (optional).</p> <p>(b) (a) A balance that meets the requirements of section 4 above.</p> <p>(c) (b) A vented enclosure with a temperature conditioning system capable of controlling the internal enclosure air temperature to within ± 2.0 °C over the duration of the test. Data confirming this performance shall be recorded at a rate no slower than once every 5 minutes.</p> <p>(d) (c) A barometric pressure transducer capable of measuring atmospheric pressure to within ± 2.0 millimeters of mercury.</p> <p>(e) (d) A temperature instrument capable of measuring ambient temperature to within ± 0.2 °C.</p>	<p>Removing coupon sealing changes this procedure from a tank-only certification test into equipment-level certification testing and increases the stringency.</p> <p>Additionally, tank manufacturers may not manufacturer the fuel cap - Different OEMs may use different fuel caps which would result in many additional families and unnecessarily burden for minimal benefit.</p> <p>The new regulations would require equipment certification (via diurnal testing), this extra step at this level is overly burdensome and unnecessary. This change is a significant deviation and inconsistent with EPA's procedure and manufacturers may be unable to meet both the state and federal test requirements with one test, which would be inconsistent with Section 202(a) of the Clean Air Act.</p> <p>The proposed change would require</p>	No change to existing language.	<p>This comment is identical to the comment in Agency Response Number 55 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that the "proposed text" column explicitly states a request for "No changes to existing language." Please see the agency response at Agency Response Number 55 in Attachment A for discussion of the other issues raised in this comment. CARB made no changes based on this comment.</p>

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	<p>(f) (e) A relative humidity measuring instrument capable of measuring the relative humidity (RH) accurately to within ± 2 percent RH (optional).</p> <p>(g) (f) Instrumentation meeting the requirements of section 4 of TP-902, adopted July 26, 2004, and last amended May 6, 2019, (if permeation testing will be performed according to section 12 of this test procedure).</p>	<p>relative humidity measurements. As discussed there is no need to measure relative humidity as it is not part of any calculation nor is used to correct any measurements. This only requires a lab to buy and maintain more equipment.</p>		
B-56	<p>7. CALIBRATION PROCEDURE Calibration Procedure CALIBRATION PROCEDURE Calibration Procedure All instruments and equipment used in this procedure shall be calibrated at the <u>time</u> interval specified by the manufacturer <u>or more often as needed per manufacturer instructions (e.g., if equipment undergoes repair)</u>. The balance listed in section 5(b) (a) shall be calibrated annually per the balance manufacturer's instructions, <u>or more often as needed per the manufacturer instructions (e.g., if the balance is moved)</u>, using <u>National Institute of Standards and Technology (NIST) Système International d'Unités (SI)-traceable mass standards through National Institute of Standards and Technology (NIST) or another member of the Mutual Recognition Arrangement of the Comité International des Poids et Mesures (CIPM MRA)</u>. The NIST SI-traceable mass standards shall be calibrated annually by an independent organization <u>or more often as needed</u>. The instrumentation for measuring permeation emissions according to section 12 of this test procedure must be calibrated as specified in section 4 of TP-902.</p>	<p>The addition of "more often as needed per manufacturer instructions" is redundant with "interval specified by the manufacturer" and introduces opportunity for subjectivity of "more often".</p> <p>The example that "if a balance is moved" is inappropriate and unnecessary - The example would prohibit a balance from being moved for the purpose of calibration (to calibration area / measuring center or shipped).</p>	<p>CALIBRATION PROCEDURE Calibration Procedure All instruments and equipment used in this procedure shall be calibrated at the time interval specified by the manufacturer. The balance listed in section 5(b) (a) shall be calibrated annually per the balance manufacturer's instructions, or more often as needed per the manufacturer instructions, using National Institute of Standards and Technology (NIST) Système International d'Unités (SI)-traceable mass standards through National Institute of Standards and Technology (NIST) or another member of the Mutual Recognition Arrangement of the Comité International des Poids et Mesures (CIPM MRA). The NIST SI-traceable mass standards shall be calibrated annually by an independent organization or more often as needed. The instrumentation for measuring permeation emissions according to section 12 of this test procedure must be calibrated as specified in section 4 of TP-902.</p>	<p>This comment is identical to the comment in Agency Response Number 56 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 56 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-57	<p>8 DURABILITY DEMONSTRATION Durability Demonstration 8.1 Pressure Test (a) Determine the fuel tank system's design pressure and vacuum limits under normal operating and storage conditions considering the influence of any associated pressure/vacuum relief components. <u>To do this, measure the pressure limits using a fuel tank from an evaporative emission control system that is not used for any other portion of this test procedure by installing a pressure transducer in the fuel tank. With the exception of the use of the pressure transducer and connection to a</u></p>	<p>EMA does not believe this is an issue. EMA believes manufacturer data submitted in recent years show that vented tanks do not sustain pressure. Notwithstanding this issue, the proposal is insufficient to test because it does not recommend a test pressure or fill rate that is reflective of evaporating fuel.</p>	<p>Additional instructions are necessary to provide the clarity and consistency necessary to ensure different testers use a consistent approach known to provide accurate test results, which is necessary to ensure that fuel tanks determined to be in compliance with emission standards assessed using TP-901 are indeed compliant and do not result in excess emissions. In addition, adding explicit instructions to measure and record the pressure limits is necessary to provide the information needed to determine whether</p>	<p>This comment is identical to the comment in Agency Response Number 57 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 57 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional</p>

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	<p>carbon canister, as applicable, the fuel tank and fuel tank configuration used for these pressure measurements shall be identical to those used in the remainder of this test procedure. Using compressed air of no less than 21 °C, pressurize the fuel tank with compressed air, seal the fuel tank, and measure the pressure every second for 5 minutes. Use a vacuum pump to draw a vacuum in the fuel tank, seal the fuel tank, and measure the pressure every second for 5 minutes. Record the maximum and minimum pressure measurements on the test report. Subsection (b) of this test is not required if the fuel tank pressure does not exceed a gauge pressure of + 1.0 kPa for at least one minute when pressurized and the fuel tank vacuum does not exceed a gauge pressure of - 1.0 kPa for at least one minute when a vacuum is drawn in the fuel tank.</p>		<p>the pressure test may be omitted, per the Proposed Amendment described next.</p>	<p>comment.</p>
<p>B-58</p>	<p>Tanks that have a secondary operation for drilling holes for insertion of fuel line and grommet system may have these eliminated for purposes of durability and permeation testing.</p>	<p>EMA has received feedback that manufacturers are being advised of different sealing requirements. Additional language is needed to address specifically how holes need to be sealed, including what holes must be machined and what materials may be used to seal. Additionally, component suppliers such as the fuel tank manufacturer, may not have information regarding additional components and may be unable to account for materials reflective of cap and grommets (for example). This change would require significant additional tests and evaporative emissions families with minimal benefit.</p>	<p>"Any holes in the fuel tank for insertion of fuel lines, vent lines, and/or grommet systems shall be eliminated (if drilled during production) or sealed using metal plugs or material blanks that match the material of the fuel tank or grommet under test, attached with an appropriate epoxy."</p>	<p>This comment is identical to the comment in Agency Response Number 58 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 58 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
<p>B-59</p>	<p>8.3 Ultraviolet Radiation Exposure A sunlight-exposure test shall be performed by exposing each fuel tank to an ultraviolet light of at least 24 W·m⁻² (0.40 W·hr·m⁻²·min⁻¹) on the tank surface for at least 450 hours. <u>Measure and record ultraviolet light intensity at least every hour.</u> Alternatively, each fuel tank may be exposed to direct natural sunlight for at least 450 daylight hours. The ultraviolet radiation exposure test may be omitted if no part of the fuel tank, including the filler neck and fuel cap, will be exposed to light when installed on an engine.</p>	<p>Measuring UV exposure every hour under artificial lights is not required as this testing is stable. Daily checks would catch if bulbs weaken or burn out. Adding the time back for out of spec would ensure the full UV conditioning is achieved. This is an unnecessary and burdensome requirement for the 450 hours required of this test. Costs and resources to accomplish this are not in line with any possible benefit. Additionally, 24- hour testing would</p>	<p>A sunlight-exposure test shall be performed by exposing each fuel tank to an ultraviolet light of at least 24 W·m⁻² (0.40 W·hr·m⁻²·min⁻¹) on the tank surface for at least 450 hours. Measure and record ultraviolet light intensity at the beginning and end of the test. Alternatively, each fuel tank may be exposed to direct natural sunlight for at least 450 daylight hours. The ultraviolet radiation exposure test may be omitted if no part of the fuel tank, including the filler neck and fuel cap, will</p>	<p>This comment is identical to the comment in Agency Response Number 59 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 59 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

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		be nearly impossible (or costly with automation) and greatly increase the length of time for certification testing that already takes multiple months to complete.	be exposed to light when installed on an engine.	
B-60	<p><u>8.5 Fuel Cap and Tether Spill Test</u> <u>Fill the fuel tank to its nominal capacity with fresh test fuel as specified in section 6 of this procedure. Install the fuel cap. Loosen the fuel cap completely. Once the fuel cap is completely loosened, remove it and fully extend the tether, if one is used, within 2 seconds. If no tether is connected to the fuel cap, remove the fuel cap to a height of 15 centimeters above the top of the fill neck within 2 seconds. Any dripping, spraying or leaking of fuel from any part of the fuel cap or tether denotes a failure and shall be reported on the test report. Reinstall the fuel cap within one minute after removing it.</u></p>	Fuel cap splash requirements are unnecessary. EMA does not believe it is typical to fill full fuel tanks and the issues experienced by CARB in testing are not reflective of typical practice. Additionally, external tethers may pose catch and snag risks on some products due to operating environments. EMA believes as a result external tethers would be more frequently tampered with.	Remove the proposed requirement.	This comment is identical to the comment in Agency Response Number 60 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 60 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-61	<p><u>9. PRECONDITIONING PROCEDURE</u> <u>Preconditioning Procedure</u> After performing the durability tests, fill each tank to its nominal capacity with the fuel specified in section 6 of this procedure and install a production fuel cap expected to have permeation emissions at least as high as the highest-emitting fuel cap that will be used with fuel tanks from the evaporative family. Place the tanks in a suitable vented enclosure. Record the preconditioning start date on the data sheet. Soak the tanks at a temperature that never falls below 38 °C for not less than 140 days. <u>Measure and record the temperature at least every five minutes. Take steps to ensure that the fuel remains at nominal capacity throughout preconditioning.</u> Accelerated preconditioning of the tanks <u>shall not be less than 70 days and can be accomplished by soaking the tanks at an elevated temperature.</u></p>	The addition of "to ensure that the fuel remains at nominal capacity throughout preconditioning" introduces significant burden without benefit. This could mean very frequent checks, as fuel is continuously evaporating and could arguably immediately be below nominal capacity. Other procedures require that the fuel not drop below 50% of the nominal capacity. Harmonize the requirement to ensure that the fuel does not drop below 50% of the nominal capacity throughout preconditioning.	After performing the durability tests, fill each tank to its nominal capacity with the fuel specified in section 6 of this procedure and install a production fuel cap expected to have permeation emissions at least as high as the highest-emitting fuel cap that will be used with fuel tanks from the evaporative family. Place the tanks in a suitable vented enclosure. Record the preconditioning start date on the data sheet. Soak the tanks at a temperature that never falls below 38 °C for not less than 140 days. Measure and record the temperature at least every five minutes. Take steps to ensure that the fuel does not drop below 50% of the nominal capacity throughout preconditioning. Accelerated preconditioning of the tanks shall not be less than 70 days and can be accomplished by soaking the tanks at an elevated temperature.	This comment is identical to the comment in Agency Response Number 61 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 61 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-62(a)	Data documenting that permeation emissions from the fuel tanks will not increase with further preconditioning must be provided for tanks soaked less than 140 days as follows: <u>seal each fuel tank as described in section 10 of this test procedure, and either 1) perform a gravimetric permeation test on each fuel tank as described in section 11 of this procedure, and calculate</u>	Add the temperature range "(≥ 38 °C)"	...The time of the durability demonstration in section 8.2 through 8.5 of this procedure may be counted as part of the preconditioning procedure if the ambient temperature remains within the specified temperature range (≥ 38 °C) , the same fuel cap is used throughout the durability demonstration and preconditioning period,	This comment is identical to the comment in Agency Response Number 62 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency

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	<p>the coefficient of determination, r^2, as described in section 11.(a)(8) of this test procedure; or 2) perform two permeation tests with a FID, as described in section 12 of this procedure, on each fuel tank separated by at least 15 days, and calculate the permeation rate as described in section 14 of this test procedure. The coefficient of determination for a gravimetric permeation test used to demonstrate that permeation emissions from the fuel tanks will not increase with further preconditioning must be equal to or greater than 0.95 without any rounding. The permeation rate measured in the second of two permeation tests with a FID separated by at least 15 days that are used to demonstrate permeation emissions from the fuel tanks will not increase with further preconditioning must be no greater than the permeation rate measured in the first test. Fuel tanks shall continue to be preconditioned at a temperature that never falls below 38 °C between permeation tests. The time of the durability demonstration in section 8.2 through 8.5 of this procedure may be counted as part of the preconditioning procedure if the ambient temperature remains within the specified temperature range, the same fuel cap is used throughout the durability demonstration and preconditioning period, and each fuel tank is at least 50 percent full; fuel may be added or replaced as needed to conduct the specified durability tests. Record the fuel fill amount and dates on the test report if fuel is added or replaced. Drain the fuel tank and refill with fresh fuel to nominal capacity 15 days prior to ending preconditioning. The fuel tank must not be empty for more than 15 minutes. Record the date and time the fuel tank is drained and refilled with fresh fuel, and record the fuel fill amount on the test report.</p>		<p>and each fuel tank is at least 50 percent full; fuel may be added or replaced as needed to conduct the specified durability tests. Record the fuel fill amount and dates on the test report if fuel is added or replaced. Drain the fuel tank and refill with fresh fuel to nominal capacity 15 days prior to ending preconditioning. The fuel tank must not be empty for more than 15 minutes. Record the date and time the fuel tank is drained and refilled with fresh fuel, and record the fuel fill amount on the test report.</p>	<p>response at Agency Response Number 62 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-62(b)	<p>10. SEALING PROCEDURE Sealing Procedure (a) After preconditioning, remove the tanks from the enclosure to a well-ventilated area. Record the preconditioning end date on the data sheet. Remove the cap and empty the tanks. The tanks must not remain empty for more than fifteen minutes. Immediately refill each tank to its nominal capacity with the fuel specified in section 6 of this procedure. Place each unsealed tank in a heated enclosure and</p>	<p>Removing coupon sealing changes this procedure from a tank-only certification test into equipment-level certification testing and increases the stringency. Additionally, tank manufacturers may not manufacturer the fuel cap - Different OEMs may use different fuel caps which would result in many</p>	<p>No change recommended.</p>	<p>This comment, aside from the text transcribed from the Proposed Amendments, is similar to part of the comment in Agency Response Number B-61 in this document. Please see the agency response at Agency Response Number B-61 in this document for discussion of the issues raised in this comment. CARB made no changes based on this comment.</p>

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	<p>allow it to equilibrate to 40 ± 2 C for a minimum of two hours. After the fuel temperature has equilibrated to 40 ± 2 °C, seal each tank with the same fuel cap used for the durability demonstration (except section 8.1(a)) and preconditioning procedure or by fusion welding a coupon over the fuel fill neck opening to make a seal.</p> <p>If the fuel tank is not sealed using the fuel cap or fusion welding, good engineering practices should be used to seal the tank. The technique used to seal tanks described in SAE 920164 "Permeation of Gasoline-Alcohol Fuel Blends Through High-Density Polyethylene Fuel Tanks with Different Barrier Technologies" may be used.</p>	<p>additional families and unnecessarily burden for minimal benefit.</p> <p>The new regulations would require equipment certification (via diurnal testing), this extra step at this level is overly burdensome and unnecessary. This change is a significant deviation and inconsistent with EPA's procedure and manufacturers may be unable to meet both the state and federal test requirements with one test, which would be inconsistent with Section 202(a) of the Clean Air Act.</p>		
B-62(c)	<p>11. GRAVIMETRIC PERMEATION TEST Gravimetric Permeation Test (a)(2) Weigh each sealed test fuel tank and record the mass, date, relative humidity (optional), barometric pressure, and time on the data sheet (Figure 1) or a similar data sheet. Place the reference tank on the balance and tare it so it reads zero record the mass. Place each sealed test fuel tank on the balance and record the difference between the test fuel tank and the reference tank mass. This value is M0 for each fuel tank. Take this measurement directly after within 15 minutes of sealing each test fuel tank as specified in section 10 of this procedure.</p>	<p>The proposed change would require relative humidity measurements. As discussed there is no need to measure relative humidity as it is not part of any calculation nor is used to correct any measurements. This only requires a lab to buy and maintain more equipment.</p>	No change recommended.	<p>This comment, aside from the text transcribed from the Proposed Amendments, is similar to part of the comment in Agency Response Number B-61 in this document. Please see the agency response at Agency Response Number B-61 in this document for discussion of the issues raised in this comment. CARB made no changes based on this comment.</p>
B-63(a)	<p>Appendix D (TP902) Small Off-Road Engine Evaporative Emissions Test Procedure TP-902 Test Procedure for Determining Evaporative Diurnal Emissions from Small Off-Road Engines Adopted: July 26, 2004 Amended: September 18, 2017 Amended: May 6, 2019 Amended: [insert amended date]</p>	<p>See comment to RO 2750 evaporative amendments</p>		<p>This comment is identical to the comment in Agency Response Number 63(a) in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 63(a) in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-63(b)	<p>2. PRE-CERTIFICATION REQUIREMENTS Pre-Certification Requirements 2.1 Durability Demonstration (a) Actuate all control valves, cables, and linkages, where applicable, for a minimum of 5000 cycles. Install and remove the fuel cap</p>	<p>This requirement is vague considering types of valves, cables and linkages on typical outdoor power equipment. The requirement should be clarified as follows: Actuating cycle test is not required for</p>		<p>This comment is identical to the comment in Agency Response Number 63(b) in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification</p>

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	300 times. Tighten the fuel cap each time in a way that represents the typical in-use experience.	<p>any of the following control valves, cables or linkages.</p> <ul style="list-style-type: none"> - Not designed to control evaporative emissions (based on FAQ) - Failure of component would not increase evaporative emissions (based on FAQ) - Component operation is synchronized with engine revolution such as fuel injectors or valves operated by intake oscillation (operate more than 5000 cycles on 5-minute engine operation before preconditioning soak) 		Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 63(b) in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-63(c)	(b)(1) Determine the fuel tank system's design pressure and vacuum limits under normal operating and storage conditions considering the influence of any associated pressure/vacuum relief components. <u>To do this, measure the pressure limits using a fuel tank from an evaporative emission control system that is not used for any other portion of this test procedure by installing a pressure transducer in the fuel tank. With the exception of the use of the pressure transducer and connection to a carbon canister, as applicable, the fuel tank and fuel tank configuration used for these pressure measurements and the evaporative emission control system in which it is used shall be identical to those used on the engine tested in the remainder of this test procedure. Using compressed air of no less than 21 °C, pressurize the fuel tank with compressed air, seal the fuel tank, and measure the pressure every second for 5 minutes. Use a vacuum pump to draw a vacuum in the fuel tank, seal the fuel tank, and measure the pressure every second for 5 minutes. Record the maximum and minimum pressure measurements on the test report. Subsection (2) of this test is not required if the fuel tank pressure does not exceed a gauge pressure of + 1.0 kPa for at least one minute when pressurized and the fuel tank vacuum does not exceed a gauge pressure of – 1.0 kPa for at least one minute when a vacuum is drawn in the fuel tank.</u>	EMA does not believe this is an issue. EMA believes manufacturer data submitted in recent years show that vented tanks do not sustain pressure. Notwithstanding this issue, the proposal is insufficient to test because it does not recommend a test pressure or fill rate that is reflective of evaporating fuel.		This comment is identical to the comment in Agency Response Number 63(c) in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 63 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-64	(e) Ultraviolet Radiation Exposure A sunlight-exposure test shall be performed by exposing each test engine or equipment unit to an ultraviolet light of at least 24 W·m-2	Measuring UV exposure every hour under artificial lights is not required as this testing is stable. Daily checks would catch if bulbs weaken or burn	A sunlight-exposure test shall be performed by exposing each fuel tank to an ultraviolet light of at least 24 W·m-2 (0.40 W·hr·m-2·min-1) on the tank surface	This comment is identical to the comment in Agency Response Number 64 in Attachment A: OPEI Annex A Comments to CARB's 45-Day

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	(0.40 W-hr-m-2-min-1) for at least 450 hours. <u>Measure and record ultraviolet light intensity at least every hour.</u> Alternatively, each test engine or equipment unit may be exposed to direct natural sunlight for at least 450 daylight hours. The ultraviolet radiation exposure test may be omitted if no part of the evaporative emissions control system will be exposed to light when installed on an engine.	out. Adding the time back for out of spec would ensure the full UV conditioning is achieved. This is an unnecessary and burdensome requirement for the 450 hours required of this test. Costs and resources to accomplish this are not in line with any possible benefit. Additionally, 24-hour testing would be nearly impossible (or costly with automation) and greatly increase the length of time for certification testing that already takes multiple months to complete.	for at least 450 hours. Measure and record ultraviolet light intensity at the beginning and end of the test. Alternatively, each fuel tank may be exposed to direct natural sunlight for at least 450 daylight hours. The ultraviolet radiation exposure test may be omitted if no part of the fuel tank, including the filler neck and fuel cap, will be exposed to light when installed on an engine.	Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 64 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-65	(f) <u>Fuel Cap and Tether Spill Test</u> <u>Fill the fuel tank to its nominal capacity with fresh test fuel as specified in section 6 of this procedure. Install the fuel cap. Loosen the fuel cap completely. Once the fuel cap is completely loosened, remove it and fully extend the tether, if one is used, within 2 seconds. If no tether is connected to the fuel cap, remove the fuel cap to a height of 15 centimeters above the top of the fill neck within 2 seconds. Any dripping, spraying or leaking of fuel from any part of the fuel cap or tether denotes a failure and shall be reported on the test report. Reinstall the fuel cap within one minute after removing it.</u>	Fuel cap splash requirements are unnecessary. EMA does not believe it is typical to fill full fuel tanks and the issues experienced by CARB in testing are not reflective of typical practice. Additionally, external tethers may pose catch and snag risks on some products due to operating environments. EMA believes as a result external tethers would be more frequently tampered with.		This comment is identical to the comment in Agency Response Number 65 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 65 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-66	2.2 Canister Working Capacity (a) For evaporative emission control systems that use a carbon canister and do not pressurize the fuel tank, the carbon canister must have a working capacity of at least 1.4 grams of vapor storage capacity per liter of fuel tank nominal <u>total</u> capacity for tanks greater than or equal to 3.78 liters, and 1.0 grams of vapor storage capacity per liter of fuel tank nominal <u>total</u> capacity for tanks less than 3.78 liters. For evaporative emission control systems that use a carbon canister and pressurized fuel tank, the working capacity must be specified by the applicant. For all systems utilizing actively-purged carbon canisters, running loss emissions must be controlled from being emitted into the atmosphere.	The proposed change increases the stringency on carbon canister working capacity (total > nominal) without justification. The requirement is inconsistent with the diurnal performance requirement which is ultimately the purpose of TP-902.	No change to current language	This comment is identical to the comment in Agency Response Number 66 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 66 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-67	2.4 <u>Running Loss Emission Control Test</u> <u>(a)(1) Perform this sequence in order to ensure integrity of the test. The mass of the trap canister must not increase during the running</u>	VII requires a 60 minutes dyno test 30 minutes after the SHED test. This may not be achievable depending on the engine installation and/or test		This comment is identical to the comment in Agency Response Number 67 in Attachment A: OPEI Annex A Comments to CARB's 45-Day

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	<p>loss emission control test. If the carbon canister is integrated into the fuel cap, carbon canister shall mean fuel cap only for this subsection (1). Record all measurements in the test report.</p> <p>(i) Fill the fuel tank to nominal capacity and install the fuel cap;</p> <p>(ii) Within 15 minutes of completion of step (i) weigh the carbon canister; (iii) Within 15 minutes of completion of step (ii) install the carbon canister;</p> <p>(iv) Within 30 minutes of completion of step (iii) expose the engine with the carbon canister installed to three 24-hour diurnal cycles as defined in Table 5-1 in section 5.4 of this Test Procedure;</p> <p>(v) Within 15 minutes of completion of step (iv), weigh the carbon canister and a secondary (trap) canister;</p> <p>(vi) Within 15 minutes of completion of step (v), install the carbon canister and the secondary (trap) canister in series on the engine; (vii) Within 60 minutes of completion of step (vi), run the engine at full load (100% of rated torque) until the fuel tank is empty;</p> <p>(viii) Within 15 minutes of completion of step (vii), weigh the carbon canister and the trap canister; or</p>	<p>facility (not all SHED laboratories have dynos).</p>		<p>Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern, and a request that handheld products be excluded from the running loss test, present in the OPEI comment are not included here. Please see the agency response at Agency Response Number 67 in Attachment A for discussion of the other issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-68	<p>(a)(2) Perform this sequence in order to ensure integrity of the test. Data from a pressure transducer in the fuel tank must show that the pressure in the fuel tank is less than ambient pressure throughout the entire running loss test. Record all measurements in the test report. (i) Install a pressure transducer in the fuel tank;</p> <p>(ii) Fill the fuel tank to nominal capacity and install the fuel cap;</p> <p>(iii) Within 60 minutes of completion of step (ii), run the engine at full load (100% of rated torque) until the fuel tank is empty, measuring ambient pressure and pressure in the fuel tank once per second throughout the sequence.</p>	<p>The trap canister mass measurement in the proposed Running Loss procedure is the direct measurement if running loss vapors are being managed. This pressure testing does not have correlation to running loss vapor control.</p>		<p>This comment is identical to the comment in Agency Response Number 68 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern, and a request that handheld products be excluded from the running loss test, present in the OPEI comment are not included here. Please see the agency response at Agency Response Number 68 in Attachment A for discussion of the other issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-69	<p>3. GENERAL SUMMARY OF TEST PROCEDURE General Summary of Test Procedure A Sealed Housing for Evaporative Determination (SHED) is used to measure</p>	<p>What is the rationale for multiple test temperature options (35 and 40.6°C)? Will CARB compliance testing be conducted at the same temperature as the manufacturer per this section?</p>		<p>This comment is identical to the comment in Agency Response Number 69 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation</p>

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	<p>diurnal evaporative emissions. This method subjects test engines to a preprogrammed temperature profile while maintaining a constant pressure and continuously sampling for hydrocarbons with a Flame Ionization Detector (FID). The volume of a SHED enclosure can be accurately determined. The mass of total organic material hydrocarbon equivalent that emanates from a test engine over the test period is calculated using the ideal gas equation.</p> <p>This test procedure measures <u>hot soak and diurnal</u> emissions from engines or equipment with complete evaporative emission control systems as defined in title 13, Cal. Code Regs., section 2752 (a)(7) (9) by subjecting them to a hot soak and diurnal test sequence. The engine with complete evaporative emission control system can be tested without the equipment chassis. The basic process is as follows:</p> <ul style="list-style-type: none"> • Fill the engine fuel tank with fuel and operate at maximum governed speed for 5-minutes • Precondition the evaporative emission control system • Drain and fill fuel tank to 50% capacity with California certification fuel • Operate engine at the maximum governed speed for fifteen minutes • Subject engine/equipment to a one-hour constant 35 <u>or 40.6</u> °C hot soak • Soak engine/equipment for two hours at 18.3 °C • Subject engine/equipment to a 24-hour variable 18.3 °C – 40.6 °C – 18.3 °C (65 °F - 105 °F - 65 °F) temperature diurnal profile <p>The mass of total organic material hydrocarbon equivalent measured by the SHED over the <u>hot soak and 24-hour diurnal</u> profile is compared with the <u>hot soak plus</u> diurnal emission standards in title 13, Cal. Code Regs., section 2754. Engines or equipment with emissions below the appropriate <u>hot soak plus</u> diurnal emission standard shall be considered compliant.</p>	<p>Additionally, tolerance of the following conditions should be defined.</p> <ul style="list-style-type: none"> - 5 minutes - 50% capacity - fifteen minutes - two hours - 18.3 °C <p>EMA requests CARB consider flexibility to conduct the Hot Soak test separately from the diurnal result.</p>		<p>Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 69 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-70	<p>4. INSTRUMENTATION <u>Instrumentation</u> 4.1 Diurnal Evaporative Emission Measurement Enclosure The diurnal evaporative emissions measurement enclosure shall be equipped with an internal blower or blowers coupled with an air</p>	<p>0.8 ± 0.2 ft3 /min per ft3 of the nominal enclosure volume, Vn – The enclosure volume (Vn) to evaluate the blower flow rate is not defined which latch point volume to be used. Propose to define as a latched volume</p>		<p>This comment is identical to the comment in Agency Response Number 70 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification</p>

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	<p>temperature management system (typically air to water heat exchangers and associated programmable temperature controls) to provide for air mixing and temperature control. The blower(s) shall provide a nominal total flow rate of 0.8 ± 0.2 ft³/min per ft³ of the nominal enclosure volume, V_n. The inlets and outlets of the air circulation blower(s) shall be configured to provide a well-dispersed air circulation pattern that produces effective internal mixing and avoids significant temperature or hydrocarbon and alcohol stratification. The discharge and intake air diffusers in the enclosure shall be configured and adjusted to eliminate localized high air velocities which could produce non-representative heat transfer rates between the engine fuel tank(s) and the air in the enclosure. The air circulation blower(s), plus any additional blowers if required, shall maintain a homogeneous mixture of air within the enclosure.</p> <p>The enclosure temperature shall be taken with thermocouples located 3 feet above the floor at the approximate mid-length of each side wall of the enclosure and within 3 to 12 inches of each side wall. The temperature conditioning system shall be capable of controlling the internal enclosure air temperature to follow the prescribed temperature versus time cycle as specified in 40 CFR §86.133-90 as modified by section III.D.10. (diurnal breathing loss test) of the "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles," as last amended September 2, 2015, within an instantaneous tolerance of ± 3.0oF and an average tolerance of ± 2.0oF as measured by side wall thermocouples. The control system shall be tuned to provide a smooth temperature pattern, which has a minimum of overshoot, hunting, and instability about the desired long-term temperature profile.</p>	<p>at 18.3°C which is the base volume of diurnal test.</p> <p>Other enclosure requirements – EMA agrees that the enclosure needs to be designed as TP-902 requires. However, the all requirements are qualitative and not quantitative. For test accuracy and correlations, more concrete condition should be defined. Members are ready to discuss for details.</p> <p>Additional blowers – Propose the following language to correlate with other requirements without redundancy.</p> <p>As far as the enclosure meets the homogeneous requirements of temperature and HC concentration, and wind velocity requirements as prescribed, blowers or fans not associated with the heat exchangers can be added as necessary besides the temperature conditioning blowers with the heat exchangers. Auxillary blowers shall be positioned so that they do not create airflow across the unit such that it will artificially increase the evaporative emissions through engine and evaporative vents. Tolerance of 3 feet should be defined.</p>		<p>Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA" and a reference to "Honda" has been changed to "Members." Please see the agency response at Agency Response Number 70 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-71	<p>A variable volume enclosure shall have the capability of latching or otherwise constraining the enclosed volume to a known, fixed value, V_n. The V_n shall be determined by measuring all pertinent dimensions of the enclosure in its latched configuration, including internal fixtures, based on a temperature of 84oF, to an accuracy of $\pm 1/8$ inch (0.5 cm) and calculating the net V_n</p>	<p>V_n determination based on SI units should be allowed. The enclosure dimensions are typically measured in millimeter and V_n is determined in liter or cubic meter. Propose to delete the rounding requirement of V_n value to the nearest 1 ft³.</p>		<p>This comment is identical to the comment in Agency Response Number 71 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency</p>

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	<p>to the nearest 1 ft3. In addition, Vn shall be measured based on a temperature of 65oF and 105oF. The latching system shall provide a fixed volume with an accuracy and repeatability of 0.005xVn. Two potential means of providing the volume accommodation capabilities are; a moveable ceiling which is joined to the enclosure walls with a flexure, or a flexible bag or bags of Tedlar or other suitable materials, which are installed in the enclosure and provided with flowpaths which communicate with the ambient air outside the enclosure. By moving air into and out of the bag(s), the contained volume can be adjusted dynamically. The total enclosure volume accommodation shall be sufficient to balance the volume changes produced by the difference between the extreme enclosure temperatures and the ambient laboratory temperature with the addition of a superimposed barometric pressure change of 0.8 in. Hg. A minimum total volume accommodation range of ± 0.07xVn shall be used. The action of the enclosure volume accommodation system shall limit the differential between the enclosure internal pressure and the external ambient barometric pressure to a maximum value of ± 2.0 inches H2O.</p>			<p>response at Agency Response Number 71 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
<p>B-72</p>	<p>An online computer system or strip chart recorder shall be used to record the following parameters during the diurnal evaporative emissions test sequence:</p> <ul style="list-style-type: none"> - Enclosure internal air temperature - Diurnal ambient air temperature specified profile as defined in 40 CFR 86.133-90 as modified in section III.D.10 of the "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles," as last amended September 2, 2015, (diurnal breathing loss test). - Enclosure internal pressure - Enclosure temperature control system surface temperature(s) - FID output voltage recording the following parameters for each sample analysis: <ul style="list-style-type: none"> - zero gas and span gas adjustments - zero gas reading - enclosure sample reading - zero gas and span gas readings <p>The data recording system shall have a time</p>	<p>Today's analyzer systems digitally outputs in concentration such as ppmC, not voltage. Propose to delete a requirement of output voltage recording.</p>		<p>This comment is identical to the comment in Agency Response Number 72 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 72 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

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	<p>resolution of 30 seconds and shall provide a permanent record in either magnetic, electronic or paper media of the above parameters for the duration of the test.</p> <p>Other equipment configurations may be used if approved in advance by the Executive Officer. The Executive Officer shall approve alternative equipment configurations if the manufacturer demonstrates that the equipment will yield test results equivalent to those resulting from use of the specified equipment.</p>			
B-73	<p>4.2 Calibrations</p> <p>Evaporative emission enclosure calibrations are specified in 40 CFR §86.117-90. Amend 40 CFR §86.117-90 to include an additional subsection 1.1, to read:</p> <p>The diurnal evaporative emission measurement enclosure calibration consists of the following parts: initial and periodic determination of enclosure background emissions, initial determination of enclosure volume, and periodic hydrocarbon (HC) and ethanol retention check and calibration. Calibration for HC and ethanol may be conducted in the same test run or in sequential test runs.</p>	EMA proposes the following revision if the ethanol factor is used.	If manufacture uses the ethanol factor for E10 fuel (1.08) for hot soak and diurnal test without ethanol measurement, a retention check by ethanol injection is not required.	This comment is identical to the comment in Agency Response Number 73 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 73 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-74	<p>4.2.3</p> <p>The HC and ethanol measurement and retention checks shall evaluate the accuracy of enclosure HC and ethanol mass measurements and the ability of the enclosure to retain trapped HC and ethanol. The check shall be conducted over a 24-hour period with all of the normally functioning subsystems of the enclosure active. A known mass of propane and/or ethanol shall be injected into the enclosure and an initial enclosure mass measurement(s) shall be made. The enclosure shall be subjected to the temperature cycling specified in section III. D.10.3.7 of the "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles," as last amended September 2, 2015, (revising 40 CFR §86.133-90(l)) for a 24-hour period. The temperature cycle shall begin at 105°F (hour 11) and continue according to the schedule until a full 24-hour cycle is completed. A final enclosure mass measurement(s) shall be made. The following procedure shall be performed prior to</p>	An "enclosure mass measurement" does not make sense. It should be corrected to "concentration measurement(s) of hydrocarbon and/or ethanol in the enclosure". Propose "monthly basis" to be within 35 days before testing.		This comment is identical to the comment in Agency Response Number 74 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 74 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.

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	<p>the introduction of the enclosure into service and following any modifications or repairs to the enclosure that may impact the integrity of this enclosure; otherwise, the following procedure shall be performed on a monthly basis. (If six consecutive monthly retention checks are successfully completed without corrective action, the following procedure may be determined quarterly thereafter as long as no corrective action is required.)</p> <p>(A) Zero and span the HC analyzer.</p> <p>(B) Purge the enclosure with atmospheric air until a stable enclosure HC level is attained.</p> <p>(C) Turn on the enclosure air mixing and temperature control system and adjust it for an initial temperature of 105.0oF and a programmed temperature profile covering one diurnal cycle over a 24 hour period according to the profile specified in section III. D.10.3.7. Of the "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles," as last amended September 2, 2015, (revising 40 CFR §86.133-90). Close the enclosure door. On variable volume enclosures, latch the enclosure to the enclosure volume measured at 105oF. On fixed volume enclosures, close the outlet and inlet flow streams.</p>			
B-75	<p>(D) When the enclosure temperature stabilizes at 105.0oF ± 3.0oF seal the enclosure; measure the enclosure background HC concentration (CHCe1) and/or background ethanol concentration (CC2H5OH1) and the temperature (T1), and pressure (P1) in the enclosure.</p> <p>(E) Inject into the enclosure a known quantity of propane between 0.50 to 1.00 grams and/or a known quantity of ethanol in gaseous form between 0.50 to 1.00 grams. The injection method shall use a critical flow orifice to meter the propane and/or ethanol at a measured temperature and pressure for a measured time period. Techniques that provide an accuracy and precision of ± 0.5 percent of the injected mass are also acceptable. Allow the enclosure internal HC and/or ethanol concentration to mix and stabilize for up to 300 seconds. Measure the enclosure HC concentration (CHCe2) and/or the enclosure ethanol concentration (CC2H5OH2). For fixed volume enclosures, measure the temperature (T2) and pressure in</p>	A gravimetric method should also be allowed. Critical flow orifice method by using ethanol is not technically feasible. 0.5% of accuracy should be required regardless of the techniques.		This comment is identical to the comment in Agency Response Number 75 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 75 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.

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	the enclosure (P2). On variable volume enclosures, unlatch the enclosure. On fixed volume enclosures, open the outlet and inlet flow streams. Start the temperature cycling function of the enclosure air mixing and temperature control system. These steps shall be completed within 900 seconds of sealing the enclosure.			
B-76	<p><u>4.3 Other Instruments and Equipment</u> <u>All instruments and equipment used in this Test Procedure, TP-902, shall be calibrated at the time interval specified by the manufacturer or more often as needed per manufacturer instructions (e.g., if equipment undergoes repair).</u> <u>For mass measurements more than 6,200 grams, the minimum sensitivity of the balance must be 0.1 grams. For mass measurement between 1,000 and 6,200 grams, the minimum sensitivity of the balance must be 0.01 grams. For mass measurements less than 1,000 grams, the minimum sensitivity of the balance must be 0.001 grams.</u> <u>The balance shall be calibrated annually per the balance manufacturer's instructions, or more often as needed per the manufacturer instructions (e.g., if the balance is moved), using Système International d'Unités (SI)-traceable mass standards through National Institute of Standards and Technology (NIST) or another member of the Mutual Recognition Arrangement of the Comité International des Poids et Mesures (CIPM MRA). The SI-traceable mass standards shall be calibrated annually by an independent organization or more often as needed.</u></p>	<p>EMA is concerned 0.001g accuracy for the measurement of canister weight is not directly relevant to the standard. Also, changing the accuracy requirement depending on the mass of subjects does not make sense. Harmonize requirements with standard significant figures. The addition of "more often as needed per manufacturer instructions" is redundant with "interval specified by the manufacturer" and introduces opportunity for subjectivity of "more often". The example that "if a balance is moved" is inappropriate and unnecessary - The example would prohibit a balance from being moved for the purpose of calibration (to calibration area / measuring center or shipped)</p>		<p>This comment is identical to the comment in Agency Response Number 76 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 76 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-77	<p><u>5. TEST PROCEDURE</u> <u>Test Procedure</u> The test sequence is shown graphically in Figure 1. The temperatures monitored during testing shall be representative of those experienced by the equipment. The equipment shall be approximately level during all phases of the test sequence to prevent abnormal fuel distribution. The temperature tolerance of a soak period may be waived for up to 10 minutes to allow purging of the enclosure or transporting the equipment into the enclosure. The 24-hour diurnal test sequence is shown in Figure 1.</p>		<p>10-minute temperature waiver should be clarified which test processes to be applied. The following conditions should also be waived from temperature requirements. - Interruptions of preconditioning soak (e.g., power out) should be allowed as long as the total exposure period meets the requirements. - 15 minutes of engine operation and period to move the test unit to allow engine operation at outside without temperature control. As CP-902 addresses, TP-902 as a test</p>	<p>This comment is identical to the comment in Agency Response Number 77 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 77 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

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	<p>Figure 1. 24-Hour Diurnal Test Sequence</p> <pre> graph TD Start([Start]) --> Step1[Perform Durability Demonstration Fill Engine Fuel Tank with fuel and Operate for 5 Minutes Precondition the Engine's Evaporative Emission Control System] Step1 --> Step2[Drain and fill tank to 50% capacity with test fuel Purge Carbon Canister (if equipped) Operate for 15 Minutes Perform a one-hour hot soak at a constant 35 or 40.6 °C (95 or 105 °F)] Step2 --> Step3[Cool Enclosure to 65°F then Soak System at 65 °F for 2 hours] Step3 --> Step4[Perform a 24-hour diurnal test using a 18.3 °C – 40.6 °C – 18.3 °C (65 °F-105 °F-65 °F) variable temperature profile] Step4 --> End([End]) </pre>		<p>procedure should clarify a retest is allowed by omitting durability test and preconditioning. The equipment should remain level during all phases of the test sequence. Tilting the unit may be inconsistent with manufacturers recommendations and bias evaporative test results.</p>	
B-78	<p>5.1 Evaporative Emission Control System Preconditioning The purpose of the preconditioning period is to introduce gasoline into the evaporative emission control system and precondition all evaporative emission control system components. Precondition the evaporative emission control system by filling the fuel tank to its nominal capacity with fresh test fuel as specified in Section 6 of this procedure. After filling the tank, start the engine and allow it to run at maximum governed speed (unloaded or blade load) for approximately five minutes. Stop the engine and add fuel to fill the fuel tank to its nominal capacity. Soak the evaporative emission control system at 30 ± 10 °C for not less than 140 days. <u>Measure and record the temperature at least every five minutes. Take steps to ensure that the fuel remains at nominal capacity throughout preconditioning.</u> As an alternative, accelerated preconditioning of the evaporative emission control system can be accomplished by soaking at an elevated temperature. Accelerated preconditioning shall not be less</p>	<p>The proposed change introduces "fresh fuel" for the first time. To avoid subjectivity, use "test fuel" as used in other parts of this TP and TP-901. Hot soak and diurnal emissions to judge accelerated preconditioning – Since hot soak emission is typically much less and not very feasible to judge evaporative system saturation, comparison and judgement of accelerated preconditioning should be based on "hot soak + diurnal", not individual comparison of each hot soak and diurnal. The drain and refuel performed 15 days before the end of preconditioning is not representative of real world usage. An operator would likely top off the fuel tank before every use, which is likely to occur before 125 or 55 days. Furthermore, the D/F before the end of preconditioning doesn't benefit accelerated preconditioning as a D/F</p>	<p>5.1 Evaporative Emission Control System Preconditioning The purpose of the preconditioning period is to introduce gasoline into the evaporative emission control system and precondition all evaporative emission control system components. Precondition the evaporative emission control system by filling the fuel tank to its nominal capacity with fresh test fuel as specified in Section 6 of this procedure. After filling the tank, start the engine and allow it to run at maximum governed speed (unloaded or blade load) for approximately five minutes. Stop the engine and add fuel to fill the fuel tank to its nominal capacity. Soak the evaporative emission control system at 30 ± 10 °C for not less than 140 days. <u>Measure and record the temperature at least every five minutes. Take steps to ensure that the fuel remains at nominal capacity throughout preconditioning. Measure fuel loss of the fuel tank or system by weight and add fuel as needed to</u></p>	<p>This comment is identical to the comment in Agency Response Number 78 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses." Please see the agency response at Agency Response Number 78 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

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	<p>than 70 days. Data documenting that the hot soak and diurnal emissions will not increase with further preconditioning must be provided for tanks soaked less than 140 days as follows: perform the test sequence in sections 5.2 through 5.4 twice, separated by at least 15 days, and calculate hot soak and diurnal emissions as described in section 5.5 of this procedure. The hot soak and diurnal emissions measured in the second test sequence must be no higher than the hot soak and diurnal emissions measured in the first test sequence to demonstrate that the hot soak and diurnal emissions will not increase with further preconditioning. The fuel tank shall be filled to nominal capacity and the evaporative emission control system shall continue to be preconditioned at the elevated temperature between the test sequences. Record the preconditioning temperature on the test report. The period of slosh testing and ultraviolet radiation exposure may be considered part of the preconditioning period provided the ambient temperature remains within the specified temperature range and each fuel tank is at least 50 percent full; fuel may be added or replaced as needed to conduct the specified durability tests. Record the fuel fill amount and dates on the test report if fuel is added or replaced. Drain the fuel tank and refill with fresh fuel to nominal capacity 15 days prior to ending preconditioning. The fuel tank must not be empty for more than 15 minutes. Record the date and time the fuel tank is drained and refilled with fresh fuel, and record the fuel fill amount on the test report.</p>	<p>must be performed after the preconditioning as specified in section 5.2 of TP-902</p>	<p>maintain nominal capacity at least every 10 days of preconditioning. As an alternative, accelerated preconditioning of the evaporative emission control system can be accomplished by soaking at an elevated temperature. Accelerated preconditioning shall not be less than 70 days. Data documenting that the hot soak and diurnal emissions will not increase with further preconditioning must be provided for tanks soaked less than 140 days as follows: perform the test sequence in sections 5.2 through 5.4 twice, separated by at least 15 days, and calculate hot soak and diurnal emissions as described in section 5.5 of this procedure. The hot soak and diurnal emissions measured in the second test sequence must be no higher than the hot soak and diurnal emissions measured in the first test sequence to demonstrate that the hot soak and diurnal emissions will not increase with further preconditioning. The fuel tank shall be filled to nominal capacity and the evaporative emission control system shall continue to be preconditioned at the elevated temperature between the test sequences. Record the preconditioning temperature on the test report. The period of slosh testing and ultraviolet radiation exposure may be considered part of the preconditioning period provided the ambient temperature remains within the specified temperature range and each fuel tank is at least 50 percent full; fuel may be added or replaced as needed to conduct the specified durability tests. Record the fuel fill amount and dates on the test report if fuel is added or replaced. The fuel tank must not be empty for more than 15 minutes. Record the date and time the fuel tank is drained and refilled with fresh test fuel, and record the fuel fill amount on the test report.</p>	
B-79	<p>5.2 Refueling and Hot Soak Following the preconditioning period, drain the fuel tank and refill to 50 percent of its nominal capacity with test fuel. The fuel tank must not be empty for more than 15 minutes. Record the date and time the fuel tank is drained and refilled with fresh fuel, and record the fuel fill</p>	<p>Canister mass measurement – Repeated canister removal and reinstallation in the limited access space may damage the hoses of evaporative control system which can make the evaporative emission not to be representative. Therefore, canister</p>	<p>Following the preconditioning period, drain the fuel tank and refill to 50 percent of its nominal capacity with test fuel. The fuel tank must not be empty for more than 15 minutes. Record the date and time the fuel tank is drained and refilled with fresh fuel, and record the fuel fill amount on the</p>	<p>This comment is identical to the comment in Agency Response Number 79 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB</p>

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	<p>amount on the test report. For evaporative emission control systems that use a <u>an actively-purged carbon canister</u>, the canister must be purged following the preconditioning period but prior to initiating the hot soak test. <u>Prior to purging the carbon canister, measure and record the carbon canister mass on the test report.</u> Purging for an actively-purged carbon canister consists of drawing 400 bed volumes of nitrogen or dry air through the canister at the canister manufacturer's recommended purge rate. <u>For evaporative emission control systems that use a passively-purged carbon canister, purging occurs due to vacuum created in the fuel tank when the engine is run in this section 5.2 and during forced cooling in section 5.3 of this procedure. Measure and record the carbon canister mass on the test report after purging.</u></p>	<p>removal and installation should be limited as less as possible. Propose to accept the following. - Partial modifications of non evaporative-related frame components to make canister removal and installation easier - Installation of quick connectors between canister and hoses without modification of original hoses The language could mislead as even passive purge canisters are required to be weighed. A tolerance of 400 bed volumes should be defined. Not only purge volume but purge duration and minimum flow rate of nitrogen or dry air should be defined. This is inconsistent with Section 6.2 of Attachment 1 to TP-902 which allows nitrogen or dry air to be used to purge the canister. A 15 minute run is insufficient to drain the tank and simulate actual usage for a passively purged canister. The purge for a passively- purged canister should be the run time equal to the nominal fuel tank volume.</p>	<p>test report. For evaporative emission control systems that use a an actively-purged carbon canister, the canister must be purged following the preconditioning period but prior to initiating the hot soak test. Prior to purging the carbon canister, measure and record the carbon canister mass on the test report. Purging for an actively-purged carbon canister consists of drawing 400 bed volumes of nitrogen or dry air through the canister at the canister manufacturer's recommended purge rate. For evaporative emission control systems that use a passively-purged carbon canister, purging occurs due to vacuum created in the fuel tank when the engine is run in this section 5.2 and during forced cooling in section 5.3 of this procedure. Measure and record the actively-purged carbon canister mass on the test report after purging, this requirement is waived for passively-purged carbon canisters.</p>	<p>Responses. Please see the agency response at Agency Response Number 79 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-80	<p><u>Perform a tilt sequence by rotating the test unit in three of the following four directions with respect to the plane on which the test unit sits and leaving the test unit in each position for 5 minutes: 90° forward, 90° backwards, 90° to the left, and 90° to the right. It is not required to tilt the engine in the direction which results in the air inlet of the engine pointing downward. This tilt sequence may be omitted for a test unit with displacement greater than or equal to 225 cc if engines from the evaporative family will not be used in equipment that is designed to be tilted during operation, transport, maintenance, or storage. Any fuel leaking from any part of the engine or evaporative emission control system denotes a failure and shall be reported on the test report. Measure and record the carbon canister mass on the test report after performing this tilt sequence.</u></p>	<p>Industry does not believe the tilt test is reflective of normal operation, including service and maintenance. In fact, in many cases manufacturers have maximum product angles, which are not consistent with these procedures. The procedures need to be removed. CARB may already request diagrams to evaluate fuel levels and evaporative system designs.</p>	<p>Remove this section. CARB needs to equally require engineering drawings be provided from manufacturers that show nominal fuel tank level, and at the manufacuters maximum design angles in each of the four directions. This will more accurately demonstrate the system is designed to prevent fuel from entering vents or the carbon canister.</p>	<p>The concerns expressed in this comment are similar to those raised in Agency Response Number 80 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. This comment contains additional details about the engineering drawings which the commenter suggests be reviewed. Please see the agency response at Agency Response Number 80 in Attachment A for discussion of the substantive issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-81	<p>Operate the engine at its maximum governed speed for fifteen minutes. <u>If the engine runs out of fuel during the fifteen minute run, restart this</u></p>	<p>The process needs additional clarificaion regarding the engine processes which are necessary to</p>	<p>Passively-purged carbon canister run time is equal to the nominal fuel tank volume. Once the engine runs out of fuel the</p>	<p>The concerns expressed in this comment are identical to those raised in Agency Response Number 81 in Attachment A:</p>

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	<p>section 5.2 and fill the fuel tank to nominal capacity rather than 50 percent of nominal capacity. Immediately place the engine in the SHED enclosure preheated to 35 °C. <u>The enclosure shall be configured to provide an internal enclosure ambient temperature of 35 ± 5.6 °C for the first 5 minutes, and 35 ± 2.8 °C (35 ± 1.1 °C on average) for the remainder of the hot soak test. The hot soak enclosure doors shall be closed and sealed within 180 seconds of engine shutdown. Record the time elapsed between engine shutdown and the start of the hot soak on the test report.</u> Perform a one-hour hot soak at a constant 35 °C. <u>The one-hour hot soak may alternatively be performed at 40.6 °C. If the hot soak is performed at 40.6 °C, the enclosure shall be configured to provide an internal enclosure ambient temperature of 40.6 ± 5.6 °C for the first 5 minutes, and 40.6 ± 2.8 °C (40.6 ± 1.1 °C on average) for the remainder of the hot soak test. The hot soak enclosure doors shall be closed and sealed within 180 seconds of engine shutdown. Record the time elapsed between engine shutdown and the start of the hot soak on the test report.</u></p>	<p>represent actual in-use not to be included as a duration of 15-minute engine operation.</p> <ul style="list-style-type: none"> - The duration from engine start to reaching eventual maximum governed speed after resuming choke lever and verifying normal engine operation. - The duration after setting speed control lever to minimum speed to eventual engine stop after holding 5-10 seconds of low idling operation. <p>Consideration of the situation where the engine is unable to start should be clarified. Propose the following procedures. In the case of the engine does not start, the following actions can be taken.</p> <ul style="list-style-type: none"> - If the electric starter does not turn the engine enough, the battery can be replaced or a backup battery can be connected. - If repeated cranking are assumed to make the spark plug wet, the spark plug can be cleaned or replaced. - If the fuel in the carburetor chamber is suspected to be degraded, the fuel can be drained from carburetor chamber however the following hot soak and diurnal tests needs to be invalid. <p>Some products could not run for 15 min with a fuel tank filled to 50 percent of it's nominal capacity. This requires additional consideration for some applications if this procedure is required for handheld products. See comment above regarding multiple test temperatures.</p>	<p>engines is allowed to cool before refueling to nominal fuel tank volume. Once the fuel tank is refilled the engine is operated for 15 minutes at maximum governed speed.</p>	<p>OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that EMA omitted comments regarding OPEI's concerns related to the transport of machines to the SHED during testing. Please see the agency response at Agency Response Number 81 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-82	<p>5.4 24-Hour Diurnal Test Immediately after soaking for two hours at 18.3 °C, purge the enclosure to reduce the hydrocarbon concentration to background levels and perform a 24-hour diurnal test using the temperature profile shown in Table 5-1. <u>Measure and record the carbon canister mass after the diurnal test on the test report.</u></p>	<p>Repeated canister removal and reinstallation in the limited access space may damage the hoses of evaporative control system which can make the evaporative emission not to be representative.</p> <p>Therefore, canister weighing except before and after 400 bed-volume purge should be optional.</p> <p>EMA is unclear what is the purpose of recording the carbon canister mass.</p>		<p>This comment is identical to the comment in Agency Response Number 82 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 82 in Attachment A for discussion of the issues</p>

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		There is no pass / fail criteria associate with this.		raised in this comment. CARB made no changes based on this additional comment.
B-83	<p>7 Alternative Test Procedures<u>Alternative Test Procedures</u> Test procedures, other than specified above, such as the use of a mini-SHED to measure diurnal evaporative emissions, shall only be used if prior written approval is obtained from the CARB Executive Officer. In order to secure the CARB Executive Officer's approval of an alternative test procedure, the applicant is responsible for demonstrating to the CARB Executive Officer's satisfaction that the alternative test procedure is equivalent to this test procedure.</p>	Because of many qualitative requirements, especially enclosure requirements, it is hard to judge itself whether the test procedure meets TP-902 or needs to apply/approval of alternative procedure. Request to make the requirements quantitative. "Diurnal" in this section should be deleted or "hot soak" should be added.	7 Alternative Test Procedures Test procedures, other than specified above, such as the use of a mini-SHED to measure hot soak + diurnal evaporative emissions, shall only be used if prior written approval is obtained from the CARB Executive Officer. In order to secure the CARB Executive Officer's approval of an alternative test procedure, the applicant is responsible for demonstrating to the CARB Executive Officer's satisfaction that the alternative test procedure is equivalent to this test procedure.	This comment is identical to the comment in Agency Response Number 83 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 83 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-84	<p>Attachment 1 to TP-902 2. PRINCIPLE AND SUMMARY OF TEST PROCEDURE<u>Principle and Summary of Test Procedure</u> This test procedure is designed to provide consistent methods to evaluate the durability and working capacity of carbon canisters utilized on small off-road engines. Working capacity is a defining parameter expressing the mass of total organic material hydrocarbon equivalent that can be stored in the canister under controlled conditions. The canister's working capacity is established by repeated canister loading and purging. This procedure involves a cycle that includes a 400 bed volume purge, a 5 minute pause, and then loading the canister with butane mixed 50/50 by volume with air or nitrogen to a measured breakthrough.</p>	Since a purity of butane is not specified, propose as follows. Butane gas for canister loading should contain 95% or more n-butane. Tolerance of 50/50 needs to be defined.		This comment is identical to the comment in Agency Response Number 84 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 84 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-85	<p>5. EQUIPMENT CALIBRATION<u>Equipment Calibrations</u> Mass flow meters must undergo an annual multiple point calibration with a primary standard. A plot of the rate measured by the flow meter versus the true flow rate shall have a coefficient of determination, r^2 R^2, of 0.99 or greater. The balance shall be calibrated by an independent organization using National Institute of Standards and Technology (NIST) <u>Système International d'Unités (SI)</u>-traceable mass standards annually. The accuracy of the balance shall be checked using NIST SI-traceable mass standards prior to and following</p>	A canister working capacity determination test takes one day or so to complete all the cycles depending on the size of canister. Typically, electric balances have daily fluctuations caused by buoyancy so that TP-901 requires to weigh the same volume of reference tank in parallel to determine fuel tank permeation. In the case of working capacity measurement, since the volumes of canister and mass standard are different so that the impact of buoyancy is also different, 0.02 g is		This comment is identical to the comment in Agency Response Number 85 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 85 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.

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	mass measurements (25 measurements maximum). At minimum, the accuracy shall be checked at approximately 80% percent, 100% percent, and 120% percent of the canister's expected test mass. If the measured mass of any of the NIST-SI-traceable mass standards drifts more than ± 0.02 grams for a balance with 0.01 gram sensitivity or ± 0.002 grams for a balance with 0.001 gram sensitivity between initial and final measurements, the balance shall be re-calibrated or a different balance that is within specification shall be used. The NIST-SI-traceable mass standards shall be calibrated annually by an independent organization.	too severe to ensure. Also, such an accuracy is unnecessary for canister weight measurement. Also, accuracy requirement should not depend on sensitivity of balance. Therefore, propose to accept 0.05 g drift regardless of the mass to measure.		
B-86	6.2 Canister Purge The sequence starts by first purging the canister with 400 bed volumes of dry air or nitrogen in 30 minutes at laboratory conditions. Bed volume is the design volume of the carbon contained in the canister. The purge rate will therefore vary with canister size. Purge may be accomplished by drawing a vacuum at the tank or purge port, or by pushing air or N2 into the atmospheric vent.	The tolerances of 400 bed volume and 30 minutes should be defined.		This comment is identical to the comment in Agency Response Number 86 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 86 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-87	6.3 Pause Pause testing for approximately 5 minutes between both purge and load and also load and purge sequences.	The tolerance of 5 minutes should be defined.		This comment is identical to the comment in Agency Response Number 87 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 87 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-88	6.5 Canister Load Load the test canister with butane mixed 50/50 by volume with air or nitrogen until the specified breakthrough criterion has been met. The canister load is accomplished by flowing the butane mixture into the canister via the tank fitting. <u>The butane load rate must be within ± 10 percent of the specified load rate below.</u> The butane load rates and breakthrough criteria are determined by canister's bed volume. In order	The tolerance of 50/50 should be defined. "Within 10 percent" should be "within ± 10 percent". Tolerances for breakthrough and load rate must be defined.		This comment is identical to the comment in Agency Response Number 88 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 88 in Attachment A for

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	<p>to accommodate the expected wide range of canister bed volumes expected in small off-road engines, four ranges of canister loading and breakthrough criteria are defined: small (≤ 100 cc), medium (100 to ≤ 250 cc), large (249 to ≤ 550 cc and ≤ 550 cc), and extra large (> 550 cc). The load and breakthrough criteria are defined as follows:</p> <p>(* If the canister shows mass loss prior to the 2.0 grams breakthrough then an alternate lower breakthrough limit can be used.</p> <table border="1" data-bbox="241 516 646 641"> <thead> <tr> <th>Carbon Canister Bed Volume</th> <th>Small ≤ 100 cc</th> <th>Medium 100 to ≤ 250 cc</th> <th>Large 249 to ≤ 550 cc and ≤ 550 cc</th> <th>Extra Large > 550 cc</th> </tr> </thead> <tbody> <tr> <td>Butane Load Rate (grams C₄H₁₀ / hour)</td> <td>5.0</td> <td>10.0</td> <td>15.0</td> <td>15.0</td> </tr> <tr> <td>Breakthrough limit (grams)*</td> <td>2.0</td> <td>2.0</td> <td>2.0</td> <td>2.0</td> </tr> </tbody> </table>	Carbon Canister Bed Volume	Small ≤ 100 cc	Medium 100 to ≤ 250 cc	Large 249 to ≤ 550 cc and ≤ 550 cc	Extra Large > 550 cc	Butane Load Rate (grams C ₄ H ₁₀ / hour)	5.0	10.0	15.0	15.0	Breakthrough limit (grams)*	2.0	2.0	2.0	2.0			discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
Carbon Canister Bed Volume	Small ≤ 100 cc	Medium 100 to ≤ 250 cc	Large 249 to ≤ 550 cc and ≤ 550 cc	Extra Large > 550 cc															
Butane Load Rate (grams C ₄ H ₁₀ / hour)	5.0	10.0	15.0	15.0															
Breakthrough limit (grams)*	2.0	2.0	2.0	2.0															
B-89	<p>Appendix E (CP-902) Small Off Road Engine Regulations: Appendix E Proposed Amendments to Small Off-Road Engine Evaporative Emission Control System Certification Procedure, CP- 902, Certification Procedure for Evaporative Emission Control Systems on Small Off-Road Engines California Environmental Protection Agency Air Resources Board Small Off-Road Engine Evaporative Emission Control System Certification Procedure CP-902 Certification Procedure for Evaporative Emission Control Systems on Small Off-Road Engines With Displacement Greater Than 80 Cubic Centimeters Adopted: July 26, 2004 Amended: September 18, 2017 <u>Amended:</u> [insert amended date]</p>	As discussed in these comments, component based certification is needed for many products. As a result, CP-901 needs to be retained beyond 2023 for products certified by "design-based" method. CP-901 should be reviewed and updated accordingly.		This comment is identical to the comment in Agency Response Number 89 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here. Please see the agency response at Agency Response Number 89 in Attachment A for discussion of the other issues raised in this comment. CARB made no changes based on this additional comment.															
B-90	<p>1. GENERAL INFORMATION AND APPLICABILITY <u>General Information and Applicability</u> This document describes the procedure for evaluating and certifying evaporative emission control systems on small off- road engines > 80 cc or equipment that use small off-road engines > 80 cc. By definition, evaporative emission control systems are fuel system components that are designed to reduce evaporative and permeation emissions. Fuel system components may include fuel tanks, fuel lines and any or all associated fittings,</p>	As discussed in these comments, component based certification is needed for many products. As a result, CP-901 needs to be retained beyond 2023 for products certified by "design-based" method. CP-901 should be reviewed and updated accordingly.		This comment is identical to the comment in Agency Response Number 90 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here. Please see the agency response at Agency Response Number 90 in Attachment A for															

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	<p>mechanisms to control fuel tank venting, tethered fuel caps, and any other equipment, components, or technology necessary for the control of evaporative and permeation emissions.</p> <p>This Certification Procedure, CP-902, is proposed pursuant to section 43824 of the California Health and Safety Code (CH&SC) and describes the process required to certify evaporative emission control systems on small off-road engines (SORE) or equipment that use small off-road engines to evaporative emission standards. Small off-road engines are defined in title 13, California Code of Regulations (CCR), section 2401 et seq.</p>			<p>discussion of the other issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-91	<p>2. EVAPORATIVE EMISSION STANDARDS <u>Evaporative Emission Standards</u> The diurnal evaporative emission and design standards for small off-road engines with displacement greater than 80-cc are specified in title 13, Cal. Code Regs., section 2754.</p>	<p>As discussed in these comments, component based certification is needed for many products. As a result, CP-901 needs to be retained beyond 2023 for products certified by "design-based" method. CP-901 should be reviewed and updated accordingly.</p>		<p>This comment is identical to the comment in Agency Response Number 91 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here. Please see the agency response at Agency Response Number 91 in Attachment A for discussion of the other issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-92	<p>4. CERTIFICATION OVERVIEW<u>Certification Overview</u> 4.1 Summary For certification purposes, small off-road engines (SORE) are grouped into three <u>four</u> categories. The first category includes <u>all engines with displacement less than or equal to 80 cc</u>. The second <u>third</u> category includes all walk-behind mowers with displacements greater than 80 cc to less than 225 cc. The second <u>third</u> includes all other engines with displacements greater than 80 cc to less than 225 cc. The third <u>fourth</u> category includes engines with displacements greater than or equal to 225 cc. Executive Orders certifying the evaporative emission control system on engines or equipment are valid for only one model-year of production. New Executive Orders in each</p>	<p>As discussed in these comments, component based certification is needed for many products. As a result, CP-901 needs to be retained beyond 2023 for products certified by "design-based" method. CP-901 should be reviewed and updated accordingly.</p>		<p>This comment is identical to the comment in Agency Response Number 92 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here. Please see the agency response at Agency Response Number 92 in Attachment A for discussion of the other issues raised in this comment. CARB made no changes based on this additional comment.</p>

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	subsequent model year must be obtained for each evaporative family.			
B-93	<p>5. GENERAL INSTRUCTIONS – EVAPORATIVE EMISSION CONTROL SYSTEM CERTIFICATION General Instructions – Evaporative Emission Control System Certification</p> <p>These instructions provide guidance regarding the preparation, submission and revision of small off-road engine evaporative emission control system certification applications for 2007 and subsequent model year small off-road engines with displacement greater than 80 cc. Only information essential for certification is required in this format. Other information required by the test procedures (e.g., test equipment build records, test and maintenance records, etc.) must be maintained by the applicant and made available to the CARB within 30 days upon request. An application submitted in accordance with these instructions would enable an expedited review and approval by the CARB. This Section covers the following subject matter:</p> <ul style="list-style-type: none"> • Where To Submit Applications for Certification • Letter of Intent • Emission Label • Engineering Description of Evaporative Emission System • Emission Warranty • Test Procedures • Modified Test Procedures • Adjustable Parameters and Anti-Tampering Devices • Certification Test Fuels • Amendments to the Application • Running Changes and Field Fixes • Confidentiality • Summary of Certification Process • Submission of an engine or equipment unit 	As discussed in these comments, component based certification is needed for many products. As a result, CP-901 needs to be retained beyond 2023 for products certified by "design-based" method. CP-901 should be reviewed and updated accordingly.		This comment is identical to the comment in Agency Response Number 93 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that a reference to handheld products as a particular subject of concern present in the OPEI comment is not included here. Please see the agency response at Agency Response Number 93 in Attachment A for discussion of the other issues raised in this comment. CARB made no changes based on this additional comment.
B-94	<p>5.2 Letter of Intent</p> <p>An applicant shall submit a Letter of Intent (LOI) prior to the initial model year submission of the applicant's certification application(s) indicating the applicant's intent to seek evaporative emission control system certification. Such LOI shall list the evaporative families for which the applicant will apply for certification and the date of expected submission for each</p>	EMA recommends the CP outlines the information required in the LOI. This could be a template in an annex. This will ensure consistent information is requested by certification offices and submitted by manufacturers.		This comment is identical to the comment in Agency Response Number 94 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA."

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	application. An applicant's LOI for evaporative emission control systems may be combined with that required in California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off- Road Engines; Engine-Testing Procedures (Part 1054), adopted October 25, 2012, <u>and amended [insert amended date].</u>			Please see the agency response at Agency Response Number 94 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-95	5.11 Running Changes and Field-Fixes Any factory change to an evaporative family during the model-year production that could potentially affect the evaporative emissions must be approved by CARB via a running change request in a revised certification application. In addition, any post assembly line change that could potentially affect the evaporative emissions (e.g., at factory warehouses, distribution centers, dealers) must be approved by CARB via a field fix request in a revised certification application; a field fix request typically occurs after the model-year production has ended. Running changes and field fixes not approved by CARB will invalidate the certification of any affected evaporative family and subject the Holder to CARB enforcement actions. If the change affects an emission-related part or results in a new model in the evaporative family exhibiting the highest <u>hot soak plus</u> diurnal emission rate relative to the applicable <u>hot soak plus</u> diurnal emission standard, new test data and engineering evaluations shall be submitted in a revised certification application to demonstrate that the evaporative family will remain in compliance. If the change does not result in a new model in the evaporative family exhibiting the highest <u>hot soak plus</u> diurnal emission rate relative to the applicable <u>hot soak plus</u> diurnal emission standard, only the affected pages and information fields of the certification application need to be submitted.	To clarify that if the modification doesn't create a new worst case then no new full TP902 is required. To clarify that manufacture shall use Good Engineering Judgement for the worst case determination. Under current regulation, a modification which affects on emission related part but theoretically does not increase evaporative emissions could trigger new full TP902 testing. For example, •Replacing material of original part with better permeation material. •Increasing thickness of the material for better permeation (e.g., introducing hose with thicker barrier layer, or average thickness increases due to shape change with the same material) A strict certification assessments can impede or obstruct improvements of evaporative control system which can result better evaporative emissions.	Proposed text ----- Running Changes and Field-Fixes Any factory change to an evaporative family during the model-year production that could potentially affect the evaporative emissions must be approved by CARB via a running change request in a revised certification application. In addition, any post assembly line change that could potentially affect the evaporative emissions (e.g., at factory warehouses, distribution centers, dealers) must be approved by CARB via a field fix request in a revised certification application; a field fix request typically occurs after the model-year production has ended. Running changes and field fixes not approved by CARB will invalidate the certification of any affected evaporative family and subject the Holder to CARB enforcement actions. If the change affects an emission-related part or results in a new model in the evaporative family exhibiting the highest hot soak plus diurnal emission rate relative to the applicable hot soak plus diurnal emission standard, new test data and engineering evaluations shall be submitted in a revised certification application to demonstrate that the evaporative family will remain in compliance. If the change does not result in a new model in the evaporative family exhibiting the highest hot soak plus diurnal emission rate relative to the applicable hot soak plus diurnal emission standard, only the affected pages and information fields of the certification application need to be submitted. Manufacturer shall use good engineering judgement for determination of the worst case. For example, a component or material-based permeation	This comment is identical to the comment in Agency Response Number 95 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 95 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.

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			evaluation shall be used if applicable: -----	
B-96	<p>6. APPLICATION FORMAT INSTRUCTIONS <u>Application Format Instructions</u> An application for certification shall contain the following information:</p> <ul style="list-style-type: none"> • Application type (e.g., new, running change) • Model year • Full corporate name of the applicant • U.S. EPA-assigned manufacturer code • Engine family name • Evaporative family name • Applicant contact information <ul style="list-style-type: none"> - Name - Title - Company Name - Address - Phone Number - Fax Number - Email Address • Production plant contact information <ul style="list-style-type: none"> - Name - Title - Company Name - Address - Phone Number - Fax Number - Email Address 	<p>EMA notes the following concerns:</p> <ol style="list-style-type: none"> 1) Section 6 of the corresponding application template should be modified to include a fuel cap description number field 2) Section 3 of the corresponding application template should be modified to include fuel cap and tether approval number 3) Section 6 of the CP does not include the letter of intent 4) Section 6 of the CP does not provide details on what data is required to be submitted (data currently requested) from TP902 5) The "model summary table" of the corresponding application for >80cc does not include outside diameter of fuel line (with tolerance) 6) Are Fax numbers still relevant (also applicable to CP-901 if retained per EMA request) 	<p>Add the following bullets to application requirements:</p> <ul style="list-style-type: none"> - Description of fuel cap including a design diagram - Letter of Intent - Outside diameter of fuel line <p>Add appendix after following the TP-902 test procedures for:</p> <p>A) Cap/tether approval requirements</p> <ul style="list-style-type: none"> - Engineering drawings of cap, tether, and tank(s) - Evaporative family used in - Exhaust family(s) - Engine model(s) - Fuel cap part number - Fuel cap tether part number - Fuel tank(s) part number <p>Add appendix after following the TP-902 test procedures for:</p> <p>B) Running loss approval requirements</p> <ul style="list-style-type: none"> - Running loss test data and results - carbon canister part number - Carbon cap volume (cc) - Weight of carbon in cap (g) - Activated carbon type and brand - Trap canister working capacity (g) - Evaporative family - Exhaust family(s) - Engine model(s) - Fuel tanks(s) - Nominal fuel tank volume (L) - Total fuel tank volume (L) - Description of worst case criteria 	<p>This comment is identical to the comment in Agency Response Number 96 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 96 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-97	<ul style="list-style-type: none"> • Projected model year production volume in California • Projected model year production volume in U.S. • Proof the applicant has met the bond requirements of title 13, Cal. Code Regs., section 2774 • Date of expected introduction into California commerce • All results from all emissions-related tests performed on the units tested for certification, including test results from invalid tests or from any other tests, whether or not they were 	<p>EMA is concerned with the scope of invalid or other tests in this language. EMA believes the requirement is limited to certification tests on certification units.</p>	<ul style="list-style-type: none"> • All emissions certification tests performed on production intent certification units in accordance with Section 2750 and TP-901, including test results from invalid Section 2750 and TP-901 certification tests on production intent units. 	<p>This comment is identical to the comment in Agency Response Number 97 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 97 in Attachment A for discussion of the issues raised in this comment. CARB made no</p>

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	<p>conducted according to TP-901, TP-902, or SAE J1737 (Stabilized May 2013), SAE J30, SAE J1527, or SAE J2996. The Executive Officer may require an applicant to send other information to confirm that testing according to TP-901, TP-902, or SAE J1737 (Stabilized May 2013), SAE J30, SAE J1527, or SAE J2996, as applicable, was valid.</p> <ul style="list-style-type: none"> • Description of any special test equipment • List of equipment types in the evaporative family • List of equipment brands using engines from the evaporative family, if known • Description of each engine and equipment model in the evaporative family <ul style="list-style-type: none"> - Model number - Fuel cap information - Model number - Description of fuel tank tether - Description of indication of establishment of vapor seal - Innovative Product approval, if applicable 			changes based on this additional comment.
B-98	<ul style="list-style-type: none"> - Description of each fuel tank model in the evaporative family - Model number - Total capacity (L) - Internal surface area (m2) - <u>Tank materials, including pigments, plasticizers, UV inhibitors, or other additives that are expected to affect control of emissions</u> - <u>Gasket material</u> - <u>Production method</u> - <u>Permeation barrier</u> - <u>Engineering drawings (may be simplified)</u> ----- Executive Order number, if applicable, or the following: Tank materials including pigments, plasticizers, UV inhibitors, or other additives that are expected to affect control of emissions ----- Gasket material ----- Production method ----- Permeation barrier ----- Engineering drawings (may be simplified) 	EMA is concerned information including tank materials, pigments, plasticizers, etc.. may be proprietary and not available to OEMs.		This comment is substantially identical to the comment in Agency Response Number 98 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA.". Please see the agency response at Agency Response Number 98 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-99	<p>Appendix F 1054 Appendix F CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR NEW 2013 AND LATER SMALL OFF ROAD ENGINES <u>California Exhaust Emission Standards</u></p>	The format of the proposed part 1054 no longer provides direct REDLINE/UNDERLINE/** comparisons to EPA 1054 and presents challenges to understand		This comment is identical to the comment in Agency Response Number 99 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification

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	<p>and Test Procedures for New 2013 and Later Small Off-Road Engines. The following provisions of Part 1054, Title 40, Code of Federal Regulations, as proposed by the United States Environmental Protection Agency on the date listed, are adopted and incorporated herein by this reference for 2013 model year and later small off-road engines as the California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines, except as altered or replaced by the provisions set forth below:</p> <p>PART 1054—CONTROL OF EMISSION FROM NEW, SMALL NONROAD SPARK-IGNITION ENGINES AND EQUIPMENT Part 1054 – Control of Emission from New, Small Nonroad Spark-Ignition Engines and Equipment</p> <p>SOURCE: 75 FR 59259, November 8, 2010, unless otherwise noted Subpart A—Overview and Applicability</p>	<p>how and where CARB Part 1054 differs.</p>		<p>Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 99 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-100	<p>§ 1054.107 What is the useful life period for meeting exhaust emission standards?</p> <p>This section describes an engine family's useful life, which is the period during which engines are required to comply with all emission standards that apply. The useful life period is five years or a number of hours of operation, whichever comes first, as described in this section.</p> <p>(a) (1) The For model years 2013 through 2023, the useful life period for exhaust requirements is the number of engine operating hours from Title 13, California Code of Regulations, Chapter 9, Article 1, Section 2404 that most closely matches the expected median in-use life of your engines. The median in-use life of your engine is the shorter of the following values:</p> <p>(i) The median in-use life of equipment into which the engine is expected to be installed.</p> <p>(ii) The median in-use life of the engine without being scrapped or rebuilt.</p> <p>(2) For model year 2024 and later engines, the useful life period for exhaust requirements is specified in the table in Title 13, California Code of Regulations, section 2403(b)(1).</p> <p>(3) You may select a longer useful life than that specified in paragraph (a)(1) or (a)(2) of this section as applicable in 100- hour increments not to exceed 3,000 hours for Class I, III, IV, and V engines, or 5,000 hours for Class II engines.</p>	<p>The effective timing of these the change to delete "five years" is unclear here, and throughout the RO, TP and CPs. It seems five years is needed as the reasonable limit to determine the useful life category for lower-use engines, which are optionally through 2023. This implies this change would be affective from 2024 with the Proposed Rule removal of lower EDPs.</p> <p>Section (a) (3) : The intent of this section is unclear - A useful life longer than that specified in paragraph (a)(1) or (a)(2) of this section for class IV and V engines, applicalbe from 2024, would be irrelevant because 0.00 g/kW-hrs for for model year 2024 and later engines. If engines are permitted beyond 2023, as alternatives may permit based on EMA comments, this section could be applicable. Finally, it is unclear if EPA would permit a harmonized label, or even separate labels with differnt EDPs.</p>		<p>This comment is identical to the comment in Agency Response Number 100 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 100 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

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	<p><u>Engine classes are defined in Title 13, California Code of Regulations, section 2403. For engine families generating emission credits, you may do this only with our approval.</u></p>			
B-101	<p>§ 1054.110 What evaporative emission standards must my handheld equipment meet? All equipment must meet the evaporative emission requirements as specified in Title 13, California Code of Regulations, Chapter 15, Article 1. The evaporative emission requirements apply for handheld equipment over a useful life of five years.</p>	<p>The "Useful Life" is defined in 1054.107 as the number of hours, but as five years here. We recongize one is exhaust and one is evap, but separate definitions of the same term in the same document is confusing. Should this be harmonized with 1054.107?</p>		<p>This comment is identical to the comment in Agency Response Number 101 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 101 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-102	<p>§ 1054.112 What evaporative emission standards must my nonhandheld equipment meet? All equipment must meet the evaporative emission requirements as specified in Title 13, California Code of Regulations, Chapter 15, Article 1. The evaporative emission requirements apply for nonhandheld equipment over a useful life of five years.</p>	<p>The "Useful Life" is defined in 1054.107 as the number of hours, but as five years here. We recongize one is exhaust and one is evap, but separate definitions of the same term in the same document is confusing. Should this be harmonized with 1054.107?</p>		<p>This comment is identical to the comment in Agency Response Number 102 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 102 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-103	<p>§ 1054.115 What other requirements apply? The following requirements apply with respect to engines that are required to meet the emission standards of this part: (a) Crankcase emissions. Crankcase emissions may not be discharged directly into the ambient atmosphere from any engine throughout its useful life, except as follows: (1) Snowthrower engines may discharge crankcase emissions to the ambient atmosphere if the emissions are added to the exhaust emissions (either physically or mathematically) during all emission testing. If you take advantage of this exception, you must do the following things: (i) Manufacture the engines so that all crankcase emissions can be routed into the applicable sampling systems specified in 40 CFR part <u>Part 1065</u>. (ii) Account for deterioration in crankcase</p>	<p>The effective timing of these the change is unclcar here, and throughout the RO, TP and CPs. Making the proposed change may require a redesign of adjustable parameter controls if this will be enforced from 2022. Further, for products that will have zero limits from 2024 may require redesign only to use exhaust emissions credits if this is applicable from 2024. EMA does not believe there is any significant issue or benefit based on the potential cost to redesign for just one or 2 years and limited products. Products for which limits are zero from 2024, if the Proposed Rule is adopted, should be exempt. The proposed rule implies any tool may be used to evaluate if an</p>		<p>This comment is identical to the comment in Agency Response Number 103 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 103 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

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	<p>emissions when determining exhaust deterioration factors.</p> <p>(2) For purposes of this paragraph (a), crankcase emissions that are routed to the exhaust upstream of exhaust aftertreatment during all operation are not considered to be discharged directly into the ambient atmosphere.</p> <p>(b) Adjustable parameters. Engines that have adjustable parameters must meet all the requirements of this part for any adjustment in the physically adjustable range. An operating parameter is not considered adjustable if you permanently seal it or if it is not normally accessible using ordinary tools. <u>Operating parameters that can be adjusted using tools are considered adjustable</u>. We may require that you set adjustable parameters to any specification within the adjustable ranges during any testing including certification testing, production-line testing, in-use testing, or new engine compliance testing.</p>	<p>operating parameter is adjustable. Consideration needs to be given for use of tools that may break or damage the unit in anyway that may impact performance. Additionally, cost needs to be considered - It is not reasonable to assume most users would purchase expensive tools which serve limited or special applications if cost of those tools are a significant portion of the unit cost.</p> <p>Section (b) Adjustable parameters: From MY 2024 all engines applied with carburetors using special screw heads needs to be changes to limiter cap systems .</p> <p>How may manufacturer / industry avoid such a design change for this limited period until all emission credits has been used up?</p>		
B-104	<p>§ 1054.125 What maintenance instructions must I give to buyers?</p> <p>Give the ultimate purchaser of each new engine written instructions for properly maintaining and using the engine, including the emission control system as described in this section. The maintenance instructions also apply to service accumulation on your emission-data engines as described in §1054.245 and in 40 CFR part Part 1065. Note that for engines with a displacement of less than or equal to 80 cc you may perform maintenance on emission data engines during service accumulation provided that exhaust emission tests are performed before and after the maintenance is performed.</p> <p>(a) Critical emission-related maintenance. Critical emission-related maintenance includes any adjustment, cleaning, repair, or replacement of critical emission-related components. This may also include additional emission-related maintenance that you determine is critical if we approve it in advance. You may schedule critical emission-related maintenance on these components if you meet the following conditions:</p> <p>(1) You demonstrate that the maintenance is reasonably likely to be done at the recommended intervals on in-use engines. We will <u>may</u> accept scheduled maintenance as</p>	<p>If "service accumulation" is the engine period between new and the 0-hour test ("break in", "stabilization period"), EMA agrees with removal of this clause. However, if "service accumulation" is considered the time to achieve EDP, that EMA disagrees with this proposed change. Part 1054.125 allows maintenance as long as conditions can be satisfied, regardless of engine category. EMA is concerned with the proposed change of "will" to "may" in (a)(1) - It is unclear how CARB will make a determination, what CARB's "discretion" will be based-on, if a manufacturer provides survey data in accordance with (ii).</p>		<p>This comment is identical to the comment in Agency Response Number 104 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 104 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

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	<p>reasonably likely to occur if you satisfy any of the following conditions:</p> <p>(i) You present data showing that any lack of maintenance that increases emissions also unacceptably degrades the engine's performance.</p> <p>(ii) You present survey data showing that at least 80 percent of engines in the field get the maintenance you specify at the recommended intervals. If the survey data show that 60 to 80 percent of engines in the field get the maintenance you specify at the recommended intervals, you may ask us to consider additional factors such as the effect on performance and emissions. For example, we may allow you to schedule fuel-injector replacement as critical emission-related maintenance if you have survey data showing this is done at the recommended interval for 65 percent of engines and you demonstrate</p>			
B-105	<p>(b) Recommended additional maintenance. You may recommend any additional amount of maintenance on the components listed in paragraph (a) of this section, as long as you state clearly that these maintenance steps are not necessary to keep the emission-related warranty valid. If operators do the maintenance specified in paragraph (a) of this section, but not the recommended additional maintenance, this does not allow you to disqualify those engines from in-use testing or deny a warranty claim. Do not take these maintenance steps during service accumulation on your emission-data engines.</p> <p>(c) Special maintenance. You may specify more frequent maintenance to address problems related to special situations, such as atypical engine operation. You must clearly state that this additional maintenance is associated with the special situation you are addressing. <u>You may also address maintenance of low-use engines (such as recreational or stand-by engines) by specifying the maintenance interval in terms of calendar months or years in addition to your specifications in terms of engine operating hours.</u> We may disapprove your maintenance instructions if we determine that you have specified special maintenance steps to address engine operation that is not atypical, or that the maintenance is unlikely to occur in use.</p>	The term low-use engines is unclear. EMA looking for clarification of this term and applicability to this section.		This comment is identical to the comment in Agency Response Number 115 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 115 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.

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	<p>For example, this paragraph (c) does not allow you to design engines that require special maintenance for a certain type of expected operation. If we determine that certain maintenance items do not qualify as special maintenance under this paragraph (c), you may identify this as recommended additional maintenance under paragraph (b) of this section.</p>			
B-106	<p>(m) Identify the emission family's deterioration factors and describe how you developed them (see § 1054.245). Present any emission test data you used for this.</p> <p>(n) State that you operated your emission-data engines as described in the application (including the test procedures, test parameters, and test fuels) to show you meet the requirements of this part.</p> <p>(o) Present emission data to show that you meet exhaust emission standards, as follows:</p> <p>(1) Present emission data for hydrocarbons (such as THC, THCE, or NMHC, as applicable), NO_x, and CO on an emission- data engine to show your engines meet the applicable exhaust emission standards as specified in § 1054.101. Show emission figures before and after applying deterioration factors for each engine. Include test data from each applicable duty cycle specified in § 1054.505(b). If we specify more than one grade of any fuel type (for example, low- temperature and all-season gasoline), you need to submit test data only for one grade, unless the regulations of this part specify otherwise for your engine.</p> <p>(2) Note that §§ 1054.235 and 1054.245 allow you to submit an application in certain cases without new emission data.</p> <p>(p) Report test results as follows:</p> <p>(1) Report all test results involving measurement of pollutants for which emission standards apply. Include Indicate whether there are test results from invalid tests and <u>or</u> from any other tests <u>of the emission-data engine</u>, whether or not they were conducted according to the test procedures of subpart F of this part.</p>	Regarding (p)(1) See EMA comments to CP-902.		This comment is identical to the comment in Agency Response Number 106 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 106 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.
B-107	<p>your engines will comply with applicable emission standards throughout the useful life with the altitude kit installed according to your instructions. Describe any relevant testing, engineering analysis, or other information in</p>	See EMA comment to 2400 RO regarding definition of exhaust. The definition and the use of handheld here should be aligned with EPA.		This comment is identical to the comment in Agency Response Number 107 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation

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	<p>sufficient detail to support your statement. In addition, describe your plan for making information and parts available such that you would reasonably expect that altitude kits would be widely used in the high-altitude counties. For example, engine owners should have ready access to information describing when an altitude kit is needed and how to obtain this service. Similarly, parts and service information should be available to qualified service facilities in addition to authorized service centers if that is needed for owners to have such altitude kits installed locally.</p> <p><u>(s) If your engines are subject to any handheld engine provisions on the basis of meeting the definition of "handheld" in Title 13, California Code of Regulations, section 2401, describe your analysis showing that you meet the applicable criteria.</u> (t) State whether your certification is limited for certain engines. If this is the case, describe how you will prevent use of these engines in applications for which they are not certified. This applies for engines such as the following:</p> <p>(1) Wwintertime engines not certified to the specified HC+NO_x standard. (2) Two-stroke snowthrower engines using the provisions of § 1054.101(d).</p> <p>(u) Unconditionally certify that all the engines in the engine family comply with the requirements of this part, other referenced parts of the CFR as incorporated and modified herein, California's Health and Safety Code, and CCR Title 13, California Code of Regulations, §§ 2400-2409.</p>			<p>Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses, except that references to "OPEI" have been changed to "EMA." Please see the agency response at Agency Response Number 107 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>
B-108	<p>§ 1054.245 How do I determine deterioration factors from exhaust durability testing?</p> <p>(3) CARB may reject a DF if it has evidence that the DF is not appropriate for that engine family within 30 days of receipt from the manufacturer. The manufacturer must retain actual emission test data to support its choice of DF and furnish that data to the Executive Officer upon request. Manufacturers may request approval by the Executive Officer of alternative procedures for determining deterioration. Any submitted DF not rejected by ARB within 30 days shall be deemed to have been approved.</p> <p>(4) Calculated deterioration factors may cover families and model years in addition to the one</p>	<p>The DF is a critical, time-consuming function of the certification process, therefore manufacturers need to be advised of concerns related to DF as quickly as possible - DF evaluation should be a top priority when evaluating application. The Proposed Rule does not describe what evaluation CARB would need to confirm the DF is appropriate or why such a decision would take longer than 30 days. Maintain 30 day evaluation period for this critical factor.</p>	No change to current language.	<p>This comment is identical to the comment in Agency Response Number 108 in Attachment A: OPEI Annex A Comments to CARB's 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses. Please see the agency response at Agency Response Number 108 in Attachment A for discussion of the issues raised in this comment. CARB made no changes based on this additional comment.</p>

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	<p>upon which they were generated if the manufacturer submits a justification acceptable to the Executive Officer in advance of certification that the affected engine families can be reasonably expected to have similar emission deterioration characteristics.</p> <p>(5) Engine families that undergo running changes need not generate a new DF, if the manufacturer submits a justification acceptable to the Executive Officer concurrent with the running change that the affected engine families can be reasonably expected to have similar emission deterioration characteristics.</p>			