

# 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 attachment contains the table of OPEI comments presented in Annex A of OPEI's November 29, 2021, letter. The following table columns provide a verbatim transcription<sup>1</sup> of Annex A in its entirety: "CARBs Proposed Amendments as transcribed by OPEI," "OPEI Issue / Comment," and "OPEI Proposed Changed Text." The "Agency Response" table column provides CARB's response to each OPEI Annex A comment. The "Agency Response Number" table column was added for ease of reference. The originally-submitted OPEI letter with Annex A 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>.

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<sup>1</sup> All typographical errors are as stated in OPEI Annex A and have not been corrected here.

OPEI Annex A Comments to CARB’s 45-Day Proposed Amendments to Regulation Orders, Test Procedures, Certification Procedures and Part 1054 and CARB Responses

Agency Response Number	CARBs Proposed Amendments as transcribed by OPEI	OPEI Issue / Comment	OPEI Proposed Changed Text	Agency Response
1	<p><b>Small OffRoad Engine Regulations: Transition to Zero Emissions Appendix A § 2401. Definitions.</b></p> <p><del>(19)</del> <u>“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><del>(19)</del><u>(20)</u> “Engine family” is a subclass of a basic engine based on similar emission characteristics <u>or a subclass of zero-emission small off-road equipment based on similar performance characteristics.</u> The engine family is the grouping of engines <u>or zero-emission small off-road equipment</u> that is used for the purposes of certification.</p> <p><del>(20)</del><u>(21)</u> “Engine family name” means a multi-character alphanumeric sequence that represents certain specific and general information about an engine family.</p> <p><del>(21)</del><u>(22)</u> “Engine manufacturer” means the manufacturer granted certification.</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. OPEI recommends the definition is harmonized with EPA.</p> <p>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." OPEI is also concerned how or why an engine block would be assembled without a crankshaft. OPEI 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.</p> <p>OPEI 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</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>In response to this comment, CARB made a modification to § 2401(a)(19), which now reads, “Engine means an engine block with an installed crankshaft. Gas turbine engines are excluded from this definition. 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.),” as described in the March 2022 15-Day Notice published on March 30, 2022 and in section II.A.1.b of this FSOR. The modification largely harmonizes the definition of “engine” in the SORE regulations with the definition of “engine” in federal regulations.</p>

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		<p>this concern and or examples, and would like to discuss this concern further before adopting a definition that is not harmonized with EPA requirements.</p> <p>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?</p> <p>The scenario does not consider application of the emissions label. 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>		
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 <u>limit</u> level" or "FEL" means an emission <u>limit</u> 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>In response to this comment and comment numbers 18, 19, 20 and 21 of this table, CARB made modifications to §§ 2401(a)(7), 2401(a)(25), 2403(c)(4)(C), 2403(e)(1), 2404(l)(1), 2407(b)(4)(B), 2407(b)(4)(C), 2407(b)(5)(B)3., 2407(c)(2)(B)1., 2407(c)(3)(A)1., 2407(c)(4)(E)3., 2408(b)(5), 2408(f)(1), 2408(h)(1)(B), 2408.1(b)(4), 2408.1(h)(1)(B) and 2408.2(b)(4) to use the term "family emission limit," as described in the March 2022 15-Day Notice and in section II.A.1.a of this FSOR. The modifications will result in using the same term used in federal regulations. The modifications are intended to provide clarity.</p>

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3	(29) "Generator" means off-road equipment that <u>exclusively produces electric power.</u>	<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, 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)</p> <p>Therefore... Generator = non-stationary (mobile)</p> <p>By updating the "Generator"</p>	<p>"Generator" means off-road equipment that exclusively produces electric power. This excludes stationary generators.</p> <p>"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 recommends an alternative definition of "generator," along with a new definition of "stationary generator." The comment appears to suggest that the commenters have a clear understanding that stationary generators are not subject to the SORE regulations but that other readers might become confused. The comment states that changing the definition of "generator" could help prevent any potential confusion. Notably, the comment does not indicate that any confusion does exist. Indeed, the comment points out that the current and CARB-proposed definitions provide the information necessary to conclude that stationary generators are not subject to the SORE regulations, so it is not necessary to define "stationary generator" in the SORE regulations. The comment's suggested definition for "stationary generator" is not consistent with the current definition for "off-road equipment" and is therefore beyond the scope of the Proposed Amendments. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to the definition of off-road equipment. For these reasons, CARB made no changes based on this comment.</p>

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		definition it could help clear up any confusion.		
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.	<p>This comment suggests the possibility of certification issues or confusion and recommends a modification to the definition of "generator engine." As described on page 158 of the ISOR, it is necessary to define "generator engine" because the Proposed Amendments to § 2403 include exhaust emission standards for generator engines that differ from emission standards for engines installed in other types of small off-road equipment.</p> <p>In response to the statement, "General purpose small engines may be used in multiple applications, which may cause certification issue and confusion considering the proposed definition,": The definition of "basic engine" in § 2401 is "Basic engine" means an engine manufacturer's unique combination of engine displacement, number of cylinders, fuel system, emission control system and other engine and emission control system characteristics specified by the Executive Officer." The definition of "engine family" in § 2401 is "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. The engine family is the grouping of engines or zero emission small off road equipment that is used for the purposes of certification." From these definitions, it can be understood that a basic engine may include more than one subclass, each of which may be an engine family. Engines within an engine family may be installed in one equipment type, or they may be installed in more than one equipment type. The definition of "generator engine" in the Proposed Amendments allows a manufacturer to certify a subclass of a basic engine as generator engines in one engine family and another subclass of the same basic engine in another engine family to be used in other equipment types. While the term "certification issues" is vague, and the comment does not detail what confusion may occur, CARB disagrees with the assertion that the proposed definition of "generator engine" will cause confusion or inhibit certification of SORE.</p> <p>In response to the comment's suggestion to define "generator engine family" rather than "generator engine": It would be inappropriate to define a "family" as an "engine..." since an engine family may include more than one engine model. The commenter's proposed definition would not be as clear as the</p>

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5	<p><u>(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:</u></p> <p><u>(A) It is carried by the operator throughout the performance of the manufacturer's intended function.</u></p> <p><u>(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.</u></p>	<p>The handheld definition is not harmonized with EPA.</p>	<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 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</p>	<p>definition in the Proposed Amendments. Therefore, CARB made no changes based on this comment.</p> <p>In response to this comment, CARB made a modification to § 2401(a)(32), which now reads, "'Handheld" means relating to off-road equipment using an engine with displacement less than or equal to 80 cc," as described in the March 2022 15-Day Notice and in section II.A.1.c of this FSOR. The current California definition in Part 1054 similarly reads "Handheld means equipment that contains an engine with a displacement of less than 80cc." The modification removes criteria included in the ISOR Proposed Amendments beyond engine displacement for equipment to be considered handheld. The modification effectively harmonizes the definition of "handheld" in the SORE regulations with the definition of "handheld" in federal regulations since federal 40 CFR Part 1054 also specifies in section 1054.101(e), in part, "For purposes of the requirements of this part, engines at or below 80 cc are considered handheld engines, but may be installed in either handheld or nonhandheld equipment."</p>

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			<p>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>	
6 (a)	<b>§ 2403. Exhaust Emission Standards and Test Procedures – Small Off-Road Engines.</b>	See OPEI Comments 4, 5, 6 and 7.		Please refer to the Agency Responses in sections IV.A.2.4.2, IV.A.14.6, IV.A.2.6.2, and IV.A.35.1 for the responses to OPEI's comments 4, 5, 6 and 7.
6 (b)	<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 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:  <del>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.</del>  <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</u></p>	This is inconsistent with EPA labeling and will result in the need for separate labels for EPA and CARB with identical information. OPEI 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>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.</p>	CARB made no changes based on this comment. The Proposed Amendments change the regulations' formatting of text in all capital letters to mixed case to aid in making regulation documents accessible to everyone, including people with visual impairments and assistive technology users, as described on page 154 of the ISOR. The Proposed Amendments do not change the words of the statement required in § 2403(g)(2)(A)3. The Proposed Amendments do not prohibit the use of all capital letters to label an engine with the statement required in § 2403(g)(2)(A)3., nor do they require any specific letter case to be printed on labels. Therefore, manufacturers can continue to satisfy federal and California labelling requirements with a single emission control label.

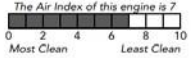
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	<u>Original Engine Was Not Certified Is a Violation of California Law Subject to Civil Penalty.</u>			
7	<p><b>§ 2404. Emission Control Labels and Consumer Information – 1995 and Later Small Off- Road Engines.</b></p> <p>(c) Engine Label Content and 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., 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 <del>block sans serif</del> letters and numerals (i.e., <del>sans-serif, upper-case characters</del>) that must be of a color that contrasts with the background of the label.</p>	<p>This is inconsistent with EPA labeling and will result in the need for separate labels for EPA and CARB with identical information. OPEI 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>CARB made no changes based on this comment. The Proposed Amendments do not change the required label language. The Proposed Amendments do not prohibit the use of all capital letters to label an engine with the language required in § 2404, nor do they require any specific letter case to be printed on labels. Therefore, manufacturers can continue to satisfy federal and California labelling requirements with a single emission control label. For this reason, no changes to the Proposed Amendments for § 2404(c)(3) are necessary.</p>
8	<p>(4) The engine label must contain the following information:</p> <p>(A) The label heading must read: <del>“IMPORTANT ENGINE INFORMATION”</del> <u>“Important Engine Information”</u>; or <del>“IMPORTANT EMISSION INFORMATION”</del> <u>“Important Emissions Information”</u>; or <del>“EMISSION CONTROL INFORMATION”</del> <u>“Emission Control Information”</u>.</p> <p>(B) The full corporate name or trademark of the engine manufacturer.</p>	<p>This is inconsistent with EPA labeling and will result in the need for separate labels for EPA and CARB with identical information. OPEI recognizes CARB desire to meet accessibility needs, however this change needs to be organized cooperatively with EPA and Industry in order to</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</p>	<p>This comment addresses the same concern as an earlier comment. Please refer to Agency Response 6(b) of this table.</p>



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	<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, <del>“THIS ENGINE IS CERTIFIED TO OPERATE ON (specify operating fuel(s)).”</del> <u>“This engine is certified to operate on (specify operating fuel(s)).”</u></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 <del>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;</del> and as specified in Section 1977, Title 13, California Code of Regulations.</p>	maintain a single 50-state emissoins label.	CERTIFIED TO OPERATE ON (specify operating fuel(s)).”	
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 <del>“NO OTHER ADJUSTMENTS NEEDED.”</del> <u>“No other adjustments needed.”</u> 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>	This is inconsistent with EPA labeling and will result in the need for separate labels for EPA and CARB with identical information. OPEI recognizes CARB desire to meet accessiblity needs, however this change needs to be organized cooperatively with EPA and Industry in order to maintain a single 50-state emissoins label.	(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.	This comment addresses the same concern as an earlier comment. Please refer to Agency Response 6(b) of this table.

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	<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, <del>"THIS ENGINE MEETS 2005 CALIFORNIA EXH EMISSION REGULATIONS FOR SMALL OFF ROAD ENGINES."</del> <u>"This engine meets 2021 California exh emission regulations for small off-road engines."</u> 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>			
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: <del>"REFER TO OWNER'S MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS."</del> "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>This is inconsistent with EPA labeling and will result in the need for separate labels for EPA and CARB with identical information. OPEI 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 addresses the same concern as an earlier comment. Please refer to Agency Response 6(b) of this table.</p>

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	<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 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</p>																															
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:</p> <p>Air Index = FEL x 3 / Standard, rounded to the nearest whole number in accordance with ASTM E 29-93a (May 1993), where</p> <p>FEL= the Family Emission Limit Level (or standard, if averaging is not being used) for the engine; and Standard = The HC+NOx 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="243 1068 676 1187"> <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 rowspan="2">Moderate</td> <td>50 hours (0-65 cc, inclusive)</td> </tr> <tr> <td>125 hours (greater than 65 cc)</td> </tr> <tr> <td rowspan="2">Intermediate</td> <td>125 hours (0-65 cc, inclusive)</td> </tr> <tr> <td>250 hours (greater than 65 cc)</td> </tr> <tr> <td rowspan="2">Extended</td> <td>300 hours (0-65 cc, inclusive)</td> </tr> <tr> <td>500 hours (greater than 65 cc)</td> </tr> </tbody> </table> <table border="1" data-bbox="243 1214 676 1349"> <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 rowspan="2">Moderate</td> <td>50 hours (0-80 cc, inclusive)</td> </tr> <tr> <td>125 hours (greater than 80 cc)</td> </tr> <tr> <td rowspan="2">Intermediate</td> <td>125 hours (0-80 cc, inclusive)</td> </tr> <tr> <td>250 hours (greater than 80 cc)</td> </tr> <tr> <td rowspan="2">Extended</td> <td>300 hours (0-80 cc, inclusive)</td> </tr> <tr> <td>500 hours (greater than 80 cc)</td> </tr> <tr> <td></td> <td>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</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)	<p>OPEI 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.</p>	<p>Strike the entirety of § 2404 (l).</p>	<p>This comment recommends the removal of current regulatory text that was not subject to the scope of the Proposed Amendments described in the 45-Day Notice published in October 2021. The rulemaking scope defined by the 45-Day Notice does not include making changes to § 2404(l)(4). Therefore, CARB made no changes based on this comment.</p>
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	<p>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>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"> <li><input type="checkbox"/> Moderate [or appropriate hours, or both]</li> <li><input checked="" type="checkbox"/> Intermediate [or appropriate hours, or both]</li> <li><input type="checkbox"/> Extended [or appropriate hours, or both]</li> </ul> <p>Check the owner's manual for further details.</p> <p>(B) The Executive Officer, upon request, may waive or modify the form of the Air Index information or may approve alternative forms, provided that the intent of providing Air Index information is met.</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</p>			

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	<p>equivalent under (A) and (B), then no earlier than at the beginning of the first full 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"> <li>1. included on the engine label;</li> <li>2. included as an additional engine label, designed and intended for removal only by the ultimate purchaser; or</li> <li>3. included as an engine or equipment hang-tag designed or intended for removal only by the ultimate purchaser;</li> </ol> <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 to engines that are installed in equipment that the</p>			

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12	<p><b>§ 2405. Defects Warranty Requirements for 1995 and Later Small Off-Road Engines.</b></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>OPEI 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>		<p>This comment requests clarification of the intent of proposed regulatory text described in the ISOR. The purpose and rationale for the change are described on pages 174-175 of the ISOR. The comment mentions a manual, whereas § 2405(e) requires a manufacturer to "furnish with each new engine written instructions for the maintenance and use of the engine by the owner," and § 2405(f) requires a manufacturer to submit the instructions required in 2405(e) with the engine manufacturer's application for engine certification. § 2405 does not require submission of a manual to CARB. The comment also asks a question regarding potential revision of a manual, "The manual may be revised for reasons unrelated to the emissions and maintenance information. What will need to be provided in these cases?" This question is not responsive to this rulemaking, and as noted earlier in this response, § 2405 does not require submission of a manual to CARB. CARB made no changes based on this comment.</p>
13	<p><b>§ 2406. Emission Control System Warranty Statement.</b></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><del>CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS</del> <u>California Emission Control Warranty Statement Your Warranty Rights and Obligations</u></p>	<p>This is inconsistent with EPA and will result in the need for separate warranties for EPA and CARB with identical information. OPEI 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</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 addresses the same concern as an earlier comment. Please refer to Agency Response 6(b) of this table.</p>

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	<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.</p> <p>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><b>MANUFACTURER'S WARRANTY COVERAGE:</b> <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>emissions warranty.</p>		
14	<p><b>OWNER'S WARRANTY RESPONSIBILITIES: <u>Owner's Warranty Responsibilities:</u></b></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 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,</p>	<p>This is inconsistent with EPA labeling and will result in the need for separate labels for EPA and CARB with identical information. OPEI 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>Additionally, inclusion of "but (manufacturer's name) cannot deny warranty solely for the lack of receipts or for your failure to ensure the</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 <del>(manufacturer's name) cannot deny warranty solely for the lack of receipts or for your failure to ensure the</del></p>	<p>The comment regarding labeling addresses the same concern as an earlier comment. Please refer to Agency Response 6(b) of this table.</p> <p>The commenter's suggestion to remove language from the owner's warranty responsibilities is beyond the scope of the Proposed Amendments and therefore CARB made no changes based on the comment. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to § 2406 to modify the text "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."</p> <p>In response to the statement, "inclusion of "but (manufacturer's name) cannot deny warranty solely for the lack of receipts or for your failure to ensure the</p>

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	<p>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  (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.  (2) The service center phone number must be staffed with at least one English speaking</p>	<p>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.</p> <p>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, <u>or unreasonable use (including failure to provide reasonable and necessary maintenance).</u></p>	<p><del>performance of all scheduled maintenance.</del></p>	<p>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,": CARB disagrees with the commenter's conclusion. 40 CFR 1054.120(d) states, "<b>Limited applicability</b>. You may deny warranty claims under this section if the operator caused the problem through improper maintenance or use, as described in 40 CFR 1068.115."</p> <p>40 CFR 1068.115 states, "Section 207(a) of the Clean Air Act (42 U.S.C. 7541(a)) requires certifying manufacturers to warrant to purchasers that their engines/equipment are designed, built, and equipped to conform at the time of sale to the applicable regulations for their full useful life, including a warranty that the engines/equipment are free from defects in materials and workmanship that would cause any engine/equipment to fail to conform to the applicable regulations during the specified warranty period. This section codifies the warranty requirements of section 207(a) without intending to limit these requirements.</p> <p>(a) As a certifying manufacturer, you may deny warranty claims only for failures that have been caused by the owner's or operator's improper maintenance or use, by accidents for which you have no responsibility, or by acts of God. For example, you would not need to honor warranty claims for failures that have been directly caused by the operator's abuse of the engine/equipment or the operator's use of the engine/equipment in a manner for which it was not designed and are not attributable to you in any way.</p> <p>(b) As a certifying manufacturer, you may not deny emission-related warranty claims based on any of the following:</p> <p>(1) Maintenance or other service you or your authorized facilities performed.</p> <p>(2) Engine/equipment repair work that an operator performed to correct an unsafe, emergency condition attributable to you as long as the operator tries to restore the engine/equipment to its proper configuration as soon as possible.</p> <p>(3) Any action or inaction by the operator unrelated to the warranty claim.</p> <p>(4) Maintenance that was performed more frequently</p>



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				<p>than you specify.</p> <p>(5) Anything that is your fault or responsibility.</p> <p>(6) The use of any fuel that is commonly available where the equipment operates unless your written maintenance instructions state that this fuel would harm the equipment's emission control system and operators can readily find the proper fuel."</p> <p>CARB disagrees that failure to ensure the performance of all scheduled maintenance would necessarily cause an engine to fail. For example, a leaking fuel tank may not be attributable to a user's failure to clean an air filter. As described on pages 248-249 of the ISOR, the change to section 2764 in the Proposed Amendments is necessary to prevent excess emissions resulting from improperly denied warranty claims. This comment further suggests the necessity of the change by implying that manufacturers may be denying claims without determining that a failure to ensure the performance of all scheduled maintenance is the cause of a failure of a warrantable part. Similarly, it would be improper for a manufacturer to deny for lack of receipts a warranty claim for an engine whose owner had ensured the performance of all scheduled maintenance but who had not retained the receipts or other records of maintenance.</p> <p>In response to the statement, "Finally, the requirement is inconsistent with 15 USC Chapter 50 - Consumer Product Warranties, Section 2304,": CARB disagrees with the commenter's conclusion. The burden of proof is on the warrantor to show that defect, malfunction, or failure of any warranted consumer product was caused by unreasonable use. Please refer also to Agency Response 53 of this table.</p>
15	<p><b>§ 2407. New Engine Compliance and Production Line Testing – New Small OffRoad Engine Selection, Evaluation, and Enforcement Action.</b></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 4001 Iowa Street, Riverside, CA 92507 the Haagen-Smit Laboratory, 9528 Telstar Avenue, El Monte,</p>	<p>Manufacturers demonstrate ongoing compliance with Production Line Testing process, calculated by the Cum-Sum method. This ongoing 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</p>	<p>Keep original test and process or align with EPA CFR 40 Part 1680 Subpart E - Selective Enforcement Auditing</p>	<p>This comment recommends retention of the current requirements for compliance testing pursuant to § 2407(a) or alignment with federal requirements for selective enforcement auditing. The comment includes statements about production line testing, which is discussed in §§ 2407(b)-(d) of the regulations, and claims the amendments to § 2407(a) represent an increase in stringency versus the requirements in §§ 2407(b)-(d). The comment states that a manufacturer may be unable to meet both state and federal test requirements for one family and claims that would be inconsistent with § 202(a) of the Clean Air Act.</p> <p>Amendments to § 2407(a) do not impact production line</p>

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	<p>California or where 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><del>(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:</del></p> <table border="1" data-bbox="235 841 676 958"> <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>0.51</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>xi = the projected emissions of one pollutant for the ith engine tested.  μ0 = the applicable calendar year emission standard for that pollutant.  n = the number of engines tested.</p> <p><del>(9)</del> (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</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	0.51	15	2.18	0.88	20	2.29	1.16	<p>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 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>		<p>testing requirements in §§ 2407(b)-(d). New engine compliance testing is initiated by CARB, not manufacturers, and is a distinct process that is not part of the production line testing process. The SORE regulations do not draw a connection between CARB's new engine compliance testing and federal selective enforcement auditing.</p> <p>The purpose and rationale for the changes to § 2407(a) are described on pages 176-182 of the ISOR. The Proposed Amendments to § 2407(a) are necessary to ensure expected emission reductions are achieved. CARB made no changes based on this comment.</p> <p>Please refer to the Agency Response in FSOR section IV.A.10 for discussion of the comment regarding inconsistency with § 202(a) of the Clean Air Act.</p>
	Decide "Fail"	Decide "Pass"																				
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	<p>have been tested, the Executive Officer will not make a "Fail" decision for the selected engine family or subgroup on the basis of these 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><del>(11)</del>(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>			
16	<p>(3) Engine Sample Selection *****</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</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><del>Information supporting the manufacturer's market analysis and any other information forming the basis of a manufacturer's determination of sales</del> The information must be provided to the Executive Officer within 30 days upon request.</p>	<p>This comment recommends alternate regulatory language. As described on pages 185-186 of the ISOR, accurate sales reports are important for verifying compliance with warranty, emission-related defect reporting, recall, and emission reduction credit requirements. Manufacturers are required by the current regulations to 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. The amended regulatory text merely requires a manufacturer to provide existing information to the Executive Officer within a reasonable amount of time, 30 days. CARB disagrees with the statement that the Proposed Amendments may cause confusion. The comment's suggested revision to the text would not be sufficiently specific or clear to meet the requirements of the APA. For these reasons, CARB made no changes based on this</p>

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	within 30 days upon request. *****			comment.
17	<p><b>§ 2408. Emission Reduction Credits – Certification Averaging, Banking, and</b></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<sub>x</sub> (or NMHC+NO<sub>x</sub>, as applicable), <u>CO</u>, and Particulate Matter emissions.</p> <p>(b) General provisions.</p> <p>(1) The certification averaging, banking, and trading provisions for HC+NO<sub>x</sub>, <u>CO</u>, 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<sub>x</sub>, and NMHC+NO<sub>x</sub>, <u>CO</u>, 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 recommends removal of proposed regulatory text included in the ISOR in the case where carbon monoxide (CO) emission standards were not changed. CARB disagrees with the statement that there is no need for CO in the certification averaging, banking, and trading (ABT) program. As described on pages 186-187 of the ISOR, allowing averaging, banking, and trading of emission reduction credits for CO is necessary to facilitate manufacturers' compliance with the more stringent emission standards included in the amendments. CARB made no changes based on this comment.
18	<p>(5) A manufacturer may certify engine families at Family Emission <del>Limits</del> <del>Levels</del> (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 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</p>	See FEL definition comment above.		This comment addresses the same concern as the earlier comment for §§ 2401(a)(7), 2401(a)(25), 2403(c)(4)(C), 2403(e)(1), 2404(l)(1), 2407(b)(4)(B), 2407(b)(4)(C), 2407(b)(5)(B)3., 2407(c)(2)(B)1., 2407(c)(3)(A)1., 2407(c)(4)(E)3., 2408(b)(5), 2408(f)(1), 2408(h)(1)(B), 2408.1(b)(4), 2408.1(h)(1)(B) and 2408.2(b)(4). Please refer to Agency Response 2 of this table.

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	<p>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>			
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> <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 credits as given in paragraph (f),</p> <p>(D) The resulting type and number of credits generated/required,</p>	See FEL definition comment above.		This comment addresses the same concern as the earlier comment for §§ 2401(a)(7), 2401(a)(25), 2403(c)(4)(C), 2403(e)(1), 2404(l)(1), 2407(b)(4)(B), 2407(b)(4)(C), 2407(b)(5)(B)3., 2407(c)(2)(B)1., 2407(c)(3)(A)1., 2407(c)(4)(E)3., 2408(b)(5), 2408(f)(1), 2408(h)(1)(B), 2408.1(b)(4), 2408.1(h)(1)(B) and 2408.2(b)(4). Please refer to Agency Response 2 of this table.

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	(E) How and where credit surpluses are dispersed, and (F) How and through what means credit deficits are met.			
20	<p><b>§ 2408.1 Emission Reduction Credits – Zero-Emission Equipment Credits Averaging, Banking, and Trading Provisions.</b></p> <p>(4) A manufacturer of zero-emission small off-road equipment that wishes to generate <del>zero-emission</del> <u>zero-emission</u> equipment credits must certify zero-emission equipment engine families at Family Emission <del>Limits</del> <u>Levels</u> (FEL) of zero grams per kilowatt-hour.</p> <p>(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.</p> <p>(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:</p> <ol style="list-style-type: none"> <li>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,</li> <li>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.</li> </ol> <p>(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 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).</p>	See FEL definition comment above.		This comment addresses the same concern as the earlier comment for §§ 2401(a)(7), 2401(a)(25), 2403(c)(4)(C), 2403(e)(1), 2404(l)(1), 2407(b)(4)(B), 2407(b)(4)(C), 2407(b)(5)(B)3., 2407(c)(2)(B)1., 2407(c)(3)(A)1., 2407(c)(4)(E)3., 2408(b)(5), 2408(f)(1), 2408(h)(1)(B), 2408.1(b)(4), 2408.1(h)(1)(B) and 2408.2(b)(4). Please refer to Agency Response 2 of this table.
21	(h) Maintenance of records. (1) The manufacturer of zero-emission small off-road equipment must establish, maintain, and retain the following adequately organized and	See FEL definition comment above.		This comment addresses the same concern as the earlier comment for §§ 2401(a)(7), 2401(a)(25), 2403(c)(4)(C), 2403(e)(1), 2404(l)(1), 2407(b)(4)(B), 2407(b)(4)(C), 2407(b)(5)(B)3., 2407(c)(2)(B)1., 2407(c)(3)(A)1.,

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	<p>indexed records for each engine family:            (A) CARB engine family identification code,            (B) Family Emission Limit Level (FEL),            (C) Maximum equivalent modal power for each configuration sold or an alternative approved by the Executive Officer,            (D) Projected sales volume for the model year,            (E) Records appropriate to establish the quantities of equipment that constitute eligible sales for each power rating for each FEL, and            (F) Records of standard battery package sales per equipment sales, if batteries were sold separately from the equipment.            (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:            (A) The engine family,            (B) The actual quarterly and cumulative applicable production/sales volume,            (C) The values required to calculate zero-emission equipment credits as given in subsection 2408.1(f),            (D) The resulting number of zero-emission equipment credits generated, and            (E) How and where zero-emission equipment credit surpluses are dispersed.</p>			<p>2407(c)(4)(E)3., 2408(b)(5), 2408(f)(1), 2408(h)(1)(B), 2408.1(b)(4), 2408.1(h)(1)(B) and 2408.2(b)(4). Please refer to Agency Response 2 of this table.</p>
22	<p><b>§ 2408.2 Emission Reduction Credits – Zero-Emission Generator Credits Averaging, Banking, and Trading Provisions.</b>  <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<sub>x</sub> (or NMHC+NO<sub>x</sub>, as applicable) emissions.</u>  <b>(b) General provisions.</b>  <u>(1) Zero-emission generator credits may be used to offset emissions for any engine family comprised of generator engines.</u>  <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>  <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</u></p>	<p>Remove 2026 sunset date to continue to incentivize transition through 2027.</p> <p>OPEI 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.</p>	<p>...produced in the 2022 through 2027 model years.</p>	<p>This comment recommends alternate regulatory language. As described on pages 199-206 of the ISOR, the model year constraint 2022 through 2026 is intended to incentivize manufacturers to accelerate their development and production of zero-emission generators before emission standards of zero in MY 2028. The suggestion to change the applicability of § 2408.2 to include zero-emission generators produced through model year 2027 would not achieve the intent to incentivize the acceleration of development and production of zero-emission generators. For this reason, CARB made no changes based on this comment.</p> <p>The comment includes a statement of interest in the initiation of new credit programs and a request for feedback on the process of initiation of the programs. These portions of the comment are not responsive to this rulemaking. CARB made no changes based on this comment. In response to the statement, “OPEI 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”: CARB will create a certification application form that manufacturers may use to apply for zero-emission</p>

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	<p>engine family in its calculation of credit usage for a given model year.</p> <p>(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.</p> <p>(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.</p> <p>(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</p>			generator credits when the Proposed Amendments have been approved by OAL and become effective.																				
23	<p><u>Table 1. Minimum Requirements for Zero-Emission Generator Credit Eligibility.</u></p> <table border="1" data-bbox="241 667 737 802"> <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<sub>x</sub></td> </tr> </tbody> </table> <table border="1" data-bbox="241 826 737 899"> <tbody> <tr> <td>Level 2 zero-emission generator</td> <td>500 hours</td> <td>Supply: 6 kWh over 8 hours Surge capability: 3,000 watts for 10 seconds</td> <td>Exhaust 2,200 g HC+NO<sub>x</sub></td> </tr> </tbody> </table> <table border="1" data-bbox="241 899 737 972"> <tbody> <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<sub>x</sub></td> </tr> </tbody> </table> <table border="1" data-bbox="241 972 737 1032"> <tbody> <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<sub>x</sub></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 <sub>x</sub>	Level 2 zero-emission generator	500 hours	Supply: 6 kWh over 8 hours Surge capability: 3,000 watts for 10 seconds	Exhaust 2,200 g HC+NO <sub>x</sub>	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 <sub>x</sub>	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 <sub>x</sub>	<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  SORE Credits = (Standard – FEL) x Sales x Power x EDP x Load Factor  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  Zero-emission generator credits = Credit eligibility as specified in Table 1 of this section x Sales  Zero-emission generator credits = 1,500 g HC+NO<sub>x</sub> * Sales  Zero-emission generator credits = 5640 g = 1,500 g HC+NO<sub>x</sub> * Sales  Sales = 3.7 units</p> <p>Roughly 3.7 to 1 ratio based on proposed credits. Credit Eligibility should be raised to a 1:1 ratio to encourage use of the ZE Generator Credit</p>	<p>Level 1 Credit Eligibility: Exhaust 5,000 g HC+NO<sub>x</sub>  Level 2 Credit Eligibility: Exhaust 15,000 g HC+NO<sub>x</sub>  Level 3 Credit Eligibility: Exhaust 20,000 g HC+NO<sub>x</sub>  Level 4 Credit Eligibility: Exhaust 30,000 g HC+NO<sub>x</sub></p>	<p>This comment suggests a modification to the exhaust emission credit eligibility for zero-emission generators, specifically for level 1 zero-emission generators. As described on pages 201-206 of the ISOR, the tiered credit eligibility approach is necessary to incentivize manufacturers to develop zero-emission generators with the greatest energy storage and highest power output. Therefore, CARB made no changes based on this comment. The commenter suggests a SORE generator with a 4-kilowatt engine (which might be used to power a generator with continuous output of 3,000 watts) is similar to a level 1 zero-emission generator. CARB does not agree with that suggestion. As discussed on pages 201-206 of the ISOR, a level 1 zero-emission generator must provide 2.5 kWh over 8 hours; this amounts to an average power delivery of 312.5 watts. That is significantly less than the continuous output that would be expected from a generator powered by a 4-kilowatt engine. CARB disagrees with the commenter's conclusion that credit eligibility for zero-emission generators should be increased based on the commenter's assumptions and calculations. As discussed on page 203 of the ISOR, "The credits generated by a zero-emission generator could offset either a portion or all of the emissions from a generator engine, depending on the emission level, power, emissions durability period, and displacement of the generator engine." The commenter's suggestion would result in greater credit eligibility, but the commenter does not provide supporting evidence to demonstrate that the credit eligibility in the Proposed Amendments is insufficient or inappropriate to support the SORE generator certification.</p>
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 <sub>x</sub>																					
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24	<p><b>§2750. Purpose.</b>            (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>	<p>program.</p> <p>OPEI 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. OPEI 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.</p> <p>Additionally, there is no evidence that handheld products cannot achieve today's limits based on component-level testing. The 2015 E10 validation study, the September 26, 2019 Workshop data (slides 30-31), and the SORE2020 final report (tables 20 and 25) confirm handheld products comply with regulations without the need for more expensive diurnal testing. In addition, new diurnal testing for handheld products would require additional SHED costs and compliance leadtimes that are not addressed in the Proposed Rule and would be very short term. There would be no opportunity to recover these investments based on the Proposed Rule.</p> <p>Finally, handheld products should be excluded from hot soak testing because the components suggested in the rationale, such as carbon canisters, are not applicable to handheld products.</p>	<p>No changes to limits and procedures included in current evaporative rules.</p>	<p>This comment proposes that CARB make no changes to the current SORE evaporative emission standards and certification procedures. The comment also states their beliefs regarding the effectiveness of design certification. As described on pages 29-30 of the ISOR, the Proposed Amendments establish new and more stringent emission standards and test procedures and require all SORE to use performance certification beginning with MY 2024. As described on pages 212-213 of the ISOR, performance certification is necessary to ensure engines meet the more stringent emission standards and support the effective inclusion of hot soak emissions in the emission standards. Statements of belief in this comment are related to previous amendments to the SORE regulations and compliance with current emission standards and are not responsive to this rulemaking. The Proposed Amendments' hot soak plus diurnal emission standards for model year 2024 and later for engines other than pressure washer engines with displacement greater than or equal to 225 cc and generator engines are zero. Design certification cannot be used to determine the amount of credits needed to offset hot soak plus diurnal emissions from engines because hot soak plus diurnal emissions are not determined when using design certification.</p> <p>The comment claims additional costs associated with compliance with the Proposed Amendments would exist for handheld products and are not accounted for in the Proposed Amendments. The comment does not provide an estimate of any such costs or make any statement regarding whether any such costs would be expected to be passed through to equipment purchasers or would be absorbed by manufacturers. CARB assumed that all available emission reduction credits would be used by manufacturers for generators in model years 2024 through 2027, as discussed on pages 55-57 of the ISOR. The economic analysis in the ISOR does not assume sales of SORE equipment using engines with displacement less than or equal to 80 cc other than generators would occur after model year 2023. As a result, the analysis does not assume an increase in purchase price for equipment purchasers due to any certification testing of equipment using engines with displacement less than or equal to 80 cc other than generators after model year 2023.</p> <p>The comment claims investments related to compliance with the Proposed Amendments could not be</p>

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				<p>recovered, but does not provide any additional information related to the claim. This portion of the comment is not responsive to this rulemaking and does not request a change. The economic analysis in the ISOR does not assume such costs would occur.</p> <p>The comment states that hot soak testing should not be required for handheld products because the rationale in the ISOR mentions carbon canisters. Hot soak testing must be performed to demonstrate compliance with the hot soak plus diurnal emission standards. The mention of carbon canisters in the rationale for the Proposed Amendments does not suggest that hot soak testing is not needed for engines with displacement less than or equal to 80 cc. Such engines do not use carbon canisters and do exhibit hot soak emissions. The necessity of including hot soak emissions in the evaporative emission standards is discussed on pages 31-35 and 223-225 of the ISOR.</p> <p>For these reasons, CARB made no changes in response to this comment.</p>
25	<p><b>§2751. Applicability.</b>  (c) This Article does not apply to:  (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>	<p>CARB has proposed to allow credit generation for compressed natural gas (CNG), propane, liquefied petroleum gas (LPG), or liquefied natural gas (LNG) engines.</p>	<p>OPEI does not object to this change, however this part must now be applicable to engines / equipment for these fuel types.</p>	<p>In response to this comment, CARB made a modification to § 2751(c)(1) to clarify that engines or equipment powered with CNG, propane, LPG, or LNG may be voluntarily certified and labeled pursuant to the evaporative emission regulations. This modification is intended to align with the Proposed Amendments to § 2754.1 that allow a manufacturer to voluntarily certify and label engines or equipment powered with CNG, propane, LPG, or LNG to earn evaporative emission credits.</p>
26	<p><b>§2752. Definitions.</b>  (a)(5) “CP-902” means Certification Procedure for Evaporative Emission Control Systems on <del>Small Off-Road Engines With Displacement Greater Than 80 Cubic Centimeters</del>, adopted July 26, 2004, and <del>last amended September 18, 2017</del> [insert amended date].</p>	<p>As discussed in these comments, component based certification is needed for many products, including handheld. 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>“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 <del>September 18, 2017</del> [insert amended date].</p>	<p>This comment addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.</p>
27	<p>(a)(22) “<del>Passively-Purged Carbon Canister</del>” means a <u>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></p>	<p>Passively-purged carbon canisters are also purged during engine operation</p>	<p>“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</p>	<p>In response to this comment, CARB made a modification to § 2752(a)(22) to remove the text “by normal diurnal temperature variation” from the definition of “passively-purged carbon canister,” as described in the March 2022 15-Day Notice and in section II.A.2.b of this FSOR. The modifications are intended to provide clarity.</p>

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28	(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 [insert amended date].	As discussed in these comments, component based certification is needed for many products, including handheld. 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.	engine is running.	This comment addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.
29	<p><b>§2753. Certification Requirements and Procedures.</b></p> <p>(a) Certification</p> <p>Small off-road engines or equipment that use small off-road engines subject to this Article must contain evaporative emission control 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,</p>	As discussed in these comments, component based certification is needed for many products, including handheld. 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 addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.

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	<p>as applicable. 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 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>			
30	<p>(b) Certification of Complete Systems for Engines or Equipment using engines with displacement greater than 80 cc through model year 2023.</p> <p>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>	As discussed in these comments, component based certification is needed for many products, including handheld beyond 2023.		This comment addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.
31	<p>(c) Certification of Complete Systems for Engines or Equipment using engines with displacement less than or equal to 80 cc through model year 2023. *****</p>	As discussed in these comments, component based certification is needed for many products, including handheld beyond 2023.		This comment addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.
32	<p>(d) Certification of Complete Systems for Engines or Equipment using small off-road engines for</p>	As discussed in these comments, component based		This comment addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this

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	<p>model year 2024 and subsequent model years.</p> <p><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>	<p>certification is needed for many products, including handheld beyond 2023 and this new section needs additional consideration.</p>		<p>table. CARB made no change in response to this comment.</p>
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>	<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.</p>		<p>This comment requests a change to the text in § 2753(e)(2) and implies the requirements in § 2753(e)(2) conflict with the requirements in CP 902 § 5.11. CARB disagrees with the implication that the requirements in § 2753(e)(2) conflict with the requirements in CP 902 § 5.11. This comment is beyond the scope of the Proposed Amendments and therefore CARB made no changes based on the comment. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to the current requirement in § 2753(e)(2) to obtain a new certification pursuant to the requirements in CP-902 when modifying a certified evaporative emission control system.</p> <p>According to § 2753(e)(2), modification of any certified evaporative emission control systems in any manner other than replacement of the nominal fuel lines with equivalent fuel lines invalidates the certification of the control system. When any evaporative emission control system's certification is invalidated due to an unapproved modification, a new certification is required per CP-902. CP-902 § 5.11 states, in part, "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</p>

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				<p>standard, only the affected pages and information fields of the certification application need to be submitted.”</p> <p>CARB disagrees with the statement, “CP-902 Sec. 5.11 accepts a document-only running change for modifications which do not override the worst case.” The commenters mischaracterize the requirements of CP-902 in their comment. The provision in CP-902 to submit “only the affected pages and information fields of the certification application” refers to pages of a certification application and does not indicate that testing may not be required. This provision to submit only certain pages may save paper or reduce electronic file size; it does not waive the requirement in CP-901 § 5.11 to submit new test data and engineering evaluations 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.</p>
34	<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 <del>using engines with displacement greater than 80 cc, as described in subsection (b) or (d) of this section, as applicable,</del> according to the following schedule:</p>	<p>As discussed in these comments, component based certification is needed for many products, including handheld beyond 2023.</p>		<p>This comment addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.</p>
35	<p><b>§2754. Diurnal and Hot Soak Plus Diurnal Emission and Design Standards.</b>  (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></p>	<p>OPEI appreciates the flexibility and clarification of the added text.</p>		<p>CARB agrees that that such flexibilities and clarification are important to the successful implementation of the program. CARB made no changes in response to this comment.</p>
36	<p>(a)(3) Table 2, below, specifies the hot soak plus <u>diurnal emission standards for small off-road engines on and after the model years indicated, except for generator engines.</u></p>	<p>As discussed in these comments, component based certification is needed for many products, including handheld beyond 2023.</p>		<p>This comment addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.</p>

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37	<p style="text-align: center;"><b>Table 2</b> <b>Hot Soak Plus Diurnal Emission Standards for Small Off-Road Engines, Except Generator Engines</b></p> <table border="1" data-bbox="247 285 768 407"> <thead> <tr> <th>Displacement Category</th> <th>Effective Date/Model Year</th> <th>Hot Soak Plus Diurnal Emission Standards<sup>1</sup> (g organic material hydrocarbon equivalent/test<sup>1</sup>)</th> </tr> </thead> <tbody> <tr> <td>≤ 80 cc</td> <td>2024</td> <td>0.00</td> </tr> <tr> <td>&gt; 80 cc - &lt; 225 cc Walk-Behind Mowers</td> <td>2024</td> <td>0.00</td> </tr> <tr> <td>&gt; 80 cc - &lt; 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><sup>1</sup>The 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 <sup>1</sup> (g organic material hydrocarbon equivalent/test <sup>1</sup> )	≤ 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	<p>See OPEI Comments 4, 5, 6 and 7 regarding technical feasibility of ZEE.</p> <p>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.</p> <p>There is no ABT program currently or proposed for handheld evaporative emissions. Therefore, regardless of exhaust ABT programs, a zero HC evaporative limit would prohibit sales of gas-powered handheld products from 2024. At a minimum, handheld product limits need to be retained to allow use of exhaust credits for products.</p> <p>OPEI 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>Please refer to the Agency Responses in sections IV.A.2.4.2, IV.A.14.6, IV.A.2.6.2, and IV.A.35.1 for the responses to OPEI's comments 4, 5, 6 and 7.</p> <p>This comment recommends an alternative to the Proposed Amendments. Specifically, it recommends no change to the current evaporative emission standards to allow use of evaporative emission credits. CARB disagrees with the assertion that evaporative emission credits could not be used under the Proposed Amendments. The use of credits is discussed on pages 55-57 of the ISOR. CARB disagrees that evaporative emission standards do not need to change.</p> <p>As described in detail in the ISOR (sections II.A.1 and III.A.3), current SORE regulations will not achieve emission reductions expected under the 2016 State SIP Strategy. The predicted growth in ZEE sales will be insufficient to maximize the reduction of SORE emissions without further regulation. SORE emissions are expected to increase as California's population grows and are forecast to be nearly twice those from light-duty passenger cars in 2031.</p> <p>CARB disagrees with the assertion that the Proposed Amendments do not include averaging, banking, and trading (ABT) provisions for handheld products. Amendments to § 2754.1, certification averaging, banking, and trading for evaporative emission credits, are discussed on pages 229-236 of the ISOR. All engines certified to the diurnal or hot soak plus diurnal emission standards specified in § 2754(a) may participate in the ABT program for evaporative emissions.</p> <p>CARB disagrees with the assertion that emission standards of zero would prohibit sales of gas-powered handheld products from 2024. The SORE regulations do not prohibit the sale of CARB-certified SORE, nor do they require retail sales of a certain model year to be completed by any deadline. For example, model year 2023 engines could be sold by a retailer after 2023.</p> <p>In response to the statement, "There is no ABT program currently ... for handheld evaporative emissions," CARB made modifications to §§ 2753(c), 2754(a)(1), and 2755 to allow an applicant to certify an evaporative emission control system for engines with displacement less than or equal to 80 cc to the diurnal emission standards in § 2754 in lieu of the permeation emission standards in § 2755 and follow the certification procedures outlined in CP-902, adopted July 26, 2004, and amended September 18, 2017.</p>
Displacement Category	Effective Date/Model Year	Hot Soak Plus Diurnal Emission Standards <sup>1</sup> (g organic material hydrocarbon equivalent/test <sup>1</sup> )																	
≤ 80 cc	2024	0.00																	
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≥ 225 cc	2024	0.00																	

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				<p>This modification is described in the March 2022 15-Day Notice and in section II.A.2.c of this FSOR. This modification is intended to allow manufacturers of engines with displacement less than or equal to 80 cc, which are often used in handheld equipment, to earn evaporative emission credits through MY 2023. Engines with displacement less than or equal to 80 cubic centimeters are not currently subject to the diurnal emission standards. This modification allows manufacturers to earn more evaporative emission credits than could occur under the Proposed Amendments in the ISOR.</p> <p>The comment of belief regarding previous amendments to the SORE regulations is similar to a previous comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.</p>																		
38	<p>(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.</p>	<p>As discussed in these comments, component based certification is needed for many products, including handheld beyond 2023.</p>		<p>This comment addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.</p>																		
39	<p>(a)(5) Table 3, below, specifies the hot soak plus diurnal emission standards for generator engines on and after the model years indicated.</p> <p style="text-align: center;"><b>Table 3</b> <b>Hot Soak Plus Diurnal Emission Standards for Generator Engines</b></p> <table border="1" data-bbox="239 964 789 1094"> <thead> <tr> <th>Displacement Category</th> <th>Effective Date Model Year</th> <th>Hot Soak Plus Diurnal Emission Standards<sup>1</sup> (g organic material hydrocarbon equivalent/test<sup>1</sup>)</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">&gt; 80 cc - &lt; 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><sup>1</sup> The 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.</p>	Displacement Category	Effective Date Model Year	Hot Soak Plus Diurnal Emission Standards <sup>1</sup> (g organic material hydrocarbon equivalent/test <sup>1</sup> )	≤ 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>OPEI believes the component based certification is effective and necessary for certain types of equipment and the non-integrated nature of the ORE industry and manufacturing process for many products. OPEI 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.</p> <p>OPEI 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</p>		<p>This comment addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.</p>
Displacement Category	Effective Date Model Year	Hot Soak Plus Diurnal Emission Standards <sup>1</sup> (g organic material hydrocarbon equivalent/test <sup>1</sup> )																				
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40	(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 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/OPEI B71.10-2013, which is incorporated by reference herein or the Fuel line connection tensile test in section 5.5 of ANSI/OPEI B71.10-2018.	<p>products.</p> <p>The regulation states "all" fuel lines; however, OPEI's standard exempts fuel lines as stated below:</p> <ul style="list-style-type: none"> <li>- Fuel lines of less than 50 mm (2 inches) in length and which are held in place by compression after assembly;</li> <li>- Fuel line assembly connections which cannot reasonably be exposed to a tensile pull in the end use."</li> </ul> <p>ANSI/OPEI 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>An exemption is needed for small off-road engines with displacement less than or equal to 80 cubic centimeters (cc) and/or fuel system requirements of the ANSI/OPEI B175 series (handheld products) should be referenced.</p>	<p>Revise as follows:</p> <p>Section 2754 (f) – "all fuel lines subjected by the section 4.4 of ANSI/OPEI B71.10-2013 or section 4.2.1 of ANSI/OPEI B71.10-2018"</p> <p>Section 2754 (g) – "all fuel lines subjected by the section 4.2.1 of ANSI/OPEI B71.10-2018"</p>	<p>In response to this comment, CARB made modifications to §§ 2754(f) and (g) to clarify the scope and applicability of ANSI/OPEI B71.10 2013 and ANSI/OPEI B71.10-2018, as described in the March 2022 15-Day Notice and in section II.A.2.e of this FSOR. The modifications are intended to provide clarity.</p>
41	(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/OPEI B71.10-2018.	<p>ANSI/OPEI 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</p>		<p>This comment addresses the same concern as the earlier comment for § 2754(f). Please refer to Agency Response 40 of this table.</p>

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		<p>include walk-behind and riding lawn-mowers, snow throwers, powered log-splitters, shredders/grinders and tillers.</p> <p>An exemption is needed for small off-road engines with displacement less than or equal to 80 cubic centimeters (cc) and/or fuel system requirements of the ANSI/OPEI B175 series (handheld products) should be referenced.</p>		
42	<p><u>(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.</u></p>	<p>As discussed in these comments, component based certification is needed for many products, including handheld beyond 2023.</p>		<p>This comment addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.</p>
43	<p><b>§2754.1. Certification Averaging, and Banking, and Trading.</b>  <b>(b)(3)</b> 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></p>	<p>2751 (c), needs to be adjusted to include optional applicability to gaseous product.</p>		<p>This comment addresses the same concern as the earlier comment for § 2751(c)(1). Please refer to Agency Response 25 of this table.</p>
44	<p><u>(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.</u></p>	<p>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,</p>	<p>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</u></p>	<p>This comment expresses confusion and recommends alternate regulatory language.</p> <p>As described on page 234 of the ISOR, removing the requirement to round to the nearest tenth of gram is intended to require rounding to the nearest hundredth of a gram since the emission standards for model year</p>

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	<p>EFELD = Applicable diurnal <u>or hot soak plus diurnal</u> emission standard – EMEL</p> <p>Credits = EFELD × Production Volume</p> <p>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</p> <p>Production Volume is as defined in section 2752(a)(24) (25).</p>	<p>rounding ABT evaporative credits to hundredths of a gram is insignificant.</p>	<p><u>digits as the published standard</u>. Consistent units with two significant digits are to be used throughout the equations.</p> <p>EFELD = Applicable diurnal or hot soak plus diurnal emission standard – EMEL</p> <p>Credits = EFELD × Production Volume</p> <p>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</p>	<p>2024 and later are specified to the hundredth of a gram. In response to this comment, CARB made a modification to § 2754.1(f)(1) to add “and round to the nearest hundredth of a gram,” as described in the March 2022 15-Day Notice and in section II.A.2.g of this FSOR, instead of the comment’s recommended alternative. This modification is intended to provide clarity.</p> <p>CARB disagrees with the comment that rounding to the nearest hundredth of a gram is insignificant. Rounding to the nearest hundredth of a gram will ensure credit calculations reflect the same number of decimal places as the emission standards for model year 2024 and subsequent model years. CARB made no other changes based on this comment.</p>																				
45	<p><b><u>§2754.3. Evaporative Emission Reduction Credits – Zero-Emission Generator Credits Averaging, Banking, and Trading Provisions.</u></b></p> <table border="1" data-bbox="239 894 705 1295"> <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-day<sup>1</sup> or 0.5 g organic material hydrocarbon equivalent-test<sup>1</sup></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-day<sup>1</sup> or 0.5 g organic material hydrocarbon equivalent-test<sup>1</sup></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-day<sup>1</sup> or 0.6 g organic material hydrocarbon equivalent-test<sup>1</sup></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-day<sup>1</sup> or 0.6 g organic material hydrocarbon equivalent-test<sup>1</sup></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 <sup>1</sup> or 0.5 g organic material hydrocarbon equivalent-test <sup>1</sup>	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 <sup>1</sup> or 0.5 g organic material hydrocarbon equivalent-test <sup>1</sup>	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 <sup>1</sup> or 0.6 g organic material hydrocarbon equivalent-test <sup>1</sup>	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 <sup>1</sup> or 0.6 g organic material hydrocarbon equivalent-test <sup>1</sup>	<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 suggests a modification to the evaporative emission credit eligibility for zero emission generators. As described on pages 238-240 of the ISOR, the Proposed Amendments add a generator-specific credit program to increase flexibility for manufacturers and reduce cost impacts of the proposed requirements to accelerate the deployment of ZEE. As described on pages 201-206 of the ISOR, the tiered credit eligibility approach is necessary to incentivize manufacturers to develop zero-emission generators with the greatest energy storage and highest power output. Therefore, CARB made no changes based on this comment.</p> <p>In response to the statement, “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,”: It is true that evaporative emission credit eligibility for level 1 and level 2 zero-emission generators are the same and evaporative emission credit eligibility for level 3 and level 4 zero-emission generators are the same. Exhaust emission credit eligibility increases with each level of zero-emission generator to incentivize manufacturers to develop zero-emission generators with the greatest energy storage and highest power output. The commenter’s suggestion is incorporated in the ISOR Proposed Amendments through the increase in exhaust emission credit</p>
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 <sup>1</sup> or 0.5 g organic material hydrocarbon equivalent-test <sup>1</sup>																					
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				<p>eligibility for each level of zero-emission generator.</p> <p>CARB disagrees with the commenter’s conclusion that credit eligibility for zero-emission generators should be increased based on the commenter’s assumptions and calculations. As discussed on page 239 of the ISOR, “The credits generated by a zero-emission generator could offset either a portion or all of the emissions from a generator engine, depending on the emission level and displacement of the generator engine.”</p>												
46	<p><b>§2755. Permeation Emission Standards.</b> Permeation Emission Standards. On or after the model year set out herein, <u>and through model year 2023</u>, fuel tanks and fuel lines used on equipment subject to this section must not exceed the following permeation rates:</p>	As discussed in these comments, component based certification is needed for many products, including handheld beyond 2023.		This comment addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.												
47	<p><b>§2756. Fuel Cap Performance Standard.</b> 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 <del>or equipment that use small off-road engines with displacements &gt; 80 cc</del> 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>	As discussed in these comments, component based certification is needed for many products, including handheld beyond 2023.		This comment addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.												
48	<p><u>(d) Fuel cap tether must meet the durability requirements in TP-902.</u></p> <table border="1" data-bbox="239 946 682 1143"> <thead> <tr> <th colspan="2" data-bbox="239 946 682 967">Engines Subject to the Fuel Cap Performance Standards</th> </tr> <tr> <th data-bbox="239 967 338 1008">Effective Date Model Year</th> <th data-bbox="338 967 682 1008">Applicability</th> </tr> </thead> <tbody> <tr> <td data-bbox="239 1008 338 1049">2007</td> <td data-bbox="338 1008 682 1049">Fuel caps for all small off-road engines &gt; 80 cc to &lt; 225 cc (must meet subsections (a) and (b) only)</td> </tr> <tr> <td data-bbox="239 1049 338 1089">2008</td> <td data-bbox="338 1049 682 1089">Fuel caps for all small off-road engines ≥ 225 cc (must meet subsections (a) and (b) only)</td> </tr> <tr> <td data-bbox="239 1089 338 1130">2020</td> <td data-bbox="338 1089 682 1130">Fuel caps for all small off-road engines &gt; 80 cc (must meet subsections (a), (b), and (c))</td> </tr> <tr> <td data-bbox="239 1130 338 1143">2024</td> <td data-bbox="338 1130 682 1143">Fuel caps for all small off-road engines (must meet subsections (a), (b), (c), and (d))</td> </tr> </tbody> </table>	Engines Subject to the Fuel Cap Performance Standards		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. OPEI 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. OPEI 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 recommends removal of the fuel cap tether and spill test required in TP-901 § 8.5 in the Proposed Amendments. As described on pages 44-45, 244, 258-259, and 272-273 of the ISOR, tethers and fuel caps may cause users of SORE equipment to spill or drip fuel when removing a cap from the fuel tank, thereby creating excess emissions neither captured in current test procedures nor reflected in CARB’s emissions inventory. CARB disagrees with the comment that this requirement is unnecessary.</p> <p>In response to the statement, “OPEI 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,”: the commenter does not seem to disagree that users check the fuel level in fuel tanks from time to time. Fuel spills can occur when checking the fuel level in tanks that are full and tanks that contain fuel but are not full. The commenter does not provide information regarding what is typical practice or whether tethers or fuel caps may cause fuel to spill in typical practice.</p> <p>In response to the comment, “external tethers may pose catch and snag risks on some products due to operating environments. OPEI believes as a result external tethers</p>
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				<p>would be more frequently tampered with,"; many SORE currently use external tethers. Manufacturers have made decisions to use internal tethers or external tethers at least since CARB or federal regulations have required the use of tethers. Manufacturers have made those decisions in the absence of the fuel cap and tether spill test in the Proposed Amendments. Manufacturers have chosen to use internal tethers on some engines and external tethers on other engines. The fuel cap and tether spill test does not require manufacturers to use external tethers. The commenter does not provide evidence to suggest that users tamper with external tethers more frequently than with internal tethers or that the frequency of tampering would increase under the Proposed Amendments. For these reasons, CARB made no changes to § 2756(d).</p> <p>In response to the statement, "See comment to TP-902,"; The comments associated with Agency Responses 60 and 66 of this table present text that is identical to the first paragraph of this comment.</p>
49	<p><b>§2758. Test Procedures.</b>  (b)(3) for model years 2020 and subsequent model years <u>2021</u>,</p>	<p>As discussed in these comments, component based certification is needed for many products, including handheld. 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 addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.</p>
50	<p><u>(b)(4) for model years 2022 and 2023,</u>  (A) One of the following:  1. TP-901, adopted July 26, 2004, and amended <u>May 6, 2019,</u>  or  2. TP-901, adopted July 26, 2004, and last amended [insert amended date], which is <u>incorporated by reference herein,</u>  and  (B) One of the following:  1. SAE J1737,  2. SAE J30, or  3. SAE J1527, or  4. <u>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, including handheld. 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 addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.</p>
51	<p><b>§2759. Equipment and Component Labeling.</b>  (c)(4)(A) The label heading must read:  "IMPORTANT EMISSIONS INFORMATION."</p>	<p>This is inconsistent with EPA requirements and will result in the need for separate labels</p>		<p>This comment addresses the same concern as an earlier comment. Please refer to Agency Response 6(b) of this table.</p>

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	<p>"Important Emissions Information." When combined with an exhaust label, "EMISSIONS" "Emissions" relates to both exhaust and evaporative emissions.</p>	<p>and documents for EPA and CARB with identical information. OPEI 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 and documents.</p>		
52	<p>(c)(4)(E) An unconditional statement of compliance with the appropriate model year(s) (for 2006 and later) California regulations; for example, "<del>THIS ENGINE MEETS 2006 CALIFORNIA EVP EMISSION REGULATIONS FOR SMALL OFF-ROAD ENGINES</del>" "<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. OPEI 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 and documents.</p>		<p>This comment addresses the same concern as an earlier comment. Please refer to Agency Response 6(b) of this table.</p>
53	<p><b><del>§2764. Evaporative Emission Control System Warranty Statement.</del></b>  <del>(b) CALIFORNIA EVAPORATIVE EMISSION CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS</del>  <u>California Evaporative Emission Control System Warranty Statement Your Warranty Rights and Obligations</u></p> <p>and</p> <p><del>MANUFACTURER'S WARRANTY COVERAGE:</del>  <u>Manufacturer's Warranty Coverage:</u></p> <p>and</p> <p><del>OWNER'S WARRANTY RESPONSIBILITIES:</del>  <u>Owner's Warranty Responsibilities:</u>  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 or for your</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. OPEI 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 and documents.</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</p>		<p>The first paragraph of this comment addresses the same concern as an earlier comment. Please refer to Agency Response 6(b) of this table. CARB made no change in response to this comment.</p> <p>In response to the statement, "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,": CARB disagrees with the commenters' conclusion. 40 CFR 1054.120(d) states, "Limited applicability. You may deny warranty claims under this section if the operator caused the problem through improper maintenance or use, as described in 40 CFR 1068.115."</p> <p>40 CFR 1068.115 states, "Section 207(a) of the Clean Air Act (42 U.S.C. 7541(a)) requires certifying manufacturers to warrant to purchasers that their engines/equipment are designed, built, and equipped to conform at the time of sale to the applicable regulations for their full useful life, including a warranty that the engines/equipment are free from defects in materials</p>

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	<p><u>failure to ensure the performance of all scheduled maintenance.</u></p>	<p>operator caused the problem through improper maintenance or use.</p> <p>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, <u>or unreasonable use (including failure to provide reasonable and necessary maintenance).</u></p>		<p>and workmanship that would cause any engine/equipment to fail to conform to the applicable regulations during the specified warranty period. This section codifies the warranty requirements of section 207(a) without intending to limit these requirements.</p> <p>(a) As a certifying manufacturer, you may deny warranty claims only for failures that have been caused by the owner's or operator's improper maintenance or use, by accidents for which you have no responsibility, or by acts of God. For example, you would not need to honor warranty claims for failures that have been directly caused by the operator's abuse of the engine/equipment or the operator's use of the engine/equipment in a manner for which it was not designed and are not attributable to you in any way.</p> <p>(b) As a certifying manufacturer, you may not deny emission-related warranty claims based on any of the following:</p> <p>(1) Maintenance or other service you or your authorized facilities performed.</p> <p>(2) Engine/equipment repair work that an operator performed to correct an unsafe, emergency condition attributable to you as long as the operator tries to restore the engine/equipment to its proper configuration as soon as possible.</p> <p>(3) Any action or inaction by the operator unrelated to the warranty claim.</p> <p>(4) Maintenance that was performed more frequently than you specify.</p> <p>(5) Anything that is your fault or responsibility.</p> <p>(6) The use of any fuel that is commonly available where the equipment operates unless your written maintenance instructions state that this fuel would harm the equipment's emission control system and operators can readily find the proper fuel."</p> <p>CARB disagrees that failure to ensure the performance of all scheduled maintenance would necessarily cause an engine to fail. For example, a leaking fuel tank may not be attributable to a user's failure to clean an air filter. As described on pages 248-249 of the ISOR, the change to section 2764 in the Proposed Amendments is necessary to prevent excess emissions resulting from improperly</p>

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				<p>denied warranty claims. This comment further suggests the necessity of the change by implying that manufacturers may be denying claims without determining that a failure to ensure the performance of all scheduled maintenance is the cause of a failure of a warrantable part. Similarly, it would be improper for a manufacturer to deny for lack of receipts a warranty claim for an engine whose owner had ensured the performance of all scheduled maintenance but who had not retained the receipts or other records of maintenance. As also described on pages 248-249 of the ISOR, current provisions in the SORE exhaust emission regulations in section 2406(a) include the text “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.”</p> <p>In response to the statement, “Finally, the requirement is inconsistent with 15 USC Chapter 50 - Consumer Product Warranties, Section 2304,”: CARB disagrees with the commenters’ conclusion. The burden of proof is on the warrantor to show that defect, malfunction, or failure of any warranted consumer product was caused by unreasonable use.</p> <p>Please refer to Agency Response 14 of this table.</p>
54	<p><del>§2768. [Repealed]Variances.</del>  <del>§2768. [Repealed]Variances.</del>  (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:</p> <p>(1) The provisions of the regulations for which a variance is sought;</p> <p>(2) the specific grounds upon which the variance is sought;</p> <p>(3) the proposed date(s) by which compliance will be achieved; and</p> <p>(4) a compliance plan detailing the method(s) that will achieve compliance.</p> <p>(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 should be allowed. Notice of the time and place of the hearing must</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>	<p>Retain this section.</p>	<p>This comment recommends retaining the variance provision that was removed by the Proposed Amendments. As described on pages 45-46 and 250-251 of the ISOR, the variance procedures create inequitable results, rewarding some manufacturers who qualify for the process while providing no relief for others who may need relief but do not meet the threshold criteria. CARB disagrees with the comment that the variance provision should be retained as a measure for extraordinary circumstances because—in spite of numerous extraordinary circumstances in recent years—a two-year pandemic and associated supply shortages, wildfires, and flood—only two manufacturers have been granted variances and neither requested relief due to the pandemic, supplier shortage or natural disaster. As noted on ISOR page 46, the addition of evaporative emission credit trading would alleviate the need for variances, which would enable all manufacturers to certify their engines in a manner consistent with the SORE evaporative emission standards; manufacturers who could not meet the emission standards could acquire credits to offset emissions above the emission standards. Therefore, CARB made no changes based on this comment.</p>



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	<p>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. 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:</p> <p>(1) that, due to reasons beyond the reasonable control of the applicant, compliance would result in extraordinary economic hardship;</p> <p>(2) that the public interest in mitigating the extraordinary hardship to the applicant by issuing the variance outweighs the public interest in</p>			
55	<p><b>5 EQUIPMENT</b>  <del>(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).</del>  <del>(b)(a) A balance that meets the requirements of section 4 above.</del>  <del>(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.</del>  <del>(d)(c) A barometric pressure transducer capable of measuring atmospheric pressure to within ± 2.0 millimeters of mercury.</del>  <del>(e)(d) A temperature instrument capable of measuring ambient temperature to within ± 0.2 °C.</del>  <del>(f)(e) A relative humidity measuring instrument capable of measuring the relative humidity (RH) accurately to within ± 2 percent RH (optional).</del>  <del>(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).</del></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.</p> <p>This change is a significant deviation and inconsistent with EPA's procedure and manufacturers may be unable to meet both the state and</p>	Retain current language.	<p>These comments recommend retaining current language that was removed by the Proposed Amendments.</p> <p>CARB disagrees with the assertions that using a production fuel cap throughout all of testing according to TP-901 would change TP-901 from a tank-only certification test into equipment-level certification testing, increase the stringency of this test procedure or the permeation emission standards, force manufacturers to create additional evaporative families, or be overly burdensome or unnecessary. As described on pages 263-264 of the ISOR, using the production volume fuel cap on the fuel tank for the duration of the test simplifies the procedure and provides testing that better reflects real-world storage and operation conditions. The current preconditioning procedure in TP-901 § 9 requires installation of 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. Because the procedure already requires testers to use a production fuel cap for part of the test, the Proposed Amendments do not create a new requirement to use a production fuel cap; they require the use of the same production fuel cap for additional portions of the test procedure. Fuel caps may exhibit permeation emissions, and the coupon and other materials used to seal fuel tanks in lieu of fuel caps may also exhibit permeation emissions or may not result in an adequate seal. As noted on pages 263-264 of the ISOR, fuel tanks sealed with coupons may</p>

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		<p>federal test requiremetns with one test, which would be inconsistent with Section 202(a) of the Clean Air Act.</p> <p>The proposed change would require relative humidity measurements. As discussed there is no need to measure relative humidty as it is not part of any calculation nor is used to correct any measurments. This only requires a lab to buy and maintain more equipment.</p>		<p>leak, increasing permeation emissions. The commenters have not provided evidence that fuel tanks sealed with fuel caps exhibit higher permeation emissions than those sealed with coupons. TP-901 would remain a test procedure for fuel tanks. It would not be an engine or equipment test, such as TP-902.</p> <p>Although one manufacturer may use different fuel caps on its engines than another manufacturer, the Proposed Amendment requiring the use of a production fuel cap throughout TP-901 testing would not result in the need to create additional evaporative families. TP-901 currently requires the use of 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 for preconditioning. Therefore, TP-901 does not prohibit the use of more than one fuel cap on fuel tanks from an evaporative family. The use on engines in an evaporative family of a fuel cap expected to have higher permeation emissions than the fuel cap used during TP-901 testing would not meet the requirements of the SORE regulations. The Proposed Amendments would not impact manufacturers' need to consider the permeation emissions of fuel caps used on engines in their evaporative families and the fuel caps used in TP-901 testing.</p> <p>In response to the statement, "The new regulations would require equipment certification (via diurnal testing), this extra step at this level is overly burdensome and unnecessary": Testing according to the amended version of TP-901 would be optional. The SORE regulations do not require certification testing according to both TP-901 and TP-902 for the same units. Fuel tank certification testing according to TP-901 is not required for evaporative families tested according to TP-902 for certification.</p> <p>In response to the statement, "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": 40 CFR 1060.520(b)(5)(ii)(A) provides, in part, "Use a production fuel cap expected to have permeation emissions at least as high as the highest-emitting fuel cap that you expect to be used with fuel tanks from the emission family," as one acceptable approach to sealing a fuel tank prior to permeation emission testing. That requirement is similar to the requirement in TP-901. CARB disagrees with the commenter's conclusion that the Proposed Amendments are inconsistent with federal requirements.</p> <p>Therefore, CARB made no changes based on this</p>

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				<p>comment. Please refer to the Agency Response in FSOR section IV.A.10 for discussion of the comment regarding alleged inconsistency with § 202(a) of the Clean Air Act.</p> <p>In response to the statement, "As discussed there is no need to measure relative humidity [sic] as it is not part of any calculation nor is used to correct any measurements [sic]": CARB disagrees with the assertion that there is no need to measure and record relative humidity. As described on pages 253 and 264-265 of the ISOR, natural moisture in the air can be absorbed and desorbed from fuel tank walls, so it is necessary to require that relative humidity data be recorded to enable the tester and data reviewer to consider all elements that may affect results. Thus, CARB made no changes based on this comment.</p>
56	<p><b>7. CALIBRATION PROCEDURE</b>  <b>Calibration Procedure</b>  <b>CALIBRATION PROCEDURE</b>  <b>Calibration Procedure</b>  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 <del>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)</del>. The <del>NIST</del> SI-traceable mass standards shall be calibrated annually by an independent organization <u>or more often as needed</u>.</p> <p>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.</p> <p>The instrumentation for measuring permeation emissions according to section 12 of this test procedure must be calibrated</p>	<p>CARB disagrees with the comment that the language "or more often as needed per manufacturer instructions" is redundant. As described on pages 254-255 of the ISOR, the changes to specify that instruments and equipment shall be calibrated more often as needed per manufacturer instructions are necessary to provide certainty for testers who need to calibrate instruments or equipment more often and to ensure that instruments and equipment are properly calibrated and produce valid data. Manufacturers may specify standard time intervals for calibration and may also specify conditions that require more frequent calibration, such as a change in performance of an instrument or piece of equipment. Therefore, CARB made no changes based on this part of the comment.</p> <p>In response the comment regarding moving a balance, CARB made a modification to TP-901 § 7 to remove "e.g., if the balance is moved," as described in the March 2022 15-Day Notice and in section II.A.3.a of this FSOR. The modification is intended to provide clarity.</p>

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			as specified in section 4 of TP-902.	
57	<p><b>8 DURABILITY DEMONSTRATION Durability Demonstration</b></p> <p>8.1 Pressure Test</p> <p>(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 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.</u></p>	<p>OPEI does not believe this is an issue. OPEI 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 the pressure test may be omitted, per the Proposed Amendment described next.</p>	<p>In response to the statement, “OPEI does not believe this is an issue,”: CARB disagrees with the commenter’s conclusion. As described on pages 255-257 of the ISOR, the additional instructions for determining the fuel tank system’s design pressure and vacuum limits provide the clarity and consistency to ensure different testers use a consistent approach. This ensures fuel tanks are compliant with TP-901 and do not result in excess emissions. Therefore, CARB made no changes based on this comment.</p> <p>In response to the statement, “OPEI believes manufacturer data submitted in recent years show that vented tanks do not sustain pressure,”: It is true that some manufacturers have demonstrated that no pressure test is required for some of their evaporative families when testing according to TP-902. Such demonstrations are not part of testing according to TP-901.</p> <p>In response to the statement, “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.”: CARB disagrees with the commenter’s conclusion. The commenter does not suggest an alternative procedure or provide support for its conclusion.</p>
58	<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>OPEI 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.</p> <p>Additionally, component suppliers such as the fuel tank manufacturer, may not have information regarding additional components and may be unable to account for</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 suggests an alternative to the Proposed Amendments to this section. CARB disagrees with the commenter’s suggested language. The commenter’s suggested language would result in fuel tank testing being less representative of real-world operating and storage conditions. The rationale for the Proposed Amendments to this section include the statement, “The seventh change, to remove the provision that allows the elimination of holes in the tank before testing, is necessary to provide a tank configuration closer to production tanks (i.e., one that better simulates real-world operating and storage conditions), and therefore provide more accurate permeation test emission rates, which is necessary to ensure certified equipment does not produce excess emissions,” on page 257. The commenter’s suggested language would have the opposite effect.</p>

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		<p>materials reflective of cap and grommets (for example). This change would require significant additional tests and evaporative emissions families with minimal benefit.</p>		<p>In response to the statement, "OPEI has received feedback that manufacturers are being advised of different sealing requirements,": The commenter's statement does not request a change to the Proposed Amendments and is vague. Any manufacturer who has questions about testing according to TP-901 may contact CARB staff.</p> <p>In response to the statement, "Additonal [sic] 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,": As described in the current language in TP-902 § 8.2, testers must, "Seal all openings in each fuel tank as they would be sealed when installed on a production engine during slosh testing. A plug, cap, or coupon may be used to seal any openings to which a hose or tube is normally attached." CARB disagrees with the commenter's conclusion that additional language is needed regarding how to seal holes. Manufacturers have options for sealing any openings to which a hose or tube is normally attached.</p> <p>In response to the statement, "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,": CARB disagrees with the commenter's conclusion that the Proposed Amendments to this section would necessitate additional testing or the certification of additional evaporative families. As described on pages 255-257 of the ISOR, the Proposed Amendments remove the provision to allow the elimination of holes in the tank before testing to ensure tested fuel tanks better simulate real-world operating and storage conditions, and therefore provide more accurate permeation test emission rates. As noted previously, testing according to the amended version of TP-901 would be optional. This portion of the comment is similar to the comments from OPEI on the Proposed Amendments to section 5 of TP-901. Please refer to Agency Response 55 of this table.</p> <p>For the reasons described above, CARB made no changes based on this comment.</p>
59	<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</p>	<p>Measuring UV exposure every hour under artificial lights is not required as this testing is stable. Daily checks 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</p>	<p>This comment suggests an alternative to the Proposed Amendments to this section. CARB disagrees with the commenter's suggested language. As describe on pages 257-258 of the ISOR, temperature changes in the</p>

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	<p>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>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 be nearly impossible (or costly with automation) and greatly increase the length of time for certification testing that already takes multiple months to complete.</p>	<p>(0.40 W·hr·m<sup>-2</sup>·min<sup>-1</sup>) 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 be exposed to light when installed on an engine.</p>	<p>test area throughout the day may cause the UV light intensity to vary. Measuring and recording hourly UV intensity values provides documentation of compliance with the current testing requirement for at least 450 hours of UV light exposure above the required intensity. Therefore, CARB made no changes based on this comment. As noted previously, testing according to the amended version of TP-901 would be optional. This section of TP-901 also allows for the use of direct natural sunlight to accomplish ultraviolet radiation exposure for any manufacturer who does not use artificial light. No measurements of intensity are required when using direct natural sunlight.</p>
60	<p><b>8.5 Fuel Cap and Tether Spill Test</b></p> <p><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>	<p>Fuel cap splash requirements are unnecessary. OPEI 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. OPEI believes as a result external tethers would be more frequently tampered with.</p>	<p>Remove the proposed requirement.</p>	<p>This comment addresses the same concern as an earlier comment. Please refer to Agency Response 48 of this table.</p>
61	<p><b>9. PRECONDITIONING PROCEDURE</b><u>Preconditioning Procedure</u></p> <p>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</u> can be accomplished by soaking the tanks at an elevated</p>	<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.</p>	<p>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</p>	<p>This comment suggests an alternative to the Proposed Amendments to this section. CARB disagrees with the commenter's suggested language.</p> <p>In response to the statement, "The addition of "to ensure that the fuel remains at nominal capacity [sic] 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": CARB disagrees with the commenter's conclusion. The Proposed Amendments do not require that the fuel never falls below nominal capacity throughout preconditioning. As described on page 261 of the ISOR, requiring the tester to take steps during preconditioning to ensure fuel remains at nominal capacity is necessary because fuel tank material may expand during preconditioning or fuel may evaporate, so additional</p>

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	temperature.		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.	fuel may need to be added to ensure fuel tanks remain at true nominal capacity for the duration of preconditioning. A tester could add fuel during periodic checks, as needed without significant burden. Therefore CARB made no changes based on this comment.
62	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 the coefficient of determination, r<sup>2</sup>, 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.</u> 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	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, 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.	In response to this comment, CARB made a modification to TP-901 § 9 to specify the preconditioning temperature range, as described in the March 2022 15-Day Notice and in section II.A.3.b of this FSOR. The modification is intended to provide clarity.

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63 (a)	<p><b>Small Off-Road Engine Evaporative Emissions Test Procedure TP-902</b></p> <p>Test Procedure for Determining <u>Evaporative Diurnal</u> Emissions from Small Off-Road Engines</p> <p>Adopted: July 26, 2004 Amended: September 18, 2017 Amended: May 6, 2019 Amended: [insert amended date]</p>	See comment to RO 2750 evaporative amendments		This comment addresses the same concern as earlier comments. Please refer to Agency Response 24 of this table.
63 (b)	<p><del>2. PRE-CERTIFICATION REQUIREMENTS</del> <u>Pre-Certification Requirements</u></p> <p>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 300 times. Tighten the fuel cap each time in a way that represents the typical in-use experience.</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:</p> <p>Actuating cycle test is not required for any of the following control valves, cables or linkages.</p> <ul style="list-style-type: none"> <li>- Not designed to control evaporative emissions (based on FAQ)</li> <li>- Failure of component would not increase evaporative emissions (based on FAQ)</li> <li>- 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)</li> </ul>		This comment suggests making changes to current text in TP-902. The commenter’s suggestion to add clarification for types of valves, cables and linkages is beyond the scope of the Proposed Amendments and therefore CARB made no changes based on the comment. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to TP-902 § 2.1(a). This subsection requires testers to “actuate all control valves, cables, and linkages, where applicable.” Because it specifies, “where applicable,” further clarification is not needed.
63 (c)	<p>(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</u></p>	OPEI does not believe this is an issue. OPEI 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 addresses the same concern as an earlier comment. Please refer to Agency Response 57 of this table.



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	<p><u>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</u></p>			
64	<p>(e) Ultraviolet Radiation Exposure</p> <p>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 (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</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 be nearly impossible (or costly with automation) and greatly increase the length of time for certification testing that already takes multiple months to complete.</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 be exposed to light when installed on an engine.</p>	<p>This comment addresses the same concern as an earlier comment. Please refer to Agency Response 59 of this table.</p>
65	<p>(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></p>	<p>Fuel cap splash requirements are unnecessary. OPEI 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. OPEI believes as a result external tethers would be more frequently tampered with.</p>		<p>This comment addresses the same concern as an earlier comment. Please refer to Agency Response 48 of this table.</p>
66	<p>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</p>	<p>The proposed change increases the stringency on carbon canister working capacity (total</p>	<p>No change to current language</p>	<p>CARB disagrees with the commenter's conclusion that the Proposed Amendments to this section are not justified. As described on page 273 of the ISOR, this change is necessary to ensure carbon canisters are sized</p>

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	<p>capacity of at least 1.4 grams of vapor storage capacity per liter of fuel tank <del>nominal</del> <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 <del>nominal</del> <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</p>	<p>&gt; nominal) without justification. The requirement is inconsistent with the diurnal performance requirement which is ultimately the purpose of TP-902.</p>		<p>properly to account for the total vapor space in the fuel tanks, particularly in cases where the total capacity of the fuel tank is significantly larger than the nominal capacity. Therefore, CARB made no changes based on this comment.</p> <p>In response to the statement, "The requirement is inconsistent with the diurnal performance requirement which is ultimately the purpose of TP-902.": CARB disagrees with the commenter's conclusion. The commenter does not provide information to support its conclusion. Ensuring effective control of venting emissions from a fuel tank increases the likelihood that an engine will meet the evaporative emission standards. Compliance with emission standards is necessary to achieve expected emission reductions from SORE.</p>
67	<p><u>2.4 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 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.</u>  <u>(i) Fill the fuel tank to nominal capacity and install the fuel cap;</u>  <u>(ii) Within 15 minutes of completion of step (i) weigh the carbon canister;</u>  <u>(iii) Within 15 minutes of completion of step (ii) install the carbon canister;</u>  <u>(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;</u>  <u>(v) Within 15 minutes of completion of step (iv), weigh the carbon canister and a secondary (trap) canister;</u>  <u>(vi) Within 15 minutes of completion of step (v), install the carbon canister and the secondary (trap) canister in series on the engine;</u>  <u>(vii) Within 60 minutes of completion of step (vi), run the engine at full load (100% of</u></p>	<p>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 facility (not all SHED laboratories have dynos).</p> <p>Notwithstanding other comments about the need for design-based for handheld products, this section should be clarified that it does not apply to handheld products.</p>		<p>In response to the statement, "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 facility (not all SHED laboratories have dynos).": CARB disagrees with the commenter's assessment of the timing required for starting step (vii) in this sequence (which the commenter refers to as a "dyno test"). Step (vii) must be initiated within 60 minutes of completion of step (vi), which must be completed within 15 minutes of completion of step (v). Step (v) must be completed within 15 minutes of completion of step (iv). Therefore, step (vii) may be initiated up to 90 minutes after completion of step (iv), the step that involves exposing the engine with the carbon canister installed to three 24 hour diurnal cycles as defined in Table 5-1 in section 5.4 of TP-902 (which the commenter refers to as "the SHED test"). The commenter seems to suggest an alternative timing requirement (i.e., no time limit for initiating step (vii) after completion of step (vi)) but does not provide support for its suggestion that completing the sequence in the Proposed Amendments may not be achievable or for an alternative. CARB made no change in response to this portion of the comment.</p> <p>In response to the statement, "this section should be clarified that it does not apply to handheld products,": CARB made a modification to § 2754(h) to add language to clarify that approval of a determination that running loss emissions are controlled from being emitted into the atmosphere is not required for engines with displacement less than or equal to 80 cc, as described in the March 2022 15-Day Notice and in section II.A.2.f of this FSOR.</p> <p>In response to the statement, "Notwithstanding other comments about the need for design-based for handheld products,": This comment addresses the same</p>

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				concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this portion of the comment.
68	<p><u>(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.</u></p> <p><u>(i) Install a pressure transducer in the fuel tank;</u></p> <p><u>(ii) Fill the fuel tank to nominal capacity and install the fuel cap;</u></p> <p><u>(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.</u></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>Notwithstanding other comments about the need for design-based for handheld products, this section should be clarified that it does not apply to handheld products as there is no data to support handheld could pass this requirement.</p>		<p>CARB disagrees with the commenter’s statement, “pressure testing does not have correlation to running loss vapor control.” As described on page 274 of the ISOR, the SORE evaporative emission regulations in § 2754(b)(1) already require applicants certifying engines or equipment to comply with the diurnal emission standards to submit a determination in the certification application that running loss emissions are controlled from being emitted into the atmosphere, and the Proposed Amendments are based on methods manufacturers have used to demonstrate running loss emission control. The commenter offered no support for its conclusion. Therefore, CARB made no changes based on this portion of the comment. Please refer also to Agency Response 67 to this table.</p> <p>In response to the statement, “Notwithstanding other comments about the need for design-based for handheld products,”: This comment addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this portion of the comment.</p> <p>In response to the statement, “this section should be clarified that it does not apply to handheld products as there is no data to support handheld could pass this requirement,”: CARB made a modification to § 2754(h) to add language to clarify that approval of a determination that running loss emissions are controlled from being emitted into the atmosphere is not required for engines with displacement less than or equal to 80 cc, as described in the March 2022 15-Day Notice and in section II.A.2.f of this FSOR.</p>
69	<p><u>3. GENERAL SUMMARY OF TEST PROCEDURE</u>  <u>General Summary of Test Procedure</u>  A Sealed Housing for Evaporative Determination (SHED) is used to measure 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>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>Additionally, tolerance of the following conditions should be defined.</p> <ul style="list-style-type: none"> <li>- 5 minutes</li> <li>- 50% capacity</li> <li>- fifteen minutes</li> </ul>		<p>In response to the questions, “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?”: CARB made a modification to § 2765(a)(5) to add language to clarify that during compliance testing the hot soak test shall be performed at the temperature at which the hot soak test was performed during certification testing, as described in the March 2022 15-Day Notice and in section II.A.2.i of this FSOR. The modification is intended to provide regulatory certainty to manufacturers. The rationale for allowing the hot soak test to be performed at 40.6 °C is on pages 268 and 269 of the ISOR.</p>

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	<p>This test procedure measures hot soak and diurnal 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"> <li>• Fill the engine fuel tank with fuel and operate at maximum governed speed for 5-minutes</li> <li>• Precondition the evaporative emission control system</li> <li>• Drain and fill fuel tank to 50% capacity with California certification fuel</li> <li>• Operate engine at the maximum governed speed for fifteen minutes</li> <li>• Subject engine/equipment to a one-hour constant 35 or 40.6 °C hot soak</li> <li>• Soak engine/equipment for two hours at 18.3 °C</li> </ul>	<p>- two hours - 18.3 °C</p> <p>OPEI requests CARB consider flexibility to conduct the Hot Soak test separately from the diurnal result.</p>		<p>The commenter’s suggestion to add tolerances is beyond the scope of the Proposed Amendments and therefore CARB made no changes based on the comment. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to the basic testing process outlined in TP-902 § 3.</p> <p>In response to the statement, “OPEI requests CARB consider flexibility [sic] to conduct the Hot Soak test separately from the diurnal result,“: TP-902 requires the hot soak test to be performed as part of a sequence in section 5 of TP-902. This request is beyond the scope of the Proposed Amendments. The scope of the rulemaking described in the October 2021 45-Day Notice does not include allowing the hot soak to be performed separate from the sequence in section 5 of TP-902. As described on page 32 of the ISOR, beginning with MY 2024, the proposed evaporative emission standards would cover a greater portion of an engine’s evaporative emissions. This would ensure MY 2024 and subsequent model year SORE equipment meet the emission standards. Therefore, CARB made no changes based on this comment.</p>
70	<p><del>4. INSTRUMENTATION</del> <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 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, Vn. 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</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 at 18.3°C which is the base volume of diurnal test.</p> <p>Other enclosure requirements – OPEI 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. Honda is 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</p>		<p>The commenter’s requests are beyond the scope of the Proposed Amendments and therefore CARB made no changes based on the comment. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to TP-902 § 4.1 beyond formatting changes and changing “diurnal emission testing” to “evaporative emission testing.”</p>

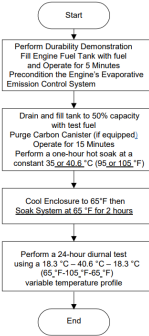
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	enclosure and within 3 to 12 inches of each side wall. The temperature conditioning system shall be capable of controlling the internal enclosure air temperature to follow the prescribed temperature versus time cycle as specified in 40 CFR §86.133-90 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 $\pm 3.0^{\circ}\text{F}$ and an average tolerance of $\pm 2.0^{\circ}\text{F}$ as measured by side wall thermocouples. The control system shall	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.		
71	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 $84^{\circ}\text{F}$ , to an accuracy of $\pm 1/8$ inch (0.5 cm) and calculating the net $V_n$ to the nearest 1 ft <sup>3</sup> . In addition, $V_n$ shall be measured based on a temperature of $65^{\circ}\text{F}$ and $105^{\circ}\text{F}$ . The latching system shall provide a fixed volume with an accuracy and repeatability of $0.005 \times V_n$ . 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 $\pm$	$V_n$ 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 ft <sup>3</sup> .		The commenter's requests are beyond the scope of the Proposed Amendments and therefore CARB made no changes based on the comment. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to TP 902 § 4.1 beyond formatting changes and changing "diurnal emission testing" to "evaporative emission testing."
72	An online computer system or strip chart recorder	Today's analyzer systems		The commenter's requests are beyond the scope of the

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	<p>shall be used to record the following parameters during the diurnal evaporative emissions test sequence:</p> <ul style="list-style-type: none"> <li>- Enclosure internal air temperature</li> <li>- 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).</li> <li>- Enclosure internal pressure</li> <li>- Enclosure temperature control system surface temperature(s)</li> <li>- FID output voltage recording the following parameters for each sample analysis: <ul style="list-style-type: none"> <li>- zero gas and span gas adjustments</li> <li>- zero gas reading</li> <li>- enclosure sample reading</li> <li>- zero gas and span gas readings</li> </ul> </li> </ul> <p>The data recording system shall have a time 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</p>	<p>digitally outputs in concentration such as ppmC, not voltage. Propose to delete a requirement of output voltage recording.</p>		<p>Proposed Amendments and therefore CARB made no changes based on the comment. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to TP 902 § 4.1 beyond formatting changes and changing "diurnal emission testing" to "evaporative emission testing."</p>
73	<p>4.2 Calibrations 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>	<p>OPEI proposes the following revision if the ethanol factor is used.</p>	<p>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.</p>	<p>This comment requests that the retention check by ethanol injection is not required if the ethanol factor of 1.08 is used. This comment is beyond the scope of the Proposed Amendments and therefore CARB made no changes based on the comment. The existing text in § 4.2.3(E) begins with the sentence, "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 commenter's requested change appears to be based on a misunderstanding of the current language, which requires injection of propane and/or ethanol. Therefore, injection of ethanol is not required if injection of propane is performed.</p>
74	<p>4.2.3 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.</p>	<p>An "enclosure mass measurement" does not make sense. It should be corrected to "concentration measurement(s) of</p>		<p>The commenter's requests are beyond the scope of the Proposed Amendments and therefore CARB made no changes based on the comment. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to TP-902 § 4.2.3 beyond</p>

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	<p>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 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</p>	<p>hydrocarbon and/or ethanol in the enclosure".</p> <p>Propose "monthly basis" to be within 35 days before testing.</p>		<p>formatting changes.</p>
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</p>	<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.</p>		<p>CARB made no changes based on this received comment. The commenter appears to misunderstand the current language, which does not preclude the use of a gravimetric method for injection of ethanol if it provides an accuracy and precision of ± 0.5 percent of the injected mass.</p> <p>The comment's suggestion to require 0.5 percent accuracy regardless of the technique is beyond the scope of the</p>

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	<p>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 <math>\pm 0.5</math> 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 (CHC<sub>e2</sub>) and/or the enclosure ethanol concentration (CC<sub>2</sub>H<sub>5</sub>OH<sub>2</sub>). For fixed volume enclosures, measure the temperature (T<sub>2</sub>) and pressure in the enclosure (P<sub>2</sub>). 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.</p>			<p>Proposed Amendments and therefore CARB made no changes based on the comment. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to TP-902 § 4.2.3 beyond formatting changes.</p>
76	<p><u>4.3 Other Instruments and Equipment</u></p> <p><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></p> <p><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></p> <p><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</u>  <u>(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</u></p>	<p>OPEI 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.</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>In response to the statement, "OPEI 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,": CARB made no changes based on this portion of the comment. OPEI's expression of concern and conclusion regarding the Proposed Amendments to this section do not recommend changes to the regulatory language. The suggestion "Harmonize requirements with standard significant figures," is vague and does not recommend specific language changes.</p> <p>CARB disagrees with the commenter's conclusion that carbon canister mass measured to the nearest thousandth of a gram is not directly relevant to the standard. As described on page 275 of the ISOR, minimum balance sensitivity is necessary to ensure test data accuracy and precision. Accurate and precise data are necessary to ensure that engines determined to be in compliance with emission standards assessed using TP-902 are indeed compliant and do not result in excess emissions. Therefore, CARB made no changes based on this portion of the comment.</p> <p>The comment regarding calibrating "more often as needed per manufacturer instructions" addresses the same concern as an earlier comment. Please refer to Agency Response 56 of this table.</p>



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				<p>In response to the comment regarding moving a balance, CARB made a modification to TP-902 § 4.3 to remove language providing an example circumstance in which balance manufacturer's calibration instructions may require calibration more frequently than annually, as described in the March 2022 15-Day Notice and in section II.A.4.a of this FSOR. The modification is intended to provide clarity.</p>
77	<p><b>5. TEST PROCEDURE</b> Test Procedure</p> <p>The test sequence is shown graphically in Figure 1. The temperatures monitored during testing shall be representative of those experienced by the equipment. <del>The equipment shall be approximately level during all phases of the test sequence to prevent abnormal fuel distribution.</del> 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.</p> <p>The 24-hour diurnal test sequence is shown</p> <p style="text-align: center;">Figure 1. 24-Hour Diurnal Test Sequence</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.</p> <ul style="list-style-type: none"> <li>- Interruptions of preconditioning soak (e.g., power out) should be allowed as long as the total exposure period meets the requirements.</li> <li>- 15 minutes of engine operation and period to move the test unit to allow engine operation at outside without temperature control.</li> </ul> <p>As CP-902 addresses, TP-902 as a test procedure should clarify a retest is allowed by omitting durability test and preconditioning.</p> <p>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>	<p>The commenter's suggestions to clarify the 10-minute temperature waiver and to clarify "a retest is allowed by omitting durability test and preconditioning" are beyond the scope of the Proposed Amendments and therefore CARB made no changes based on those portions of the comment. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to TP-902 § 5.2 with regard to the 10-minute waiver or retesting.</p> <p>This comment suggests to retain the sentence, "The equipment shall be approximately level during all phases of the test sequence to prevent abnormal fuel distribution." As described on page 276 of the ISOR, removing this sentence is necessary to avoid confusion for testers and to provide consistency with the Proposed Amendments to § 5.2 that would require a tilt test. Therefore, CARB made no changes based on this comment.</p>
78	<p><b>5.1 Evaporative Emission Control System Preconditioning</b></p> <p>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</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.</p> <p>Hot soak and diurnal emissions to judge accelerated preconditioning – Since hot soak emission is typically much less and not</p>	<p>5.1 Evaporative Emission Control System Preconditioning</p> <p>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</p>	<p>In response to the comment regarding "fresh fuel," CARB made several modifications to TP-902 §§ 5.1 and 5.2 to change three instances of "fresh fuel" to "fresh test fuel," as described in the March 2022 15-Day Notice and in section II.A.4.b of this FSOR. The modifications are intended to provide clarity.</p> <p>In response to the statement, "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</p>

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	<p>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. <u>Accelerated preconditioning shall not be less than 70 days.</u> Data documenting that the <u>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.</u> 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. <u>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.</u></p>	<p>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.</p> <p>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 must be performed after the preconditioning as specified in section 5.2 of TP-902</p>	<p>filling the fuel tank to its nominal capacity with <del>fresh</del> 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 maintain nominal capacity at least every 10 days of preconditioning.</u> As an alternative, accelerated preconditioning of the evaporative emission control system can be accomplished by soaking at an elevated temperature. <u>Accelerated preconditioning shall not be less than 70 days.</u> Data documenting that the <u>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</u></p>	<p>preconditioning should be based on “hot soak + diurnal”, not individual comparison of each hot soak and diurnal,”: As described on pages 276-279 of the ISOR, the Proposed Amendments to this section are necessary to better ensure preconditioning of the test units will not be stopped prematurely (i.e., before hot soak and diurnal emissions stop increasing). If the sum of hot soak and diurnal emissions were used to determine that emissions were no longer increasing, the test results may not represent real-world emissions from the engine. For example, hot soak or diurnal emissions might still be increasing, but, as a result of test-to-test variability from the engine, the sum of hot soak and diurnal emissions could appear to not be increasing. In such a case, preconditioning might be stopped prematurely if the commenter’s suggested change were made. Therefore, CARB made no change in response to this comment.</p> <p>CARB disagrees with the commenter’s conclusion that, “The drain and refuel performed 15 days before the end of preconditioning is not representative of real world usage.” The commenter states that an operator would likely top off the fuel tank before each use. This section allows for adding fuel as necessary (e.g., “Take steps to ensure that the fuel remains at nominal capacity throughout preconditioning,” “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”). A tester might drain and refuel the fuel tank or add fuel at various times during preconditioning. TP-902 does not preclude topping off the fuel tank at a frequency that would mimic the behavior described by the commenter. Therefore, CARB made no change in response to this comment.</p> <p>In response to the statement, “Furthermore, the D/F before the end of preconditioning doesn't benefit accelerated preconditioning as a D/F must be performed after the preconditioning as specified in section 5.2 of TP-902”: Accelerated preconditioning is optional. Any manufacturer who does not choose to perform accelerated preconditioning may precondition a unit for not less than 140 days. Therefore, CARB made no change in response to this comment.</p>

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			<p><u>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.</u> 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. <u>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.</u></p>	
79	<p>5.2 Refueling and Hot Soak</p> <p>Following the preconditioning period, drain the fuel tank and refill to 50 percent of its nominal capacity with test fuel. <u>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.</u> For evaporative emission control systems that use a <u>an actively-purged</u> carbon canister, 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</u></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 removal and installation should be limited as less as possible. Propose to accept the following.</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 test report. For evaporative emission control systems that use a <u>an actively-purged</u> carbon canister, the</p>	<p>In response to the comments about canister mass measurement, CARB made several modifications to TP-902 §§ 5.2 and 5.4 to make measuring and recording the carbon canister mass optional, as described in the March 2022 15-Day Notice and section II.A.4.c of this FSOR. The modifications are intended to provide flexibility to those who will be performing testing according to TP-902.</p> <p>The commenter’s suggestion, “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,” is beyond the scope of the Proposed Amendments and therefore CARB made no</p>

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	<p><u>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 carbon canister mass on the test report after purging.</u></p>	<p>- Partial modifications of non evaporative-related frame components to make canister removal and installation easier</p> <p>- Installation of quick connectors between canister and hoses without modification of original hoses</p> <p>The language could mislead as even passive purge canisters are required to be weighed.</p> <p>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.</p> <p>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.</p> <p>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>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>changes based on this portion of the comment. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to TP 902 § 5.2 with regard to a tolerance on the number 400 as it pertains to purging.</p> <p>In response to the statement, “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.”: CARB made a modification to TP-902 Attachment 1 § 6.2 to specify that actively-purged carbon canisters would be purged with “air,” as described in the March 2022 15-Day Notice and section II.A.4.e of this FSOR. The modifications are intended to provide consistency with TP-902 § 5.2.</p> <p>In response to the statement, “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,”: CARB disagrees with the commenter’s suggested change. As described on pages 268-269 of the ISOR, the hot soak may be conducted at the alternative higher temperature of 40.6 °C to enable passively-purged carbon canisters to experience a greater amount of purging during the forced cooling. In addition, the comment provides no basis to run engine until the fuel tank is empty. Therefore, CARB made no changes based on this comment.</p>
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</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. Analysis of engineering drawings will more accurately demonstrate the system is designed to prevent fuel from</p>	<p>Remove this section.</p>	<p>This comment suggests to remove the tilt test requirement in TP-902 § 5.2 of the Proposed Amendments. As described on page 281 of the ISOR, users are likely to tilt their equipment for many reasons, intentionally or unintentionally, during operation, transport, maintenance, or storage. The addition of a tilt test is necessary to eliminate excess emissions that come from fuel leaks when equipment is turned on its side for cleaning, transportation, or storage. The commenter provides no support for its statement of belief regarding the proposed tilt test. Although manufacturers may specify maximum product angles, users may not adhere to such recommendations during operation, transport, maintenance, or storage. The commenter also suggests CARB staff could do additional work during the certification process to assess engine designs to attempt to determine whether tilting engines may cause excess</p>

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	<u>performing this tilt sequence.</u>	entering vents or the carbon canister.		emissions. Such an approach would not be as effective as the proposed tilt test since such a determination would be more subjective than the results of the tilt test, the hot soak test, and the diurnal emission test. Therefore, CARB made no changes based on this comment.
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 section 5.2 and fill the fuel tank to nominal capacity rather than 50 percent of nominal capacity.</u> 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>The process needs additional clarification regarding the engine processes which are necessary to represent actual in-use not to be included as a duration of 15-minute engine operation.</p> <ul style="list-style-type: none"> <li>- The duration from engine start to reaching eventual maximum governed speed after resuming choke lever and verifying normal engine operation.</li> <li>- The duration after setting speed control lever to minimum speed to eventual engine stop after holding 5-10 seconds of low idling operation.</li> </ul> <p>Consideration of the situation where the engine is unable to start should be clarified. Propose the following procedures.</p> <p>In the case of the engine does not start, the following actions can be taken.</p> <ul style="list-style-type: none"> <li>- If the electric starter does not turn the engine enough, the battery can be replaced or a backup battery can be connected.</li> <li>- If repeated cranking are assumed to make the spark plug wet, the spark plug can be cleaned or replaced.</li> <li>- 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.</li> </ul> <p>Some products could not run for 15 min with a fuel tank filled to 50 percent of it's</p>	<p>Passively-purged carbon canister run time is equal to the nominal fuel tank volume. Once the engine runs out of fuel the 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>The commenter's suggestion, "The process needs additional clarification...diurnal tests needs to be invalid," is beyond the scope of the Proposed Amendments and therefore CARB made no changes based on the comment. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to the sentence, "Operate the engine at its maximum governed speed for fifteen minutes," in TP-902 § 5.2. To clarify, TP-902 § 5.2 instructs the tester to operate the engine at maximum governed speed for 15 minutes. The procedures do not specify the method of operating the engine, as long as it is done in a manner that does not affect evaporative emission results.</p> <p>In response to the statement, "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.": The commenter seems to have overlooked the sentence, "If the engine runs out of fuel during the fifteen minute run, restart this section 5.2 and fill the fuel tank to nominal capacity rather than 50 percent of nominal capacity," in the ISOR Proposed Amendments. This sentence in the Proposed Amendments directly addresses the situation in the commenter's statement.</p> <p>In response to the commenter's expression of concern regarding sealing the enclosure within 180 seconds of engine shutdown: As described on page 282 of the ISOR, beginning testing within 180 seconds of engine shutoff is necessary to ensure all evaporative emissions during the hot soak period are captured by the enclosure. The commenter does not provide support for its statements regarding the potential for exhaust emissions to affect evaporative emission test results or its suggestion to seal the enclosure within 300 seconds of engine shutdown. Therefore, CARB made no changes based on this comment.</p> <p>The comment regarding multiple temperatures addresses the same concern as an earlier comment. Please refer to Agency Response 69 of this table.</p>

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		<p>nominal capacity. This requires additional consideration for some applications if this procedure is required for handheld products.</p> <p>OPEI is concerned the machine cannot be transported between operation and measurement in a period of 180 seconds. Currently, the requirement is to place the machine in the SHED test chamber immediately after operation. As a rule, this may not be possible, since the test chambers must be located separately from operating areas - As background emissions may interfere with the SHED measurement if equipment is run near the SHED. Additionally OPEI is concerned a unit "rushed" into the chamber may trap carbon exhaust emission components and raises concerns of handling of equipment. OPEI proposes that equipment shall be placed in the SHED and the doors sealed in between 180 and 300 seconds. This time will ensure the unit is still experiencing "hot soak" when the SHED is sealed.</p> <p>See comment above regarding multiple test temperatures.</p>		
82	<p>5.4 24-Hour Diurnal Test</p> <p>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</p>		<p>This comment addresses the same concern as an earlier comment. Please refer to Agency Response 79 of this table.</p>

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		<p>optional.</p> <p>OPEI is unclear what is the purpose of recording the carbon canister mass. There is no pass / fail criteria associated with this.</p>		
83	<p><del>7 Alternative Test Procedures</del><u>Alternative Test Procedures</u></p> <p>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>	<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.</p> <p>"Diurnal" in this section should be deleted or "hot soak" should be added.</p>	<p>7 Alternative Test Procedures</p> <p>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.</p>	<p>In response to this comment, CARB made a modification to TP-902 § 7 to remove the word "diurnal," as described in the March 2022 Notice and in section II.A.4.d of this FSOR. The modifications are intended to clarify the example of a circumstance that would necessitate the approval of an alternative test procedure.</p> <p>The request, "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," is beyond the scope of the Proposed Amendments and therefore CARB made no changes based on the request. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to the approval process for alternative test procedures in TP-902 § 7.</p>
84	<p><b>Attachment 1 to TP-902</b></p> <p><del>2. PRINCIPLE AND SUMMARY OF TEST PROCEDURE</del><u>Principle and Summary of Test Procedure</u></p> <p>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.</p> <p>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>	<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.</p>		<p>The comment's suggestion to add a tolerance for the 50/50 butane to air mixture is beyond the scope of the Proposed Amendments and therefore CARB made no changes based on the comment. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to TP-902 Attachment 1 § 2 beyond changing the capitalization of the section title.</p>
85	<p><del>5. EQUIPMENT CALIBRATION</del><u>Equipment Calibrations</u></p> <p>Mass flow meters must undergo an annual multiple</p>	<p>A canister working capacity determination test takes one day or so to complete all the cycles depending on the size</p>		<p>The comment's suggestion to increase the tolerance for mass standard drift is beyond the scope of the Proposed Amendments and therefore CARB made no changes based on the comment. The scope of the rulemaking described in</p>

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	<p>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, <math>r^2</math> <math>R^2</math>, of 0.99 or greater.</p> <p>The balance shall be calibrated by an independent organization using National Institute of Standards and Technology (NIST)-Système International d'Unités (SI)-traceable mass standards annually. The accuracy of the balance shall be checked using NIST SI-traceable mass standards prior to and following 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 <math>\pm 0.02</math> grams for a balance with 0.01gram sensitivity or <math>\pm 0.002</math> 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</p>	<p>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 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.</p>		<p>the October 2021 45-Day Notice does not include making changes to TP-902 Attachment 1 § 5 regarding tolerances.</p>
86	<p>6.2 Canister Purge</p> <p>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.</p>	<p>The tolerances of 400 bed volume and 30 minutes should be defined.</p>		<p>The comment's suggestion to add tolerances numbers 400 and 30 as they related to bed volumes and minutes, respectively, is beyond the scope of the Proposed Amendments and therefore CARB made no changes based on the comment. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to TP-902 Attachment 1 § 6.2 with regard to tolerances. Please refer also to Agency Response 79 of this table.</p>
87	<p>6.3 Pause</p> <p>Pause testing for approximately 5 minutes between both purge and load and also load and purge sequences.</p>	<p>The tolerance of 5 minutes should be defined.</p>		<p>The commenter's suggestion to add a tolerance for time is beyond the scope of the Proposed Amendments and therefore CARB made no changes based on the comment. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to TP-902 Attachment 1 § 6.3.</p>
88	<p>6.5 Canister Load</p> <p>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 <math>\pm 10</math> percent of the specified load rate below.</u> The butane load rates and breakthrough criteria are determined by canister's bed volume. In order to accommodate</p>	<p>The tolerance of 50/50 should be defined.</p> <p>"Within 10 percent" should be "within <math>\pm 10</math> percent".</p> <p>Tolerances for breakthrough and load rate must be defined.</p>		<p>The comment regarding a tolerance for the 50/50 butane to air mixture addresses the same concern as an earlier comment. Please refer to Agency Response 84 of this table.</p> <p>This comment suggests to add language that is already included in the Proposed Amendments. As described on pages 285-286, the Proposed Amendments add the sentence, "The butane load rate must be within <math>\pm 10</math> percent of the specified load rate below" in TP-902 Attachment 1 § 6.5.</p>



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	<p>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 (&lt;99cc&lt; 100 cc), medium (100 to 249cc ≥ 100 cc and &lt; 250 cc), large (249 to 550cc ≥ 250 cc and ≤ 550 cc), and extra large (&gt; 550 cc). The load and breakthrough criteria are defined as follows:</p> <table border="1" data-bbox="247 418 716 553"> <thead> <tr> <th data-bbox="247 418 394 467">Carbon Canister Bed Volume</th> <th data-bbox="394 418 464 467">Small &lt;99cc&lt; 100 cc</th> <th data-bbox="464 418 533 467">Medium 100 to 249cc ≥ 100 cc and &lt; 250 cc</th> <th data-bbox="533 418 602 467">Large 249 to 550cc ≥ 250 cc and ≤ 550 cc</th> <th data-bbox="602 418 716 467">Extra Large &gt; 550 cc</th> </tr> </thead> <tbody> <tr> <td data-bbox="247 492 394 524">Butane Load Rate [grams C<sub>4</sub>H<sub>10</sub> / hour]</td> <td data-bbox="394 492 464 524">5.0</td> <td data-bbox="464 492 533 524">10.0</td> <td data-bbox="533 492 602 524">15.0</td> <td data-bbox="602 492 716 524">15.0</td> </tr> <tr> <td data-bbox="247 524 394 553">Breakthrough limit [grams]*</td> <td data-bbox="394 524 464 553">2.0</td> <td data-bbox="464 524 533 553">2.0</td> <td data-bbox="533 524 602 553">2.0</td> <td data-bbox="602 524 716 553">2.0</td> </tr> </tbody> </table> <p>(* If the canister shows mass loss prior to the 2.0 grams breakthrough then an alternate lower breakthrough limit can be used.</p>	Carbon Canister Bed Volume	Small <99cc< 100 cc	Medium 100 to 249cc ≥ 100 cc and < 250 cc	Large 249 to 550cc ≥ 250 cc and ≤ 550 cc	Extra Large > 550 cc	Butane Load Rate [grams C <sub>4</sub> H <sub>10</sub> / hour]	5.0	10.0	15.0	15.0	Breakthrough limit [grams]*	2.0	2.0	2.0	2.0			<p>The commenter's suggestion to define tolerances for breakthrough and load rate are redundant. The Proposed Amendments provide the tolerance of 10 percent of the specified load rate defined in the table of TP-902 Attachment 1 § 6.5. Therefore, CARB made no changes based on this comment.</p>
Carbon Canister Bed Volume	Small <99cc< 100 cc	Medium 100 to 249cc ≥ 100 cc and < 250 cc	Large 249 to 550cc ≥ 250 cc and ≤ 550 cc	Extra Large > 550 cc															
Butane Load Rate [grams C <sub>4</sub> H <sub>10</sub> / hour]	5.0	10.0	15.0	15.0															
Breakthrough limit [grams]*	2.0	2.0	2.0	2.0															
89	<p><b>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</b></p> <p>California Environmental Protection Agency Air Resources Board</p> <p>Small Off-Road Engine Evaporative Emission Control System Certification Procedure CP-902 Certification Procedure for Evaporative Emission Control Systems on <u>Small Off-Road Engines With Displacement Greater Than 80 Cubic Centimeters</u></p> <p>Adopted: July 26, 2004 Amended: September 18, 2017 Amended: [insert amended date]</p>	<p>As discussed in these comments, component based certification is needed for many products, including handheld. 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 addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.</p>															
90	<p><del>1. GENERAL INFORMATION AND APPLICABILITY</del> <u>General Information and Applicability</u></p> <p>This document describes the procedure for evaluating and certifying evaporative emission control systems on small off-road engines <del>&gt; 80 cc</del> or equipment that use small off road engines <del>&gt; 80 cc</del>. 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, mechanisms to control fuel tank venting, tethered fuel caps, and any other equipment,</p>	<p>As discussed in these comments, component based certification is needed for many products, including handheld. 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 addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.</p>															

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	<p>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&amp;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,</p>			
91	<p><b>2. EVAPORATIVE EMISSION STANDARDS</b> <u>Evaporative Emission Standards</u></p> <p>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, including handheld. 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 addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.</p>
92	<p><del>4. CERTIFICATION OVERVIEW</del><u>Certification Overview</u> 4.1 Summary</p> <p>For certification purposes, small off-road engines (SORE) are grouped into <del>three</del> <u>four</u> categories. The first category includes <u>all engines with displacement less than or equal to 80 cc. The second category includes all</u> walk-behind mowers with displacements greater than 80 cc to less than 225 cc. The <del>second</del> <u>third</u> includes all other engines with displacements greater than 80 cc to less than 225 cc. The <del>third</del> <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 subsequent model year must be obtained for each evaporative family.</p>	<p>As discussed in these comments, component based certification is needed for many products, including handheld. 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 addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.</p>
93	<p><del>5. GENERAL INSTRUCTIONS – EVAPORATIVE EMISSION CONTROL SYSTEM CERTIFICATION</del> 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</p>	<p>As discussed in these comments, component based certification is needed for many products, including handheld. 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 addresses the same concern as an earlier comment. Please refer to Agency Response 24 of this table. CARB made no change in response to this comment.</p>

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	<p>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"> <li>• Where To Submit Applications for Certification</li> <li>• Letter of Intent</li> <li>• Emission Label</li> <li>• Engineering Description of Evaporative Emission System</li> <li>• Emission Warranty</li> <li>• Test Procedures</li> <li>• Modified Test Procedures</li> <li>• Adjustable Parameters and Anti-Tampering Devices</li> <li>• Certification Test Fuels</li> <li>• Amendments to the Application</li> <li>• Running Changes and Field Fixes</li> <li>• Confidentiality</li> <li>• Summary of Certification Process</li> </ul>			
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 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,</p>	<p>OPEI 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.</p>		<p>The comment's suggestion to specify the required details in the LOI is beyond the scope of the Proposed Amendments and therefore CARB made no changes based on the comment. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to the information required in a letter of intent in CP-902 § 5.2. This section requires, "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 application." The requester's suggestion is therefore redundant. CARB made no changes in response to this comment.</p>
95	<p>5.11 Running Changes and Field-Fixes</p> <p>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</p>	<p>To clarify that if the modification doesn't create a new worst case then no new full TP902 is required.</p> <p>To clarify that manufacture shall use Good Engineering</p>	<p>Proposed text ----- Running Changes and Field-Fixes Any factory change to an evaporative family during the model-year production that</p>	<p>The comment's suggestion to add clarifying language is beyond the scope of the Proposed Amendments and therefore CARB made no changes based on the comment. This comment addresses the same concern as an earlier comment. Please refer to Agency Response 33 of this table. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making</p>

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	<p>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.</p>	<p>Judgement for the worst case determination.</p> <p>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,</p> <ul style="list-style-type: none"> <li>• Replacing material of original part with better permeation material.</li> <li>• 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)</li> </ul> <p>A strict certification assessments can impede or obstruct improvements of evaporative control system which can result better evaporative emissions.</p>	<p>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</p>	<p>changes to CP-902 § 5.11 with regard to the requirement to submit new test data and engineering evaluations in a revised certification application to demonstrate that the evaporative family will remain in compliance when modifying a certified evaporative emission control system.</p>

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			<p>case. For example, a component or material-based permeation evaluation shall be used if applicable.</p> <p>-----</p>	
96	<p><b>6. APPLICATION FORMAT INSTRUCTIONS</b>  <u>Application Format Instructions</u> An application for certification shall contain the following information:</p> <ul style="list-style-type: none"> <li>• Application type (e.g., new, running change)</li> <li>• Model year</li> <li>• Full corporate name of the applicant</li> <li>• U.S. EPA-assigned manufacturer code</li> <li>• Engine family name</li> <li>• Evaporative family name</li> <li>• Applicant contact information <ul style="list-style-type: none"> <li>- Name</li> <li>- Title</li> <li>- Company Name</li> <li>- Address</li> <li>- Phone Number</li> <li>- Fax Number</li> <li>- Email Address</li> </ul> </li> <li>• Production plant contact information <ul style="list-style-type: none"> <li>- Name</li> <li>- Title</li> <li>- Company Name</li> <li>- Address</li> <li>- Phone Number</li> <li>- Fax Number</li> <li>- Email Address</li> </ul> </li> </ul>	<p>OPEI notes the following concerns:</p> <p>1) Section 6 of the corresponding application template should be modified to include a fuel cap description number field</p> <p>2) Section 3 of the corresponding application template should be modified to include fuel cap and tether approval number</p> <p>3) Section 6 of the CP does not include the letter of intent</p> <p>4) Section 6 of the CP does not provide details on what data is required to be submitted (data currently requested) from TP902</p> <p>5) The "model summary table" of the corresponding application for &gt;80cc does not include outside diameter of fuel line (with tolerance)</p> <p>6) Are Fax numbers still relevant (also applicable to CP-901 if retained per OPEI request)</p>	<p>Add the following bullets to application requirements:</p> <ul style="list-style-type: none"> <li>- Description of fuel cap including a design diagram</li> <li>- Letter of Intent</li> <li>- Outside diameter of fuel line</li> </ul> <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"> <li>- Engineering drawings of cap, tether, and tank(s)</li> <li>- Evaporative family used in</li> <li>- Exhaust family(s)</li> <li>- Engine model(s)</li> <li>- Fuel cap part number</li> <li>- Fuel cap tether part number</li> <li>- Fuel tank(s) part number</li> </ul> <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"> <li>- Running loss test data and results</li> <li>- carbon canister part number</li> <li>- Carbon cap volume (cc)</li> <li>- Weight of carbon in cap (g)</li> <li>- Activated carbon type and brand</li> <li>- Trap canister working capacity (g)</li> <li>- Evaporative family</li> <li>- Exhaust family(s)</li> <li>- Engine model(s)</li> <li>- Fuel tanks(s)</li> <li>- Nominal fuel tank volume (L)</li> <li>- Total fuel tank volume (L)</li> <li>- Description of worst case criteria</li> </ul>	<p>The commenter's apparent suggestions to modify application forms are beyond the scope of the Proposed Amendments and therefore CARB made no changes based on the comment. The scope of the rulemaking described in the October 2021 45-Day Notice does not include adopting or modifying application forms that request information required in the SORE regulations.</p>
97	• Projected model year production volume in	OPEI is concerned with the	• All emissions certification	The commenter's expression of concern and conclusion

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	<p>California</p> <ul style="list-style-type: none"> <li>• Projected model year production volume in U.S.</li> <li>• Proof the applicant has met the bond requirements of title 13, Cal. Code Regs., section 2774</li> <li>• Date of expected introduction into California commerce</li> <li>• 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 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.</li> <li>• Description of any special test equipment</li> <li>• List of equipment types in the evaporative family</li> <li>• <u>List of equipment brands using engines from the evaporative family, if known</u></li> <li>• Description of each engine and equipment model in the evaporative family <ul style="list-style-type: none"> <li>- Model number</li> <li>- Fuel cap information <ul style="list-style-type: none"> <li>- Model number</li> <li>- Description of fuel tank tether</li> <li>- Description of indication of establishment of vapor seal</li> </ul> </li> <li>- Innovative Product approval, if applicable</li> </ul> </li> </ul>	<p>scope of invalid or other tests in this language. OPEI believes the requirement is limited to certification tests on certification units.</p>	<p>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>	<p>regarding the requirement to submit 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 conducted according to the test procedures specified in the SORE regulations are beyond the scope of the Proposed Amendments and therefore CARB made no changes based on the comment. The scope of the rulemaking described in the October 2021 45-Day Notice does not include making changes to CP-902 § 6 to limit the applicability of the requirement to submit 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 conducted according to the test procedures specified in the SORE regulations. CARB disagrees with the commenter’s conclusion that “the requirement is limited to certification tests on certification units.” The requirement is specifically not limited to certification tests on certification units.</p>
98	<ul style="list-style-type: none"> <li>- Description of each fuel tank model in the evaporative family <ul style="list-style-type: none"> <li>- Model number</li> <li>- Total capacity (L)</li> <li>- Internal surface area (m2)</li> <li>- <u>Tank materials, including pigments, plasticizers, UV inhibitors, or other additives that are expected to affect control of emissions</u></li> <li>- Gasket material</li> <li>- <u>Production method</u></li> <li>- <u>Permeation barrier</u></li> <li>- <u>Engineering drawings (may be simplified)</u></li> <li>- Executive Order number, if applicable, or the following: <ul style="list-style-type: none"> <li>_____ Tank materials, including pigments, plasticizers, UV inhibitors, or other additives that are expected to affect control of emissions</li> <li>_____ Gasket material</li> </ul> </li> </ul> </li> </ul>	<p>OPEI is concerned information including tank materials, pigments, plasticizers, etc.. .may be proprietary and not available to OEMs.</p>		<p>The commenter’s expression of concern about including a description of tank materials in a certification application is not a request for a change to the Proposed Amendments. As described on pages 289-292 of the ISOR, the Proposed Amendments remove text from § 6 that specifies applicants must include Executive Order of Certification numbers applicable to fuel tank models in the evaporative family descriptions required to be included in certification applications, and move text that requires descriptive information about each component model to be included in a certification application for consistency with the Proposed Amendments to the SORE evaporative regulations, which do not allow design certification for MY 2024 and later. Any manufacturer who does not possess the required descriptive information about fuel tank models in its evaporative families could arrange to have the information submitted to CARB by the fuel tank manufacturer or another party who possesses the information. CARB made no change in response to this comment.</p>

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	<del>Production method</del> <del>Permeation barrier</del> <del>Engineering drawings (may be simplified)</del>			
99	<p>Appendix F  CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR NEW 2013 AND LATER SMALL OFF-ROAD ENGINES  California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines</p> <p>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  SOURCE: 75 FR 59259, November 8, 2010, unless otherwise noted  Subpart A—Overview and Applicability</p> <p><b>§ 1054.107 What is the useful life period for meeting exhaust emission standards?</b>  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 <del>five years or a</del> number of hours of operation, <del>whichever comes first</del>, as described in this section.  (a) (1) <del>The For model years 2013 through 2023, the</del> 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:  (i) The median in-use life of equipment into which the engine is expected to be installed.  (ii) The median in-use life of the engine without being scrapped or rebuilt.  (2) <del>For model year 2024 and later engines, the</del> useful life period for exhaust requirements is</p>	<p>The format of the propsoed part 1054 no longer provides direct REDLINE/UNDERLINE/** comparisons to EPA 1054 and presents challenges to understand how and where CARB Part 1054 differs.</p>		<p>As discussed in the Agency Response in section IV.A.11, the Proposed Amendments to Part 1054 are shown in strikeout and underline formatting, reflecting deletions and insertions relative to the currently adopted California Part 1054 – i.e., the regulation actually being modified by the proposed amendments – as required by the California Administrative Procedures Act.</p>
100	<p><b>§ 1054.107 What is the useful life period for meeting exhaust emission standards?</b>  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 <del>five years or a</del> number of hours of operation, <del>whichever comes first</del>, as described in this section.  (a) (1) <del>The For model years 2013 through 2023, the</del> 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:  (i) The median in-use life of equipment into which the engine is expected to be installed.  (ii) The median in-use life of the engine without being scrapped or rebuilt.  (2) <del>For model year 2024 and later engines, the</del> useful life period for exhaust requirements is</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</p>		<p>This comment raises several concerns regarding the period for which engines must meet the applicable standard, or "useful life," for exhaust purposes. CARB made no changes in response to this comment.</p> <p>The comment raises concerns regarding the removal of provisions in current regulation specifying that an engine's useful life, for exhaust compliance purposes, is the shorter of a certain number of hours of operation or five years, suggesting that retaining this provision may be appropriate for lower-use engines. As discussed in the Agency Response 101 of this table, exhaust emission deterioration occurs mainly during operation, and as such, basing the period during which an engine must comply with exhaust emissions on operating hours rather than time elapsed is appropriate.</p> <p>The comment also expresses uncertainty, and implicitly requests clarification, regarding the effective date of the change to useful life provisions. As with other provisions of the Proposed Amendments which do not specify a subsequent effective date, the provision that exhaust useful life must be specified in operating hours rather than</p>

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	<p>specified in the table in Title 13, California Code of Regulations, section 2403(b)(1).  (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. 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.</p>	<p>model year 2024 and later engines. If engines are permitted beyond 2023, as alternatives may permit based on OPEI comments, this section could be applicable. Finally, it is unclear if EPA would permit a harmonized label, or even separate labels with different EDPs.</p>		<p>years would apply for any new applications for certification submitted on or after the effective date of the Proposed Amendments.</p> <p>The comment further claims that the proposed useful life definition would be irrelevant beginning in 2024 because HC + NO<sub>x</sub> emission standards for nongenerator engines in the class IV and V categories will be 0.00 g/kW-hr, beginning in 2024, under the Proposed Amendments. However, any generator within these displacement categories, as well as any nongenerator engine certified to a Family Emission Limit using credits, would still need to specify a useful life at certification.</p> <p>The commenter’s statement regarding U.S. EPA’s acceptance of separate labels with differing emissions durability periods for federal and California regulatory purposes is beyond the scope of this rulemaking.</p>
101	<p><b>§ 1054.110 What evaporative emission standards must my handheld equipment meet?</b>  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 recognize 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>Identical comments were submitted by this commenter addressing existing text in sections 1054.110 and 1054.112, which state that handheld and nonhandheld equipment, respectively, must meet evaporative emission standards for “a useful life of five years.” These comments contrast this with provisions in 1054.107 where the useful life over which exhaust emission standards apply is specified in terms of hours of operation, and suggest revision to the existing regulatory text in sections 1054.110 and 1054.112. The comments suggest that the useful life of handheld and nonhandheld equipment for the purpose of evaporative emission standards and requirements be determined based on the same criteria as the useful life of an engine for the purpose of evaporative emission standards and requirements. CARB made no changes in response to this comment.</p> <p>The term “useful life” is the period during which an off road engine must comply with all applicable emission standards. For evaporative emissions, this period is specified as a number of years. For exhaust emissions, this period is specified in hours of operation because, as described on page 18 of the ISOR, deterioration with regards to exhaust emissions specifically is primarily due to wear and other effects during engine operation. Data from the CSUF user survey show that use rates of SORE vary widely [CSUF SSRC, 2019<sup>2</sup>]. Because of these factors, the degree of exhaust emission deterioration any given engine</p>

<sup>2</sup> CSUF SSRC. 2019. Survey of Small Off-Road Engines (SORE) Operating within California: Results from Surveys with Four Statewide Populations. Prepared by the Social Science Research Center (SSRC) at California State University, Fullerton (CSUF), for CARB and the California Environmental Protection Agency, under CARB Agreement 16MLD011. May 15, 2019.



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				will have over a given period of time is extremely variable, depending on the amount of actual operation within that period which can be highly variable, and specifying a period over which the engine must comply with exhaust emission standards in terms of actual operating hours is more appropriate.
102	<p><b>§ 1054.112 What evaporative emission standards must my nonhandheld equipment meet?</b> 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>	The "Useful Life" is defined in 1054.107 as the number of hours, but as five years here. We recognize 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?		This comment addresses the same concern as an earlier comment. Please refer to Agency Response 101 of this table. CARB made no change in response to this comment.
103	<p><b>§ 1054.115 What other requirements apply?</b> 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 <del>40 CFR part</del> <u>Part 1065</u>. (ii) Account for deterioration in crankcase emissions when determining exhaust deterioration factors. (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. (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 <del>or if it is not normally accessible using ordinary tools</del>. <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</p>	<p>The effective timing of these the change is unclear 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. OPEI 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.</p> <p>The proposed rule implies any tool may be used to evaluate if an 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</p>		<p>This comment requests clarification and presents criticism regarding provisions in the Proposed Amendments to California Part 1054 relating to adjustable parameters, and appears to request that these provisions be changed to exclude certain types of tools which may be used to adjust parameters. CARB made no changes based on this comment. The following response provides clarification and context for several of the commenter's points. As with other provisions of the Proposed Amendments which do not specify a subsequent effective date, the provision that any parameter which can be adjusted with tools may be considered adjustable for emission testing purposes would apply for any new applications for certification submitted subsequent to the effective date of the Proposed Amendments.</p> <p>In response to the statement, "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. OPEI 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.": Any manufacturer who concludes it must redesign elements of its emission control systems because tools are available to adjust parameters beyond the range represented in the manufacturer's certification testing could come to the same conclusion whether reading the current text of Part 1054 or the text in the Proposed Amendments. The Executive Officer could order a parameter to be adjusted throughout the physically adjustable range during a compliance testing. Any manufacturer who in its certification application misrepresented the physically adjustable range of a parameter or failed to disclose a parameter as being</p>

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	adjustable ranges during any testing including certification testing, production-line testing, in-use testing, or new engine compliance testing.	<p>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 . How may manufacturer / industry avoid such a design change for this limited period until all emission credits has been used up?</p>		<p>adjustable when tools are available to adjust that parameter would not have complied with the requirements of Part 1054. No manufacturer is required to certify its engines in any year unless the engines are manufactured for sale, sold, or offered for sale in California, or introduced, delivered or imported into California for introduction into commerce, so no manufacturer would have to take any action regarding redesign or certification for model year 2024 if its engines were not manufactured for sale, sold, or offered for sale in California, or introduced, delivered or imported into California for introduction into commerce. CARB disagrees with the commenter’s conclusion that certain engines should be exempt from the requirement that engines that have adjustable parameters must meet all the requirements of this part for any adjustment in the physically adjustable range for the reasons discussed on pages 315-316 of the ISOR and in this response.</p> <p>In response to the statement, “The proposed rule implies any tool may be used to evaluate if an 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”: The current and proposed text allow a parameter to be treated as not adjustable if it is permanently sealed. The commenter seems to refer to actions which are not adjustments when it refers to breaking or damaging an engine. CARB agrees that engines can be broken or damaged using certain tools. For example, a sledge hammer could potentially be used to break an engine. However, the engine would no longer run if it were broken. Such an action is not an adjustment. Therefore, CARB disagrees with the commenter’s suggestion.</p> <p>In response to the statement, “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,“: The commenter does not provide examples of such tools or other support for its conclusions. CARB has not identified tools that would match this description. An exemption for “expensive” tools would also potentially provide a perverse incentive for vendors of such tools to increase prices to reach the threshold of “significant.”</p> <p>In response to the statement, “Section (b) Adjustable parameters: From MY 2024 all engines applied with carburetors using special screw heads needs to be changes to limiter cap systems . [sic] How may manufacturer /</p>

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				industry avoid such a design change for this limited period until all emission credits [sic] been used up?": This statement is similar to the first paragraph of this comment. The question is beyond the scope of this rulemaking. CARB notes that under the Proposed Amendments, manufacturers have the option of ensuring that the engine complies with emission standards throughout the adjustable range of adjustable parameters, or the option of permanently sealing these parameters.
104	<p><b>§ 1054.125 What maintenance instructions must I give to buyers?</b>  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. <del>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.</del></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. <del>We will</del> <u>may</u> accept scheduled maintenance as 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</p>	<p>If "service accumulation" is the engine period between new and the 0-hour test ("break in", "stabilization period"), OPEI agrees with removal of this clause. However, if "service assumption" is considered the time to achieve EDP, that OPEI disagrees with this proposed change. Part 1054.125 allows maintenance as long as conditions can be satisfied, regardless of engine category.</p> <p>OPEI 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 does not request a change to the Proposed Amendments, although it suggests the commenter may disagree with the Proposed Amendments to this section under certain conditions. CARB made no changes based on the comment. As described on page 316 of the ISOR, the change to delete the sentence, "Note that for engines with ...," is necessary to harmonize California's Part 1054 with recent amendments to the federal Part 1054. In an amendment published at 86 FR 34517, June 29, 2021, the U.S. EPA deleted the equivalent sentence from the federal Part 1054.125, "Note that for handheld engines subject to Phase 3 standards you may perform maintenance on emission-data engines during service accumulation as described in 40 CFR part 90." The commenter appears to request that CARB provide an explanation of language regarding "service accumulation" in California Part 1054. Such explanation is beyond the scope of this rulemaking.</p> <p>The commenter also expresses concern regarding the change of language that CARB "will" accept a manufacturer's assertions regarding scheduled maintenance based on certain evidence to a statement that CARB "may" accept the manufacturer's assertions based on the same evidence. This section lays out the types of supporting evidence a manufacturer may provide to support a manufacturer's assertion that certain maintenance is reasonably likely to be performed. As described on page 317 of the ISOR, the wording change serves to clarify CARB's discretion to determine whether the information provided meets the requirements outlined in this section, and to reject supporting information which is incomplete, inconsistent, inaccurate, or otherwise not representative.</p>

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	maintenance if you have survey data showing this is done at the recommended interval for 65 percent of engines and you demonstrate			
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. <u>For example, this paragraph (c) does not allow you to design engines that require special maintenance for a certain type of expected operation.</u> If we determine that certain</p>	The term low-use engines is unclear. OPEI looking for clarification of this term and applicability to this section.		This comment does not request a change to the Proposed Amendments. CARB made no changes based on the comment. The commenter appears to request that CARB provide an explanation of the term "low-use engines" in the Proposed Amendments to this section. This change matches text inserted in the federal Part 1054 and was adopted for the purpose of harmonizing with federal text. The text provides the examples "recreational or stand-by engines" to clarify the term "low-use engines."
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:  (1) Present emission data for hydrocarbons (such as THC, THCE, or NMHC, as applicable), NO<sub>x</sub>, and CO on an emission-data engine to show your engines meet the applicable exhaust emission standards as</p>	Regarding (p)(1) See OPEI comments to CP-902.		This comment addresses the same concern as an earlier comment. Please refer to Agency Response 97 of this table.

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	<p>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:  (1) Report all test results involving measurement of pollutants for which emission</p>			
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 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></p> <p>(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:  (1) <del>W</del>intertime engines not certified to the specified HC+NO<sub>x</sub> standard.  (2) <del>Two-stroke snowthrower engines using the provisions of § 1054.101(d).</del></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 <del>CCR Title 13,</del></p>	See OPEI comment to 2400 RO regarding definition of exhaust. The definition and the use of handheld here should be aligned with EPA.		This comment seems to address the same concern as an earlier comment, except the term "exhaust" is not defined in the SORE regulations and OPEI does not appear to have submitted comments on section 2400. The comment seems to refer to the definition of "engine" in section 2401. Please refer to Agency Responses 1 and 5 of this table.

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108	<p>California Code of Regulations, §§ 2400-2409.</p> <p><b>§ 1054.245 How do I determine deterioration factors from exhaust durability testing?</b></p> <p>(3) CARB may reject a DF if it has evidence that the DF is not appropriate for that engine family <del>within 30 days of receipt from the manufacturer.</del> 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. <del>Any submitted DF not rejected by ARB within 30 days shall be deemed to have been approved.</del></p> <p>(4) Calculated deterioration factors may cover <del>families and</del> model years in addition to the one 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</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>	<p>No change to current language.</p>	<p>This comment suggests to retain current language. As described on page 325 of the ISOR, the purpose of this change is to remove an arbitrary cutoff period for CARB's review of deterioration factors because the cutoff period of 30 days may be inadequate for such a critical component of the certification evaluation. Therefore, CARB made no changes based on this comment.</p>