

Attachment B

15-Day Modifications to the Original Proposal

Proposed Amendments to the Small Off-Road Engine
Evaporative Emission Regulations, California Code of
Regulations, Title 13, Division 3, Chapter 15. Additional
Off-Road Vehicles and Engines Pollution Control
Requirements, Article 1. Evaporative Emission
Requirements for Off-Road Equipment

Amend sections 2750, 2751, 2752, 2753, 2754, 2754.1, 2754.2, 2755, 2756, 2757, 2758, 2759, 2761, 2762, 2763, 2764, 2765, 2766, 2767, 2767.1, and 2771, title 13, California Code of Regulations, adopt section 2754.3, and repeal section 2768, to read as follows:

[Note: The originally proposed modifications to the regulatory language are shown in underline to indicate additions and ~~striketrough~~ to indicate deletions. The proposed 15-day modifications to the proposed regulations are shown in double underline to indicate additions and ~~double-striketrough~~ to indicate deletions. Only these double underlined and ~~double-striketrough~~ modifications are subject to comment during this comment period. Only text with proposed 15-day modifications are included in this attachment. For all amendments to Small Off-Road Engine Evaporative Emission Regulations approved by the Board during the December 9, 2021, hearing, refer to [Staff Report: Initial Statement of Reasons Appendix B](#). The symbol "*****" indicates that intervening text for which modifications are not proposed is not shown. [Bracketed text] is not part of the proposed amendments. Final page numbers subject to change upon Office of Administrative Law approval.]

Small Off-Road Engine Evaporative Emission Regulations

California Code of Regulations, Title 13, Division 3

Chapter 15. Additional Off-Road Vehicles and Engines Pollution Control Requirements

Article 1. Evaporative Emission Requirements for Off-Road Equipment

§2751. Applicability.

(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), except that engines or equipment powered with CNG, propane, LPG, or LNG may be voluntarily certified and labeled pursuant to this Article.

§2752. Definitions.

- (a) The definitions in section 2401 (a), and section 2403 (b), Chapter 9, Title 13 of the California Code of Regulations, apply to this Article with the following additions:

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(22) “Passively-Purged Carbon Canister” means a carbon canister which draws in ambient air to purge adsorbed compounds using a vacuum created within the fuel tank by normal diurnal temperature variations.

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§2753. Certification Requirements and Procedures.

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- (c) Certification of Complete Systems for Engines or Equipment using engines with displacement less than or equal to 80 cc through model year 2023.

An application for certification of an evaporative emission control system to the fuel tank permeation standard specified in section 2755 or 2757 must include fuel tank permeation data for the fuel tank in the evaporative family that is expected to exhibit the highest permeation rate relative to the applicable permeation emission standard. The application shall also detail the criteria used to determine which fuel tank in the evaporative family is expected to exhibit the highest permeation rate relative to the applicable permeation emission standard. An applicant may certify an evaporative emission control system for engines with displacement less than or equal to 80 cc to the diurnal emission standards in section 2754 of this Article in lieu of the permeation emission standards in section 2755 and may follow the certification procedures outlined in CP-902, adopted July 26, 2004, and amended September 18, 2017. An application for certification of an evaporative emission control system for engines with displacement less than or equal to 80 cc to the diurnal emission standards in section 2754 of this Article must meet the requirements of section 2753(b) of this Article.

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§2754. Diurnal and Hot Soak Plus Diurnal Emission and Design Standards.

- (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, through the 2023 model year. Engines with displacement less than or equal to 80 cc may certify to the diurnal emission standards in Table 1 below for displacement category greater than 80 cc to less than 225 cc through model year 2023. 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.

**Table 1
Diurnal Emission and Design Standards**

Effective Date Model Year	Diurnal Emission	Design Standards		
		Fuel Line Permeation Emission Standard ¹ (g ROG·m ⁻² ·day ⁻¹)	Fuel Tank Permeation ² Emission Standard (g ROG·m ⁻² ·day ⁻¹)	Carbon Canister ³ or Equivalent Butane Working Capacity Standard (g organic material hydrocarbon equivalent)
Displacement Category: Walk-Behind Mowers >80 cc - <225 cc				
2006	None	15	None	None
2007 and 2008	1.3	N/A	N/A	N/A
2009	1.0	N/A	N/A	N/A
Displacement Category: > 80 cc - < 225 cc (except Walk-Behind Mowers)				
2006	None	15	None	None
2007 through 2011	1.20 + 0.056 × nominal capacity (liters)	15	2.5	Specified in TP-902
2012	0.95 + 0.056 × nominal capacity (liters)	15	1.5	Specified in TP-902
Displacement Category: ≥ 225 cc				
2006 and 2007	None	15	None	None
2008	1.20 + 0.056 × nominal capacity (liters)	15	2.5	Specified in TP-902
2013	1.20 + 0.056 × nominal capacity (liters)	15	1.5	Specified in TP-902

¹ For model year 2006 only, all engines and equipment with displacements > 80 cc - <225 cc must comply with the fuel line permeation emission standard. For model years 2006 and 2007, all engines and equipment with displacements greater than or equal to 225 cc must comply with the fuel line permeation emission standard.

² Permeation emissions as determined by TP-901. Permeation emissions must be measured to two significant digits.

³ Canister design requirements and the procedure for determining butane working capacity are specified in TP-902. The Executive Officer may designate technology equivalent to carbon canisters on a case by case basis as part of the certification process per section 2767.

- (2) On or after the model year set out in Table 1 of this section through model year 2023, diurnal emissions from any small off-road engine or equipment unit that uses a small off-road engine with displacement greater than 80 cc must not exceed the diurnal emission standards specified in Table 1 of this section.
- (3) Table 2, below, specifies the hot soak plus diurnal emission standards for small off-road engines on and after the model years indicated, except for generator engines and ≥ 225 cc pressure washer engines.

Table 2
Hot Soak Plus Diurnal Emission Standards for Small Off-Road Engines, Except Generator Engines and ≥ 225 cc Pressure Washer Engines

<u>Displacement Category</u>	<u>Effective Date Model Year</u>	<u>Hot Soak Plus Diurnal Emission Standards¹ (g organic material hydrocarbon equivalent·test⁻¹)</u>
≤ 80 cc	<u>2024</u>	<u>0.00</u>
<u>> 80 cc - < 225 cc Walk-Behind Mowers</u>	<u>2024</u>	<u>0.00</u>
<u>> 80 cc - < 225 cc (except Walk-Behind Mowers)</u>	<u>2024</u>	<u>0.00</u>
<u>≥ 225 cc</u>	<u>2024</u>	<u>0.00</u>

¹ 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.

- (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.
- (5) Table 3, below, specifies the hot soak plus diurnal emission standards for generator engines on and after the model years indicated.

Table 3
Hot Soak Plus Diurnal Emission Standards for Generator Engines

<u>Displacement Category</u>	<u>Effective Date Model Year</u>	<u>Hot Soak Plus Diurnal Emission Standards¹ (g organic material hydrocarbon equivalent·test⁻¹)</u>
≤ 80 cc	<u>2024</u>	<u>0.50</u>
	<u>2028</u>	<u>0.00</u>
> 80 cc - < 225 cc	<u>2024</u>	<u>0.60</u>

	<u>2028</u>	<u>0.00</u>
<u>≥ 225 cc</u>	<u>2024</u>	<u>0.70</u>
	<u>2028</u>	<u>0.00</u>

¹ 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.

(6) On or after the model year set out in Table 3 of this section 2754, hot soak plus diurnal emissions from any generator engine, must not exceed the hot soak plus diurnal emission standard specified in Table 3 of this section. The emission standards in Table 3 of this section are optional for model years 2022 and 2023.

(7) Table 4, below, specifies the hot soak plus diurnal emission standards for ≥ 225 cc pressure washer engines on and after the model years indicated.

Table 4
Hot Soak Plus Diurnal Emission Standards for ≥ 225 cc Pressure Washer Engines

<u>Displacement Category</u>	<u>Effective Date Model Year</u>	<u>Hot Soak Plus Diurnal Emission Standards¹ (g organic material hydrocarbon equivalent·test⁻¹)</u>
<u>≥ 225 cc</u>	<u>2024</u>	<u>0.70</u>
	<u>2028</u>	<u>0.00</u>

¹ 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.

(8) On or after the model year set out in Table 4 of this section 2754, hot soak plus diurnal emissions from any ≥ 225 cc pressure washer engine, must not exceed the hot soak plus diurnal emission standard specified in Table 4 of this section. The emission standards in Table 4 of this section are optional for model years 2022 and 2023.

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(e)-(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, as applicable per ANSI/OPEI B71.10-2013 sections 1 and 4.4 or ANSI/OPEI B71.10-2018 sections 1 and 4.2.1.

- (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, as applicable per ANSI/OPEI B71.10-2018 sections 1 and 4.2.1.
- (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. Approval by the Executive Officer is not required for engines with displacement less than or equal to 80 cc. 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.

Note: Authority cited: Sections 39600, 39601 and 43013, Health and Safety Code.
Reference: Section 43013, Health and Safety Code.

§2754.1. Certification Averaging, ~~and Banking, and Trading.~~

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~~(e)~~ (f) Credit Calculation and Holder Compliance with Emission Standards.

- (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 and rounded to the nearest hundredth of a gram~~. Consistent units with two significant digits are to be used throughout the equations.

EFELD = Applicable diurnal or hot soak plus diurnal emission standard – EMEL

Credits = EFELD × Production Volume

Where:

EMEL = the declared evaporative model emission limit for the model tested within the evaporative family in grams

EFELD = the calculated evaporative family emission limit differential for the evaporative family in grams

Production Volume is as defined in section 2752(a)(21)-(25)

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§2755. Permeation Emission Standards.

On or after the model year set out herein, and through model year 2023, fuel tanks and fuel lines used on equipment subject to this section must not exceed the following permeation rates:

Permeation Emission Standards
(grams per meter² per day)

Effective Date	Applicability	Requirement ¹
2007	Small off-road engines with displacements ≤ 80 cc	Fuel tank permeation emissions shall not exceed 2.0 grams per square meter of internal surface area per day as determined by TP-901.
2020	Small off-road engines with displacements ≤ 80 cc	Fuel lines shall meet the requirements of section 2754(b)(2), except that the permeation emission standard for fuel lines used on chainsaws is 225 g·m ⁻² ·day ⁻¹ .

¹ Permeation rate must be measured to two significant digits.

- (a) Data documenting the permeation rate of fuel tanks and fuel lines must be included in a certification application.
- (b) The test procedure for determining compliance with the fuel tank permeation emission standard is TP-901, which is incorporated by reference herein and specified in section 2758. The test procedure used to determine compliance with the fuel line permeation emission standard is SAE J1737 (~~Stabilized May 2013~~), SAE J30, SAE J1527, or, only for fuel lines with inner diameter 4.75 mm or less, SAE J2996.
- (c) Engines that certify to the diurnal emission standards set forth in section 2754 of this Article do not need to meet the requirements of this section.

Note: Authority cited: Sections 39600, 39601 and 43013, Health and Safety Code.
Reference: Section 43013, Health and Safety Code.

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§2765. New Equipment Compliance Testing.

(a) Compliance Test Procedures.

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- (5) All testing must be conducted in accordance with the applicable model year evaporative emission test procedures, except that durability testing and preconditioning may be omitted or conducted at a lower temperature at the Executive Officer's discretion. The hot soak test shall be performed at the temperature at which the hot soak test was performed during certification testing. Any evaporative emission control system parameters must be set to values or positions that are within the range available to the ultimate purchaser as determined by CARB. No break-in, modifications, adjustments, special preparation or maintenance will be allowed on fuel lines, carbon canisters, fuel tanks, engines or equipment units chosen for compliance testing without the written consent of the Executive Officer.

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