

TITLE 13. MOTOR VEHICLES DIVISION  
3. AIR RESOURCES BOARD  
CHAPTER 3.6. PERIODIC SMOKE INSPECTIONS OF HEAVY-DUTY  
DIESEL-POWERED VEHICLES

§ 2190. Vehicles Subject to the Periodic Smoke Inspection Requirements.

These regulations shall be applicable as follows:

(a) Except as provided in subsections (b), (c), (d), (e), (f) and (g), the requirements of this chapter apply to all heavy-duty diesel-powered vehicles with gross vehicle weight ratings greater than 6,000 pounds ~~which~~that operate on the streets or highways within the State of California and diesel vehicles 1998 model year and newer with gross vehicle weight ratings of 6,000 to 14,000 pounds ~~which~~that are registered in areas of California not designated for the biennial smog check program.

(b) Heavy-duty diesel-powered vehicles ~~which~~that are not part of a fleet or are employed exclusively for personal use are excluded from the requirements of this chapter.

(c) Heavy-duty diesel-powered vehicles ~~which~~that are registered under the International Registration Plan as authorized by Article 4 (commencing with section 8050), Chapter 4, Division 3 of the California Vehicle Code and ~~which~~that have established a base state other than California (non-California based vehicles) are excluded from the requirements of this chapter.

(d) Heavy-duty diesel-powered vehicles ~~which~~that operate in California under the terms of Interstate Reciprocity Agreements as authorized by Article 3 (commencing with section 8000), Chapter 4, Division 3 of the California Vehicle Code and ~~which~~that belong to fleets that are not based in California are excluded from the requirements of this chapter.

(e) Heavy-duty diesel-powered vehicles operating in California under the terms of any other apportioned registration, reciprocity, or bilateral prorate registration agreement between California and other jurisdictions and ~~which~~that belong to fleets that are not based in California are excluded from the requirements of this chapter.

(f) Heavy-duty diesel-powered vehicles operating in California under short-term vehicle registrations or permits of 90 days or less (including but not limited to 90-day temporary registrations and 4-day permits under California Vehicle Code section 4004) are excluded from the requirements of this chapter.

(g) Diesel vehicles 1998 model year and newer with gross vehicle weight ratings of 6,000 to 14,000 pounds that are registered within an area designated for biennial smog check program coverage are exempt from the Periodic Smoke Inspection Program (PSIP) requirements; however, if the vehicle is registered in areas of California designated for smog check inspections only upon initial registration in this state or during change of

ownership, then the requirements of this chapter shall apply on a biennial basis as determined by the last digit of the Vehicle Identification Number (VIN). VIN's ending with an even digit would be subject to the PSIP in even calendar years (2010, 2012, 2014 . . .) and VIN's ending with an odd number would be subject to the PSIP in odd calendar years (2011, 2013, 2015 . . .).

Note: Authority cited: Sections 39600, 39601 and 43701(a), Health and Safety Code. Reference: Sections 39002, 39003, 39010, 39033, 43000, 43018, 43701(a), 44011 and 44011.6, Health and Safety Code.

#### § 2191. Definitions.

(a) The definitions of this section supplement and are governed by the definitions set forth in Chapter 2 (commencing with Section 39010), Part 1, Division 26 of the Health and Safety Code. The provisions of this chapter shall also be governed by the definitions set forth in section 2180.1, Title 13, California Code of Regulations including the following modifications:

(1) "Executive Officer" means the Executive Officer of the Air Resources Board (ARB) or his or her authorized representative.

(1)(2) "Fleet" means any group of 2 or more heavy-duty diesel-powered vehicles subject to the requirements of this chapter, which are owned or operated by the same agency or entity.

(2)(3) "Test opacity" means the opacity of smoke from a vehicle when measured in accordance with section 2193(e).

(4) "Trained smoke tester" means a person who has successfully completed the smoke tester training requirements in accordance with section 2193(e)(1)(D).

(5) "Smoke tester identification number" means the identification number provided by ARB given to a trained smoke tester following the successful completion of an approved training class.

Note: Authority cited: Sections 39600, 39601 and 43701(a), Health and Safety Code. Reference: Sections 39002, 39003, 39010, 39033, 43000, 43018, 43701(a), and 44011.6, Health and Safety Code.

#### § 2192. Vehicle Inspection Responsibilities.

(a) The owner of a heavy-duty diesel-powered vehicle subject to the requirements of this chapter shall do all of the following:

(1) Test the vehicle for excessive smoke emissions periodically according to the inspection intervals specified in section 2193(a), (b), and (c).

(2) Measure the smoke emissions for each test using the test procedure specified in section 2193(e).

(3) Record the smoke test opacity levels and other required test information as specified in section 2194(a).

(4) Have the vehicle repaired if it exceeds the applicable smoke opacity standard specified in section 2193(e) within 45 days of the test. If the vehicle is not repaired within 45 days, it must be removed from service until it is repaired.

(5) Record the vehicle repair information as specified in section 2194(a).

(6) Conduct a post-repair smoke test to determine if the vehicle complies with the applicable smoke opacity standard.

(7) Record the post-repair smoke test results as specified in section 2194(a).

(8) If the vehicle does not comply with the applicable smoke opacity standard after the test required by section 2192(a)(78), make additional repairs to achieve compliance, and record the smoke test results as specified in section 2194(a).

(9) Keep the records specified in section 2194(a) for two years after the date of inspection.

(10) Permit an Air Resources Board inspector to review the inspection records specified in section 2194 ~~at owner/operator designated fleet locations by appointment.~~

Note: Authority cited: Sections 39600, 39601 and 43701(a), Health and Safety Code. Reference: Sections 39002, 39003, 39033, 43000, 43016, 43018, 43701(a), and 44011.6, Health and Safety Code.

### § 2193. Smoke Opacity Inspection Intervals, Standards, and Test Procedures.

~~(a) Initial phase in. Vehicles which are subject to the requirements of this chapter on the operative date of these regulations shall be tested for smoke opacity (and repaired if the applicable smoke opacity standard is exceeded) in accordance with the requirements of section 2192 pursuant to the applicable following schedule:~~

~~(1) Fleets of five or more vehicles subject to this chapter:~~

~~(A) At least 25 percent of the fleet's vehicles within 180 calendar days of the effective date of these regulations.~~

~~(B) At least 50 percent of the fleet's vehicles within 270 calendar days of the effective date of these regulations.~~

~~(C) At least 75 percent of the fleet's vehicles within 365 calendar days of the effective date of these regulations.~~

~~(D) The fleet's remaining vehicles no later than 455 calendar days after the effective date of these regulations.~~

~~(2) For fleets of 2 to 4 vehicles, at least one vehicle must be tested in the initial 180-day period, and in each subsequent 90-calendar day period, until all vehicles in the fleet have been tested.~~

(b) New fleets. Fleets which first become subject to the requirements of this chapter subsequent to the effective date of these regulations must be tested in accordance with section 2192 within the applicable time intervals reflected in subsection (a) above, beginning on the date the fleet becomes subject to these regulations on or before December 31 of the next calendar year from the date the fleet first becomes subject to the requirements of this chapter, except for vehicles exempted as specified in section 2193(d).

(b) Annual testing. ~~Once a~~ A vehicle subject to the requirements of this chapter ~~has been tested in accordance with subsection 2193(a) or (b), or has been acquired by a fleet owner after the effective date of these regulations, the vehicle must periodically be tested annually for smoke opacity (and repaired if the applicable smoke opacity standard is exceeded) in accordance with the requirements of section 2192. On or before December 31 of each year, a fleet, as defined in section 2191(a)(4), shall comply with the regulations and standards for that calendar year.~~

(c) New vehicle acquisition. Vehicles purchased or acquired by a fleet subject to the requirements of this chapter must be tested for smoke opacity (and repaired if the applicable smoke opacity standard is exceeded) in accordance with the requirements of section 2193(e) starting in the same calendar year that the vehicle is acquired by the fleet, except for vehicles exempted as specified in sections 2193(a) or 2193(d). The new owner is responsible for complying with the requirements of section 2194 and must have in their possession, a record showing the vehicle is in compliance with the requirements of section 2194(a) in the calendar year which the vehicle was obtained. For vehicles tested by the previous owner in the same calendar year that the vehicle is acquired, a copy of the previous owner's test records is sufficient to meet the requirements of section 2194(a).

(d) Exemption for vehicles powered by 1994 or subsequent model-year engines. Any heavy-duty vehicle powered by a 1994 or subsequent model-year engine is exempt from the testing requirements of this section until January 1 of the calendar year that is four years after the model year of the engine, and is to be treated as having been acquired by the owner on that January 1. For example, a 1995 model-year engine will be exempt until January 1, 1999.

(e) Smoke opacity standards, equipment and test procedures.

(1) ~~Except as otherwise provided in subsection (e)(2) below, t~~The smoke opacity standards are those specified in section 2182, Title 13, California Code of Regulations. The smoke opacity test procedures are those set forth in the Society of Automotive Engineers (SAE) Recommended Practice SAE J1667 "Snap-Acceleration Smoke Test Procedure for Heavy-Duty Diesel Powered Vehicles," as issued February 1996 ("1996-02"), which is incorporated herein by reference.

~~(2) Prior to July 1, 1999, if a repair facility is not equipped with an operable SAE J1667 smokemeter, vehicles may be tested at the repair facility in accordance with the smoke opacity test procedures and opacity standards set forth in section (e)(3). These are the test procedures and opacity standards originally established for the heavy-duty diesel-vehicle roadside inspection program in 1991.~~

~~(3) Optional smoke opacity test procedures and standards prior to July 1, 1999.~~

(A) Standards. For any vehicle subject to the requirements of this chapter, the maximum smoke opacity standard when tested in accordance with the test procedures specified in section 2193(e)(1)(B) and (C) is:

1. 5% for any heavy-duty vehicle required to be equipped or retrofitted with a diesel particulate filter, regardless of its diesel engine model-year.
2. 5% for any heavy-duty vehicle powered by a 2007 or subsequent model-year diesel engine.
3. 20% for any heavy-duty vehicle powered by a 1997 to 2006 model-year diesel engine.
4. 30% for any heavy-duty vehicle powered by a 1991 to 1996 model-year diesel engine.
5. 40% for any heavy-duty vehicle powered by a pre-1991 model-year diesel engine.
6. 40% for any heavy-duty two-engine crane that has been reported to CARB per title 13 section 2449(g) and that is powered by an off-road propulsion engine without a diesel particulate filter.

~~1. The maximum smoke opacity standard for a 1991 or subsequent model-year heavy-duty diesel-powered vehicle with a Federal peak smoke engine certification level of 35-percent peak opacity or less is 40 percent when tested in accordance with section 2193(e)(3)(B) and (C).~~

~~2. The maximum smoke opacity standard for any other heavy-duty diesel-powered vehicle is 55 percent when tested in accordance with section 2193(e)(3)(B) and (C).~~

~~3. The above standards do not apply to an engine exempted under section 2182(b).~~

(B) Equipment. The smoke opacity-measurement equipment shall consist of a light-

extinction type smokemeter which includes an optical detection unit, a control/indicator unit, and a strip chart recorder full-flow end-of-line or a sampling type smokemeter, a data-processing unit, and a printer and/or electronic storage medium to record and output the test results.

1. The smokemeter shall comply with the specifications provided in the Society of Automotive Engineers (SAE) procedure J1243J1667, "Diesel Emission Production Audit Test Procedure, Snap-Acceleration Smoke Test Procedure for Heavy-Duty Powered Vehicles," ~~May 1988~~ February 1996, section 6, which is incorporated herein by reference, ~~section 7.4~~ and shall be calibrated ~~according to~~ in accordance with specifications in SAE procedure J1243J1667, section 8.27.

2. The ~~strip chart recorder data-processing unit~~ shall comply with specifications be capable of performing the functions described in SAE procedure J1243 J1667, section 7.5 Appendices A and C, subsections 1-4 (May 1988 February 1996).

(C) Procedure. The test procedure shall consist of preparation, preconditioning, and test phases:

1. In the preparation phase, the vehicle shall be placed at rest, the transmission shall be placed in neutral, and the vehicle wheels shall be properly restrained to prevent any rolling motion, in accordance with specifications in SAE procedure J1667, section 5.1 (February 1996).

2. In the preconditioning phase, the vehicle shall ~~be put through a snap idle cycle two or more times until two successive measured smoke levels are within ten (10) opacity percent of each other~~ receive at least three preliminary snap-acceleration test cycles using the sequence described in SAE procedure J1667, section 5.3 (February 1996). ~~The smokemeter shall be rechecked prior to the preconditioning sequence to determine that its zero and span setting are adjusted according to specifications in SAE procedure J1243, section 8.1 (May 1988)~~ Prior to conducting smoke measurements, the zero and full scale readings of the smokemeter shall be verified in accordance with specifications in SAE procedure J1667, section 5.4.2 (February 1996).

3. In the test procedure phase, the vehicle shall be put through ~~the snap idle cycle three times~~ three snap-acceleration test cycles.

4. The opacity shall be measured during the preconditioning and test phases with a smokemeter and shall be recorded ~~continuously on the chart recorder~~ during each snap ~~idle~~ acceleration test cycle. ~~The maximum instantaneous value recorded by the chart recorder shall be the opacity reading.~~

5. The test opacity to determine the compliance with sections 2193(e)(1)(A)1., and (A)2., (A)3., (A)4., (A)5., and (A)6. above shall be the average of the ~~two meter readings with the least difference in opacity values.~~ If all three readings have successive equivalent differences between them, the test opacity shall be the average of the three readings.

corrected maximum 0.5-second average smoke values from the three snap-acceleration test cycles.

6. The testing shall be performed by a “Trained Smoke Tester” as defined in section 2191(a)(4).

7. In lieu of performing the testing requirements as specified in section 2193(b), fleets may submit On-Board Diagnostic (OBD) data for 2013 and subsequent model year engines subject to the requirements of this chapter, as specified below:

i. The following Society of Automotive Engineers (SAE) documents are incorporated herein by reference:

- SAE J1939 consisting of:
  - J1939 Recommended Practice for a Serial Control and Communications Heavy Duty Vehicle Network – Top Level Document, April 2011.
  - J1939/1 On-Highway Equipment Control and Communication Network May 2011.
  - J1939/11 Physical Layer, 250K bits/s, Twisted Shielded Pair, September 2006.
  - J1939/13 Off-Board Diagnostic Connector, October 2011.
  - J1939/15 Reduced Physical Layer, 250K bits/sec, UN-Shielded Twisted Pair (UTP), August 2008.
  - J1939/21 Data Link Layer, December 2010.
  - J1939/31 Network Layer, May 2010.
  - J1939/71 Vehicle Application Layer (Through May 2010), March 2011.
  - J1939/73 Application Layer—Diagnostics, February 2010.
  - J1939/81 Network Management, June 2011.
  - J1939/84 OBD Communications Compliance Test Cases for Heavy Duty Components and Vehicles, December 2010.
- SAE J1979 "E/E Diagnostic Test Modes," February 2012 (SAE J1979).
  - SAE J1979-DA “Digital Annex of E/E Diagnostic Test Modes,” October 2011.

ii. For engines demonstrating OBD compliance using the SAE J1939 protocol, a minimum of all data as required by Title 13, California Code of Regulations, Section 1971.1(h), “On-Board Diagnostic System Requirements--2010 and Subsequent Model-Year Heavy-Duty Engines” is to be submitted.

iii. For engines demonstrating OBD compliance using the SAE J1979 protocol, a minimum of all data as required by Title 13, California Code of Regulations, Section 1968.2(g), “Malfunction and Diagnostic System Requirements--2004 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines” is to be submitted.

iv. If the OBD submission shows any OBD fault codes that are related to components specified below, fleets are required to repair the vehicles and resubmit the vehicle repair information specified in section 2186(a), Title 13, California Code of Regulations along with the post-repair OBD scan result that shows those fault codes have been cleared:

- Fuel system monitoring
- Misfire monitoring
- Exhaust gas recirculation system monitoring
- Boost pressure control system monitoring
- Non-methane hydrocarbon converting catalyst monitoring
- PM filter monitoring
- Exhaust gas sensor monitoring
- Variable valve timing and/or control system monitoring
- Cold start emission reduction strategy monitoring
- Engine cooling system monitoring
- Crankcase ventilation system monitoring
- Comprehensive component monitoring

#### (D) Smoke Tester Training Requirements

A smoke tester must have an ARB-approved smoke tester identification number to perform the testing requirements in section 2193. To receive a smoke tester identification number provided by ARB, an individual must submit a copy of the certificate of completion upon successful completion of one of the following training courses:

1. The California Council on Diesel Education and Technology HDVIP/PSIP Course (CCDET I).
2. A training course meeting the requirements of section 2193(e)(1)(E), which has received Executive Officer approval as an approved smoke tester training.
3. An on-line training course developed and distributed by ARB.

If the smoke tester is not the owner or an individual directly employed by the owner of the fleet, the smoke tester shall successfully complete the smoke tester training as specified in subsections 1. or 2. of this section. If the smoke tester is the owner or an individual directly employed by the owner of the fleet, the smoke tester shall successfully complete the smoke tester training as specified in subsection 1., 2. or 3. of this section

For purposes of this subsection, an “individual directly employed by the owner of the fleet” does not include an individual who contracts with a fleet to perform smoke testing for that fleet, and is either employed by a third-party or self-employed.

#### (E) Smoke Tester Training Course Requirements

A smoke tester training course must include, but is not limited to, the following:

1. Hands-on training on how to properly perform the testing requirements of section 2192 following the equipment and procedure specifications required in sections 2193(e)(1)(B) and (C).
2. Hands-on training on how to properly calibrate a smokemeter to meet the specifications of SAE procedure J1667 and the requirements of section 2193(e)(1)(B)1.
3. Instructional curriculum on the requirements and responsibilities of both the fleet owner and the smoke tester to meet the requirements of sections 2190-2194.
4. A requirement that potential smoke testers successfully pass a written examination and the hands-on training specified in sections 2193(e)(1)(E)1. and 2.
5. Issue a certificate of completion for smoke testers who have successfully passed the smoke tester training examinations as specified in section 2193(e)(1)(E)4.
6. An entity offering a smoke tester training course must apply to the Executive Officer for approval to become an ARB-approved smoke tester training course provider.

Note: Authority cited: Sections 39600, 39601, 43013 and 43701(a), Health and Safety Code. Reference: Sections 39002, 39003, 39033, 43000, 43013, 43018, 43701(a), and 44011.6, Health and Safety Code.

§ 2194. Record Keeping and Reporting Requirements.

(a) The owner of a vehicle subject to the requirements of this chapter shall record the following information when performing the smoke opacity testing:

- (1) The brand name and model of the opacity meter.
- (2) The dates of last calibration of the opacity meter ~~and chart recorder.~~
- (3) The name and the smoke tester identification number of the trained ~~smoke meter operator~~ tester who conducted the test.
- (4) The name and address of the contracted smoke test facility or vehicle repair facility that conducted the test (if applicable)
- (5) The applicable smoke opacity standard for the tested vehicle.
- (6) Vehicle identification number, ~~vehicle's engine model~~ year, engine make, ~~and engine model,~~ and test date. ~~Fleet designated vehicle identification numbers are also acceptable.~~
- (7) The initial smoke test opacity levels (for three successive test readings) and the J1667

standards including the average of the three snap-acceleration test cycles and the range.

(8) An indication of whether the vehicle passed or failed the initial smoke test.

(9) The post-repair test date.

(10) The post-repair smoke test opacity levels (for three successive test readings).

(11) An indication of whether the vehicle passed or failed the post-repair smoke test.

(12) For vehicles that have failed the smoke test and have been repaired, the vehicle repair information specified in section 2186(a), Title 13, California Code of Regulations.

(13) For vehicles that have OBD submission, as specified in section 2193(e)(C)(7), a copy of the OBD data submission sent to ARB.

(14) For vehicles that have OBD submission, as specified in section 2193(e)(C)(7), showing fault codes, the vehicle repair information specified in section 2186(a), Title 13, California Code of Regulations and any subsequent OBD data submission sent to ARB.

(b) The owner of a vehicle subject to the requirements of this chapter shall maintain an accurate list of vehicles in the fleet including model year, make, model, manufacturer, chassis, engine, engine serial number, vehicle identification number and license plate number.

(c) Upon request, the owner of a vehicle subject to the requirements of this chapter shall provide a copy of the vehicle OBD data submission to ARB and / or smoke opacity records to ARB in a legible meter print out strip signed by the trained smoke tester or in a comma separated value (CSV), Excel, or hypertext markup language (html) electronic file format.

(d) The owner of a fleet subject to the requirements of this chapter must report the following vehicle and testing information specified in section 2194(d)(1) to 2194(d)(3) to ARB by their reporting date as specified in section 2194(d)(4):

(1) Owner Information

A. Fleet owner's name

B. Corporate parent name (if applicable)

C. Corporate payer taxpayer identification number (if applicable)

D. Company taxpayer number

E. Address

E. Contact phone number

G. Fleet owner's email address (if applicable)

(2) Vehicle Information – For each vehicle subject to the requirements of this chapter, the

following information is required:

- A. VIN number
- B. License plate
- C. Engine family number
- D. Engine model year
- E. Engine make
- F. Vehicle manufacturer

(3) Annual Opacity Test Results – For each vehicle subject to the requirements of this chapter, the information listed in section 2194(d)(3)(A) through (C) must be submitted electronically per the guidelines approved by the Executive Officer for electronic data reporting.

- (A) Average opacity percentage of the three SAE J1667 snap-acceleration test cycles conducted per the requirements of this chapter.
- (B) Smoke tester identification number for the trained smoke tester who performed the smoke opacity test.
- (C) A legible copy of the SAE J1667 opacity test strip generated per the requirements of this chapter using forms approved by the Executive Officer for submittal of the required reporting information.

(4) Annual Reporting Submittal Dates

All fleet owners must review and update the information submitted under section 2194(d)(1) through (3) annually to ARB by the reporting date. The initial reporting year for all fleets is 2023. Fleet owners must report owner and vehicle information outlined in sections 2194(d)(1) and (2) as it was on December 31 of the year prior to the reporting year (for example, by March 1, 2023, fleets of 50 or more vehicles must report each vehicle as it was at the end of the day on December 31, 2022). Fleet owners must report opacity test results outlined in section 2194(d)(3) by the reporting dates for testing done in the previous calendar year (for example, reporting for testing done in 2022 to meet the requirements of section 2193(b) must be submitted by March 1, 2023 for fleets of 50 vehicles or more).

- (A) The reporting date for fleets of 50 vehicles or more is March 1.
- (B) The reporting date for fleets of 10 to 49 vehicles is May 1.
- (C) The reporting date for fleets of 2 to 9 vehicles is July 1.

Note: Authority cited: Sections 39600, 39601 43013, and 43701(a), Health and

Safety Code. Reference: Sections 39002, 39003, 39033, 43000, 43018, 43701(a), and 44011.6, Health and Safety Code.

Preliminary Draft