

Appendix C-B-2

Purpose and Rationale for Proposed Amendments to the Heavy-Duty Otto-Cycle Engine Test Procedures

CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2004 THROUGH 2026 MODEL HEAVY-DUTY OTTO-CYCLE ENGINES AND VEHICLES

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Cover Page

Purpose

The title of the document on the cover page has been amended from “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles” to “California Exhaust Emission Standards and Test Procedures for 2004 through 2026 Model Heavy-Duty Otto-Cycle Engines and Vehicles” (2026-OTTO-TPS). The purpose of this amendment is to indicate that these existing test procedures are only applicable through the end of the 2026 model year (MY).

Rationale

The proposed amendment is necessary to phase out the existing test procedures by the end of the 2026 MY. All existing requirements will only apply through the end of 2026 MY, and a new set of test procedures will be introduced to cover all heavy-duty engine (HDE) productions for 2027 and subsequent MYs.

Purpose

The purpose of the amendment that states “Insert Date of Amendment” on the cover page is to create a placeholder for the most recent date of amendment to the 2026-OTTO-TPS.

Rationale

This proposed amendment is necessary to ensure that California Air Resources Board (CARB) staff’s most recently amended version of these proposed test procedures is properly referenced in the regulations. The proposed amended test procedures are a necessary complement to the proposed regulations for this rulemaking because the test procedures contain requirements applicable to only 2024 through 2026 MY heavy-duty (HD) Otto-cycle engines that help to ensure the emission benefits of this rulemaking are fully realized.

Reference Documents

Purpose

The purpose of the documents referenced in the 2026-OTTO-TPS is to indicate that the documents are referred to and are used in conjunction with the certification of HDEs and heavy-duty vehicles (HDV). The following documents have been added to the list of references of these test procedures: “California Evaporative Emission Standards and Test Procedures for 2026 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, Medium-Duty Vehicles, and Heavy-Duty Vehicles,” “Useful life requirements,” and “California Exhaust Emission Standards and Test Procedures for 2027 and Subsequent Model Year Heavy-Duty Engines, Vehicles and Hybrid Powertrains.” Additionally, the updated title of the Evaporative Emission Standards and Test Procedures was referenced, and the warranty requirements (section 2036) were duplicative, thus, we are proposing for deletion. The new test procedures for 2027 MY, “California Exhaust Emission Standards and Test Procedures for 2027 and Subsequent Model Year Heavy-Duty Engines, Vehicles, and Hybrid Powertrains,” has been added to the list of references of these test procedures. The section numbering conventions for this document in subparagraph 4 on page 4 were proposed to be deleted as it is no longer applicable here.

Rationale

The reference to the 2027 test procedures is necessary to establish California emission standards and test procedures for HDEs and HDVs and for harmonization with the federal regulations. By referring to these test procedures, this section helps ensure that the regulated entities can find additional important information to meet California requirements and enable CARB to enforce these regulations. The section numbering conventions for this document were removed because they are no longer necessary and applicable here.

Document Title

Purpose

The title of the document has been amended from “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles” to “California Exhaust Emission Standards and Test Procedures for 2004 through 2026 Model Heavy-Duty Otto-Cycle Engines and Vehicles.” The purpose of this amendment is to indicate that these existing test procedures are only applicable through the end of the 2026 MY.

Rationale

The proposed amendment is necessary to phase out the existing test procedures by the end of the 2026 MY. All existing requirements will only apply through the end of the 2026 MY, and a new set of test procedures will be introduced to cover all HD engine productions for 2027 and subsequent MYs.

Introductory Paragraph

Purpose

The purpose of the introduction is to provide context and background regarding the 2026-OTTO-TPS. The title of the referenced test procedures has been amended from “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles” to “California Exhaust Emission Standards and Test Procedures for 2004 through 2026 Model Heavy-Duty Otto-Cycle Engines and Vehicles.” The text in the introductory paragraph reflects this change.

Rationale

The proposed amendment is necessary to modify the title of the referenced test procedures in the introductory paragraph because the title of the document has been modified in this rulemaking. All existing requirements will only apply through the end of the 2026 MY, and a new set of test procedures will be introduced to cover all HD engine productions for 2027 and subsequent MYs.

PART 86 – CONTROL OF EMISSIONS FROM NEW AND IN-USE HIGHWAY VEHICLES AND ENGINES

Part I. GENERAL PROVISIONS FOR CERTIFICATION AND IN-USE VERIFICATION OF EMISSIONS

Subpart A - General Provisions for Heavy-Duty Engines and Heavy-Duty Vehicles

1. General Applicability. [§86.xxx-1].

A. Federal Provisions.

Paragraph 2. §86.005-1.

Subparagraph 2.2

Purpose

The purpose of this subparagraph is to describe the general applicability of Part 86. The applicability of these requirements has been modified from “2020 and subsequent model” to “2020 through 2026 model year” incomplete HD vehicles with 10,000 pounds (lb) or less gross vehicle weight rating (GVWR).

Rationale

The proposed amendment is necessary to reflect the MY requirement i.e., ending in 2026 MY. This amendment would make it consistent with the applicable MYs throughout these 2026-OTTO-TPS.

Paragraph 3. §86.016-1.

Subparagraph 3.1.2

Purpose

The purpose of this subparagraph is to describe the general applicability of Part 86. The applicability of this requirement has been modified from “2020 and subsequent model” to “2020 through 2026 model year” incomplete HD vehicles with 10,000 lb or less GVWR.

Rationale

The proposed amendment is necessary to reflect the MY requirement i.e., ending in 2026 MY. This amendment would make it consistent with the applicable MYs throughout the 2026-OTTO-TPS.

B. California Provisions.

Paragraph 1

Purpose

The purpose of this paragraph is to describe the applicability criteria for HD Otto-Cycle engines and vehicles. The applicability of these requirements has been modified from “2021 and subsequent model” to “2021 through 2026 model year” HD Otto-cycle engines, used in vehicles which normally exceed 33,000 lb GVWR, based on primary intended service class.

Rationale

The proposed amendment is necessary to reflect the MY requirement i.e., ending in 2026 MY. This amendment would make it consistent with the applicable MYs throughout the 2026-OTTO-TPS.

2. Definitions. [§86.xxx-2].

A. Federal Provisions.

Paragraph 1. §86.004-2.

Subparagraphs 1.2.2 and 1.2.5

Purpose

The purpose of these subparagraphs is to define the terms used in this Part. The “Useful Life” definition for an Otto-cycle HD engine family (old subparagraphs 1.2.2(3)(ii) and (iii)) has been modified to delete the required period during which an engine is required to comply with all applicable emission standards for 2027 and later MYs. The old subparagraph 1.2.2(3)(iv) is renumbered to new subparagraph 1.2.2(3)(ii). The applicable MYs in the new subparagraph 1.2.2(3)(ii) is also modified from “2024 and subsequent model” to “2024 through 2026 model year” Otto-cycle engines.

Finally, the “Useful Life” definition for Otto-cycle hybrid powertrains (subparagraph 1.2.5(6)) has been modified to end the applicability in the 2026 MY.

Rationale

The proposed amendments are necessary since the requirements would not apply to 2027 and subsequent MY engines. The useful life requirements for such MYs are specified in the new test procedures, “California Exhaust Emission Standards and Test Procedures for 2027 and Subsequent Model Heavy-Duty Engines, Vehicles and Hybrid Powertrains” (2027-TPS).

Paragraph 3. §86.012-2.

Subparagraph 3.1

Purpose

The purpose of this subparagraph is to define the terms used in this Part. The introductory subparagraph has been modified to end the applicable MYs with 2026 MY engines and vehicles.

Rationale

The proposed amendment is necessary to reflect the MY requirement, i.e., ending in the 2026 MY. This amendment would make it consistent with the applicable MYs throughout the 2026-OTTO-TPS.

B. California Provisions.

“Medium-Duty Vehicle” and “Optional Low NOx Engine”

Purpose

The purpose of this subparagraph is to define the terms used in this Part. Both “Medium-Duty Vehicle” and “Optional Low NOx Engine” definitions have been modified to end the applicability in the 2026 MY. The “Medium-Duty Vehicle” definition is also modified to include another chassis standards reference for the 2026 MY (title 13, CCR, section 1961.4).

Rationale

The proposed amendments are necessary to reflect the MY requirement, i.e., ending in the 2026 MY. These amendments would make it consistent with the applicable MYs throughout the 2026-OTTO-TPS. An additional reference is needed to refer to the requirements under title 13, CCR, section 1961.4, which became effective on November 30, 2022.

10. Emission Standards for Otto-Cycle Heavy-Duty Engines and Vehicles. [§86.xxx-10].

A. Federal Provisions.

Paragraph 4. §86.008-10.

Subparagraph 4.1.1

Purpose

The purpose of this subparagraph is to specify the applicable emission standards and requirements for Otto-cycle HD engines. This subparagraph has been modified to end the applicability in the 2026 MY.

Rationale

The proposed amendment is necessary to reflect the MY requirement, i.e., ending in the 2026 MY. This amendment would make it consistent with the applicable MYs throughout the 2026-OTTO-TPS.

B. California Provisions.

Paragraph 1

Purpose

The purpose of this paragraph is to specify the applicable emission standards and requirements for Otto-cycle medium- and HDEs.

Rationale

The proposed amendments are necessary to reflect the MY requirement, i.e., ending in the 2026 MY. These amendments would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

Paragraph 3. Exhaust Emission Standards for 2024 and Subsequent Model Otto-Cycle Heavy-Duty Engines.

Purpose

The purpose of this paragraph is to specify the applicable emission standards and requirements for Otto-cycle HDEs. The title of this paragraph has been modified to end the applicability in the 2026 MY.

Rationale

The proposed amendment is necessary to reflect the MY requirement, i.e., ending in the 2026 MY. This amendment would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

Subparagraph 3.1

Purpose

The purpose of this subparagraph is to specify the applicable emission standards and requirements for Otto-cycle HDEs used in vehicles over 14,000 lb GVWR and Otto-cycle engines used in incomplete medium-duty vehicles (MDV) 10,001 to 14,000lb GVWR. The subparagraph and title of the table have been modified to end the applicability in the 2026 MY. The table is also modified to delete the requirements for 2027 and subsequent MYs. Footnote A is also modified to include another chassis standards reference for the 2026 MY (title 13, CCR, section 1961.4).

Rationale

The proposed amendments are necessary since the specified requirements would not apply to 2027 and subsequent MY engines. The Federal Test Procedure (FTP) cycle requirements for such MYs are specified in the new test procedures, 2027-TPS. An additional reference is

needed to refer to the requirements under title 13, CCR, section 1961.4, which became effective on November 30, 2022.

Subparagraph 3.2. Optional Low NO_x Emission Standards for 2024 and Subsequent Model Heavy-Duty Engines.

Purpose

The purpose of this subparagraph is to specify the applicable emission standards and requirements for Otto-cycle HDEs used in vehicles over 14,000 lb GVWR. The subparagraph and title of the table have been modified to end the applicability in 2026 MY. The table is also modified to delete the required FTP cycle applicable for 2027 and subsequent MYs.

Rationale

The proposed amendments are necessary since the requirements would not apply to 2027 and subsequent MY engines. The FTP cycle requirements for 2027 and subsequent MYs are specified in the new test procedures, 2027-TPS.

Paragraph 4. Exhaust Emission Standards for 2022 and Subsequent Model Otto-Cycle Hybrid Powertrains used in Hybrid Vehicles over 14,000 pounds GVWR.

Purpose

The purpose of this paragraph is to specify the applicable emission standards and requirements for Otto-cycle hybrid powertrains. The title of this paragraph and subparagraphs have been modified to end the applicability in the 2026 MY.

Rationale

The proposed amendments are necessary to reflect the MY requirement, i.e., ending in the 2026 MY. These amendments would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

Paragraph 5

Purpose

The purpose of this paragraph is to specify the applicable brake-specific exhaust non-methane hydrocarbons (NMHC), carbon monoxide (CO), oxides of nitrogen (NO_x), and particulate matter (PM) emission standards and requirements for HDEs. The paragraph has been modified to end the applicable MYs with the 2026 MY.

Rationale

The proposed amendment is necessary to reflect the MY requirement, i.e., ending in the 2026 MY. This amendment would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

12. Alternative Certification Procedures. [§86.080-12].

B. California Provisions.

Subparagraph 1.2. (a)(5) Optional Powertrain Certification Test Procedure for Otto-Cycle Hybrid Powertrains for 2022 and Subsequent Model Year.

Purpose

The purpose of this subparagraph is to describe the applicable optional powertrain certification test procedures for Otto-cycle hybrid powertrains. The title of this subparagraph has been modified to end the applicability in the 2026 MY.

Rationale

The proposed amendment is necessary to reflect the MY requirement, i.e., ending in the 2026 MY. This amendment would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

15. NOx and Particulate Averaging, Trading, and Banking for Heavy-Duty Engines. [§86.xxx-15].

Paragraph 2. §86.007-15.

B. California Provisions.

Paragraph 2. California-only Averaging, Banking, and Trading (CA-ABT) Program for 2022 and Subsequent Model Years.

Purpose

The purpose of this paragraph is to provide the general provisions for participating in the California NOx and NMHC ABT program for compliance with the standards. The title of this paragraph and the subparagraph have been modified to end the applicability in the 2026 MY.

Rationale

The proposed amendment is necessary to reflect the MY requirement, i.e., ending in the 2026 MY. This amendment would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

Subparagraph 2.(f)

Purpose

The purpose of this subparagraph is to show the methodology for calculating credits for engine and hybrid powertrain families. The “applicable useful life” and “current MY” requirements for the engine family or optionally certified Otto-cycle hybrid powertrain family in miles have been modified to be consistent with the 2026 MY requirement of 110,000 miles applicable useful life for an HD Otto-cycle engine.

Rationale

The proposed amendments are necessary to reflect the MY requirement, i.e., ending in the 2026 MY as well as the appropriate useful life for that MY. These amendments would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

Subparagraph 2.(g). Credit Life.

Purpose

The purpose of this subparagraph is to specify the credit life requirement. The example in this subparagraph has been deleted because the credit life stated in the example would end in the 2029 MY and these test procedures have been modified to indicate applicability through the end of the 2026 MY. Therefore, the example would no longer be applicable here.

Rationale

The proposed deletion of the example is necessary because five MYs of credit life would go beyond the 2026 MY which is out of the scope of these test procedures. This amendment would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

Subparagraph 2.(h). Family Emission Limits (FEL).

Purpose

The purpose of this subparagraph is to specify the NO_x and NMHC FEL values, depending on the MY for MD and HD Otto-cycle engines and hybrid powertrains. Subparagraph (h)(3) has been deleted because the requirement is applicable for the 2027 MY and these test procedures have been modified to indicate applicability through the end of the 2026 MY. In addition, subparagraph (h)(4) has been modified to end the applicable MYs to 2026 MY.

Rationale

The proposed amendments are necessary since the requirements would not apply to 2027 and subsequent MY engines. The FEL value requirements for such MYs are specified in the new test procedures, 2027-TPS.

Subparagraph 2.(i). Heavy-duty zero-emission averaging set.

Purpose

The purpose of this subparagraph is to allow manufacturers to generate NO_x and NMHC credits for zero-emission powertrain families used in class 4 through 8 vehicles. Subparagraph (i)(3) has been modified to end the availability of zero-emission credits in 2026 MY since these test procedures have been modified to indicate applicability through the end of the 2026 MY.

Rationale

The proposed amendments are necessary to reflect the applicable MY, i.e., ending in 2026 MY. This amendment would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

Subparagraph 2.(k). 2026 model year excess NOx credits.

Purpose

The purpose of this subparagraph is to allow carryover of excess NOx credits in the CA-ABT bank at the end of the 2026 MY, and require remediation of 2026 MY deficits through the CA-ABT program.

Rationale

The proposed amendment is necessary to provide flexibility in credit usage for 2027 and subsequent MYs, ensure continued compliance with NOx emission standards, and maintain accountability through timely remediation of deficits. Manufacturers will be allowed to carryover excess NOx credits accumulated at the end of the 2026 MY in the CA-ABT bank, and use those credits for certification and sale of 2027 and subsequent MY HDEs in California.

The five-year credit life requirement will continue to be applicable. For example, credits accumulated during the 2025 MY period will expire at the end of the 2030 MY.

Accumulated credits in the CA-ABT bank must be used in the spark-ignition heavy-duty engine averaging set for 2027 and subsequent MYs. Cross-trading of credits between different averaging sets is not allowed.

All credits in the heavy-duty zero-emission averaging set will expire at the end of the 2026 MY; therefore, those credits will not be available in 2027 and subsequent MYs.

All deficits in the CA-ABT bank must be offset under the provisions of the CA-ABT program and credits from the national ABT program cannot be used to offset those deficits.

Paragraph 3. Early compliance credit multipliers for 2022 through 2030 model year engine families and optionally certified Otto-cycle hybrid powertrains.

Purpose

The purpose of this paragraph is to provide eligibility for manufacturers to generate credits for complying with future MY requirements. The title of this paragraph has been modified to end the early compliance credit multipliers in the 2026 MY since these test procedures have been modified to indicate applicability through the end of the 2026 MY.

Rationale

The proposed amendment is necessary to reflect the applicable MY, i.e., ending in the 2026 MY. This amendment would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

Subparagraph 3.(a)

Purpose

The purpose of this subparagraph is to provide eligibility for manufacturers to generate credits for complying with future MY requirements for California certified engine families and optionally certified Otto-cycle hybrid powertrains. This subparagraph has been modified to end the early

compliance credit multipliers in the 2026 MY since these test procedures have been modified to indicate applicability through the end of the 2026 MY.

Rationale

The proposed amendment is necessary to reflect the applicable MY, i.e., ending in the 2026 MY. This amendment would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

Subparagraph 3.(b)

Purpose

The purpose of this subparagraph is to provide eligibility criteria for engine families and optionally certified Otto-cycle hybrid powertrains. The example in this subparagraph has been modified from “2025 MY” to “2023 MY” engine family with its appropriate NOx FEL value. In addition, the example has been modified to show compliance with “2024 MY” rather than “2027 MY” useful life, durability, warranty, in-use testing requirements, on-board diagnostics requirements, etc., since these test procedures have been modified to indicate applicability through the end of the 2026 MY.

Rationale

The proposed amendments are necessary to reflect the applicable MY, i.e., ending in the 2026 MY. These amendments would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

Subparagraph 3.(d)

Purpose

The purpose of this subparagraph is to specify the early compliance credit multipliers depending on engine family MY. The table in this subparagraph has been modified to delete the credit multipliers applicable for 2027 and subsequent MYs.

Rationale

The proposed amendment is necessary since the credit multipliers would not apply to 2027 and subsequent MY engines. The eligibility to generate credits for such MYs is specified in the new test procedures, 2027-TPS.

25. Maintenance. [§86.xxx-25].

A. Federal Provisions.

Paragraph 1. §86.004-25.

Subparagraph 1.4

Purpose

The purpose of this subparagraph is to specify the minimum maintenance intervals for Otto-cycle HDEs, including hybrid powertrains. This subparagraph has been modified to delete

the adjustment, cleaning, repair, or replacement frequency applicable for 2027 and subsequent MYs.

Rationale

The proposed amendment is necessary since these maintenance provisions would not apply to 2027 and subsequent MY engines. The maintenance requirements for such MYs are specified in the new test procedures, 2027-TPS.

Subparagraph 1.5

Purpose

The purpose of this subparagraph is to specify the maintenance provisions for Otto-cycle HDEs including hybrid powertrains. This subparagraph has been modified to delete the adjustment, cleaning, repair, or replacement of the oxygen sensor applicable for 2027 and subsequent MYs.

Rationale

The proposed amendment is necessary since these maintenance provisions would not apply to 2027 and subsequent MY engines. The maintenance requirements for such MYs are specified in the new test procedures, 2027-TPS.

Subparagraph 1.6

Purpose

The purpose of this subparagraph is to specify the maintenance provisions for Otto-cycle HDEs, including hybrid powertrains. This subparagraph has been modified to delete the adjustment, cleaning, repair, or replacement frequency applicable for 2027 and subsequent MYs.

Rationale

The proposed amendment is necessary since these maintenance provisions would not apply to 2027 and subsequent MY engines. The maintenance requirements for such MYs are specified in the new test procedures, 2027-TPS.

Subparagraph 1.7

Purpose

The purpose of this subparagraph is to specify the maintenance provisions for Otto-cycle HDEs including hybrid powertrains for 2027 and subsequent MYs. This subparagraph (vi) has been deleted because the maintenance requirements are applicable for 2027 MY and these test procedures have been modified to indicate applicability through the end of the 2026 MY. The existing subsequent subparagraphs are renumbered because of the deletion of this subparagraph.

Rationale

The proposed amendments are necessary since these maintenance provisions would not apply to 2027 and subsequent MY engines. The maintenance requirements for such MYs are specified in the new test procedures, 2027-TPS.

Subparagraphs 1.8 through 1.10

Purpose

The purpose of this amendment is to renumber old subparagraphs 1.8 to 1.10 to new subparagraphs 1.7 to 1.9.

Rationale

This amendment is necessary to maintain sequence with the other subparagraphs in this paragraph after the deletion of old subparagraph 1.7.

Subparagraph 1.11

Purpose

The purpose of this subparagraph is to provide an option for requesting a new maintenance schedule. This subparagraph has been modified to delete the maintenance schedule request applicable for 2027 and subsequent MYs since these test procedures have been modified to indicate applicability through the end of the 2026 MY. The format has been changed because of the deletion of some bullets that are applicable for 2027 and subsequent MYs. Furthermore, this subparagraph has been renumbered to 1.10.

Rationale

The proposed amendments are necessary since these maintenance provisions would not apply to 2027 and subsequent MY engines. The maintenance requirements for such MYs are specified in the new test procedures, 2027-TPS.

Subparagraphs 1.12 through 1.14

Purpose

The purpose of this amendment is to renumber old subparagraphs 1.12 to 1.14 to new subparagraphs 1.11 to 1.13.

Rationale

This amendment is necessary to maintain sequence with the other subparagraphs in this paragraph after the deletion of old subparagraph 1.7.

30. Certification. [§86.xxx-30].

Paragraph 2. §86.007-30.

B. California Provisions.

Paragraph 1

Purpose

The purpose of this paragraph is to describe the certification requirements for HDEs. This subparagraph has been modified to end the requirements in the 2026 MY since these test procedures have been modified to indicate applicability through the end of the 2026 MY.

Rationale

The proposed amendment is necessary to reflect the applicable MY, i.e., ending in the 2026 MY. This amendment would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

35. Labeling. [§86.xxx-35].

Paragraph 1. §86.095-35.

B. California Provisions.

Subparagraphs 2 and 3

Purpose

The purpose of these subparagraphs is to describe the labeling requirements for hybrid powertrains and for engines that have been certified to Optional Low NOx Engine standards. These subparagraphs have been modified to end the requirements in the 2026 MY since these test procedures have been modified to indicate applicability through the end of the 2026 MY.

Rationale

The proposed amendments are necessary to reflect the applicable MY, i.e., ending in the 2026 MY. These amendments would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

Part II. OTHER REQUIREMENTS; TEST PROCEDURES

Subpart N - Exhaust Test Procedures for Heavy-Duty Engines

86.1370. In-Use Test Procedures: Moving Average Window.

B. California Provisions.

Paragraph 1. Test Procedures for Moving Average Window (MAW) Method.

Purpose

The purpose of this paragraph is to describe the MAW approach for in-use compliance for Otto-cycle HDEs. This paragraph has been modified to end the requirements in the 2026 MY since these test procedures have been modified to indicate applicability through the end of the 2026 MY.

Rationale

The proposed amendment is necessary to reflect the applicable MY, i.e., ending in the 2026 MY. These amendments would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

Subparagraph 1.4. Emissions testing evaluation and vehicle pass criteria Sum-over-Sum (SOS) Evaluation.

Purpose

The purpose of this subparagraph is to define the period of a MAW as 300 seconds of valid data. The applicable MY for the conformity factor of 2.0 has been modified to end in the 2026 MY. The conformity factor of 1.5 for 2030 and subsequent MYs has been deleted because this requirement is beyond the 2026 MY and these test procedures have been modified to indicate applicability through the end of the 2026 MY.

Rationale

The proposed amendments are necessary since this MAW test procedure would not apply to 2027 and subsequent MY engines. The new compliance methodology for 2027 and later MYs is specified in the new test procedures, 2027-TPS.

PART 1036 – CONTROL OF EMISSIONS FROM NEW AND IN-USE HEAVY-DUTY HIGHWAY ENGINES

Subpart A – Overview and Applicability

1036.1. Does this part apply for my engines?

Paragraph 1

Purpose

The purpose of this paragraph is to describe the applicability of Part 1036. The applicability of these requirements has been modified from “2022 and subsequent model year” to “2022 through 2026 model year” Otto-cycle engines and hybrid powertrains.

Rationale

The proposed amendment is necessary to reflect the MY requirement, i.e., ending in the 2026 MY. This amendment would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

Subpart B – Emission Standards and Related Requirements

1036.108. Greenhouse gas emission standards.

Paragraph 3

Purpose

The purpose of this paragraph is to specify the greenhouse gas (GHG) emission standards for HDEs. This subparagraph also provides an optional compliance pathway for manufacturers referred to as the “Optional Low carbon dioxide (CO₂) Emission Standard.” The applicability of this optional compliance pathway has been modified from “2017 and subsequent model year” to “2017 through 2026 model year” HD Otto-cycle engine.

Rationale

The proposed amendment is necessary to reflect the MY requirement, i.e., ending in the 2026 MY. This amendment would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

Subpart F – Test Procedures

1036.501. How do I run a valid emission test?

Paragraph 3

Purpose

The purpose of this paragraph is to describe how to run a valid emission test using the specified special equipment and procedures. This paragraph also provides additional information to demonstrate compliance with the emission standards. The applicability has been modified from “2021 and later” to “2021 through 2026” engines and from “2022 and later” to “2022 through 2026” optionally certified Otto-cycle hybrid powertrains.

Rationale

The proposed amendments are necessary to reflect the MY requirement, i.e., ending in the 2026 MY. These amendments would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

1036.503. Engine data and information for vehicle certification.

Paragraph 1

Purpose

The purpose of this paragraph is to specify the data and information needed for certification. The applicability has been modified from “2021 and later” to “2021 through 2026” vehicles and from “2022 and later” to “2022 through 2026” optionally certified Otto-cycle hybrid powertrains.

Rationale

The proposed amendments are necessary to reflect the MY requirement, i.e., ending in the 2026 MY. These amendments would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

PART 1065 – ENGINE-TESTING PROCEDURES

Subpart A – Applicability and General Provisions

1065.1. Applicability.

Subparagraph 1.3

Purpose

The purpose of this subparagraph is to describe the applicability of Part 1065. The applicability of these requirements has been modified from “2010 and later” to “2010 through 2026” HD highway engines.

Rationale

The proposed amendment is necessary to reflect the MY requirement, i.e., ending in the 2026 MY. This amendment would make the applicability criteria consistent throughout the 2026-OTTO-TPS.

Subpart H – Engine Fluids, Test Fuels, Analytical Gases and Other Calibration Standards

1065.710. Gasoline.

Subparagraph 2.(b)(2). Certification Gasoline Fuel Specifications for the 2020 and Subsequent Model Years.

Purpose

The purpose of this subparagraph is to specify the gasoline fuel certification requirements for compliance beginning 2020 MY. The applicability of these requirements has been modified from “2020 and subsequent” to “2020 through 2026” model gasoline engines as stated in the title of this subparagraph and the title of the table. “40” was added to “CFR §1065.710(b)” to clarify that “CFR” in this subparagraph refers to title 40 of the Code of Federal Regulations (CFR).

Rationale

The proposed amendments are necessary to reflect the MY requirement, i.e., ending in the 2026 MY. These amendments would make the applicability criteria consistent throughout the 2026-OTTO-TPS. The proposed amendments are also necessary to ensure the relevant CFR section is properly referenced.

Subparagraph 2.(b)(3). Alternate Certification Gasoline Fuel Specifications for the 2026 Model Year.

Purpose

The purpose of this subparagraph is to add CARB Low-Emission Vehicle IV gasoline fuel specifications as an option for 2026 MY engine certification.

Rationale

The proposed amendments are necessary to address stakeholders' comments and ensure the certification gasoline fuel requirements are consistent with the certification fuel requirements for light-duty vehicles and MDVs in the "California 2026 and Subsequent Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles."