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NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION  
NEW JERSEY ADMINISTRATIVE CODE  
TITLE 7  
CHAPTER 27B  
SUBCHAPTER 4

**AIR TEST METHOD 4: TESTING PROCEDURES FOR DIESEL-POWERED MOTOR VEHICLES**

Filed:	November 21, 1985
Effective:	January 21, 1985
Operative:	July 1, 1985
See:	16 N.J.R. 2894, 17 N.J.R. 184(a)
Amendment Effective:	July 1, 1985
Amendment Operative:	December 2, 1985
See:	17 N.J.R. 781(a), 17 N.J.R. 1649(a)
Amendment Filed:	July 17, 1995
Amendment Effective:	July 17, 1995
Amendment Operative:	July 17, 1995
See:	27 N.J.R. 2752(a)
Amendment Adopted:	January 7, 1997
Amendment Effective:	February 3, 1997
Amendment Operative:	March 28, 1997
See:	29 N.J.R. 498(a)
Amendment Adopted:	June 12, 1997
Amendment Effective:	July 7, 1997
Amendment Operative:	August 11, 1997
See:	29 N.J.R. 2825(b)
Amendment Adopted:	August 8, 1997
Amendment Effective:	September 15, 1997
Amendment Operative:	October 7, 1997
See:	29 N.J.R. 4108
Amendment Adopted:	May 22, 1998
Amendment Effective:	July 6, 1998
Amendment Operative:	July 21, 1998
See:	30 N.J.R. 2476

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Amendment Adopted:	June 11, 1999
Amendment Effective:	July 6, 1999
Amendment Operative:	August 10, 1999
See:	N.J.R. 1803
Amendment Adopted:	October 8, 1999
Amendment Effective:	November 15, 1999
Amendment Operative:	December 7, 1999
See:	31 N.J.R. 3627(a)
Administrative Change:	October 1, 2001
See:	33 N.J.R. 3550(a)
Administrative Change:	December 4, 2006
See:	38 N.J.R. 5155(b)
Amendment Adopted:	July 10, 2007
Amendment Effective:	August 6, 2007
Amendment Operative:	September 8, 2007
See:	39 N.J.R. 3352
Amendment Adopted:	April 3, 2009
Amendment Effective:	May 4, 2009
Amendment Operative:	June 2, 2009
See:	41 N.J.R. 2009(a)
Amendment Adopted:	October 19, 2009
Amendment Effective:	November 16, 2009
Amendment Operative:	December 18, 2009
See:	41 N.J.R. 4195(b)
Administrative Change:	
Operative:	August 12, 2011
Effective:	September 6, 2011
See:	43 N.J.R. 2328(a)
Amendment Adopted:	September 9, 2016
Amendment Effective:	October 3, 2016
Amendment Operative:	December 2, 2016
See:	48 N.J.R. 748(a), 48 N.J.R. 2049(a)

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#### **7:27B-4.1 Definitions**

The following words and terms, when used in this subchapter, have the following meanings, unless the context clearly indicates otherwise.

“Best available retrofit technology” or “BART” means an aftermarket particulate emissions control device that, as determined by the Department, can be used on or in a regulated vehicle or regulated equipment, at a reasonable cost to achieve substantial reduction of fine particulate diesel emissions, and is either a diesel emissions control strategy for which CARB has issued an Executive Order, or a verified retrofit technology for which the USEPA has issued a Verification Letter. “Best available retrofit technology” includes only those retrofit devices and fuel for which the retrofit device manufacturer or fuel manufacturer certifies that the installation and use would not jeopardize the original engine warranty in effect at the time of the installation or the commencement of use of the retrofit device or fuel, and for which the manufacturer has issued a warranty pursuant to N.J.A.C. 7:27-32.9.

“BART 1” means a BART that achieves a minimum particulate emissions control level of 25 percent reduction in mass.

“BART 2” means a BART that achieves a minimum particulate emissions control level of 50 percent reduction in mass.

“BART 3” means a BART that achieves a minimum particulate emissions control level of 85 percent reduction in mass.

“California Air Resources Board” or “CARB” means the agency of the State of California established and empowered to regulate sources of air contaminant emissions, including motor vehicles, pursuant to California Health and Safety Code, Sections 39500 et seq.

“Certified configuration” means a heavy-duty diesel engine design or a light-duty diesel-powered motor vehicle-engine-chassis design certified by either of the following agencies as meeting the applicable emission standards for heavy-duty diesel engines or light-duty diesel-powered motor vehicles manufactured in a given model year:

1. EPA, for model year 1971 or for a more recent model year heavy-duty diesel vehicle engine;
2. EPA, for model year 1968 or for a more recent model year light-duty diesel vehicle;

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3. CARB, for model year 1973 or for a more recent model year heavy-duty diesel vehicle engine; or
4. CARB, for model year 1966 or for a more recent model year light-duty diesel vehicle.

“Closed crankcase ventilation system” or “CCVS” means a system, installed upon an internal combustion engine that is designed to capture all solids, liquids and gases that are emitted from the vent and to divert them to the engine intake air plenum for recombustion.

“Data link connector” or “DLC” means a standardized nine- or 16-pin diagnostic test receptacle used to connect an analyzer to a motor vehicle.

“Department” means the New Jersey Department of Environmental Protection.

“Dew point” means the temperature to which air must be cooled for saturation to occur.

“Diesel bus” means any diesel-powered autobus or motorbus of any size or configuration, whether registered in this State or elsewhere, that is designed or used for intrastate or interstate transportation of passengers for hire or otherwise on a public road, street or highway or any public or quasi-public property in this State, including, but not limited to, autobuses under the jurisdiction of the New Jersey Department of Transportation pursuant to Titles 27 or 48 of the Revised Statutes; autobuses of the New Jersey Transit Corporation and its contract carriers that are under the inspection jurisdiction of the New Jersey Department of Transportation; autobuses that are subject to Federal motor carrier safety regulations; autobuses under the authority of the Interstate Commerce Commission or its successor agency; school buses, as defined pursuant to N.J.S.A. 39:1-1; and hotel, casino, charter, and special buses.

“Diesel emission fluid” or “DEF” means an aqueous solution made with urea and water, used as a consumable in selective catalytic reduction to lower NO<sub>x</sub> concentration in the diesel exhaust emissions from diesel engines.

“Diesel emissions testing equipment” means equipment used to conduct a test of a diesel-powered motor vehicle in accordance with this subchapter and which satisfies all applicable specifications set forth at N.J.A.C. 7:27B-4.2(d) and 4.6. For motor vehicle inspections conducted pursuant to N.J.A.C. 7:27-14 and this subchapter, this term shall include all devices used for performing a motor vehicle inspection including, but not limited to, smoke opacity meters, exhaust gas analyzers, on board diagnostic scanners and analyzers and computers and related software.

“Diesel engine” means a compression ignition type of internal combustion engine.

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“Diesel particulate filter” or “DPF” means an exhaust emissions aftertreatment device that physically entraps and prevents from being emitted into the air at least 85 percent of the particulate matter contained in the full exhaust stream emitted by the engine.

“Diesel-powered” means utilizing a diesel engine.

“Element of design” means any part or system on a motor vehicle or a motor vehicle engine pertaining to the vehicle's or engine's certified configuration.

“Emission control apparatus” means any device utilized by the vehicle manufacturer and/or the engine manufacturer to control the emission of any regulated emission, including any associated component, which monitors the function and maintenance of such a device, regardless of the location of the device on the vehicle. This term shall also include any retrofit device added to the vehicle or engine as part of a mandatory or voluntary retrofit program for emission control.

“EPA” means the United States Environmental Protection Agency.

“Exhaust aftertreatment” means any element of design which affects or alters the molecular content of the exhaust emissions of a diesel engine.

“Exhaust emissions” means the emissions (including any liquid or solid particles in the gaseous stream) released into the atmosphere from any opening downstream from the exhaust ports of a motor vehicle engine.

“Exhaust leak” means any condition of the exhaust system which permits exhaust emissions to escape into the atmosphere at any point between the exhaust ports of a motor vehicle engine and the outlet of the engine exhaust pipe.

“Full-flow smokemeter” means a smokemeter which measures smoke opacity by passing a beam of light through the axis of the exhaust plume as the exhaust exits the tailpipe of a motor vehicle.

“Governor” means a mechanism installed on a diesel engine by the original equipment manufacturer for the purpose of limiting the maximum engine RPM.

“Gross combination weight rating” or “GCWR” means the GVWR of a combination (articulated) vehicle, which is defined as the GVWR of the power unit plus the GVWR of the towed unit or units.

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“Gross vehicle weight rating” or “GVWR” means the value specified by the vehicle manufacturer as the maximum loaded weight of a single or combination vehicle. When used in connection with a combination or articulated vehicle, GVWR refers to the “gross combination weight rating” or “GCWR,” of the combination or articulated vehicle, which is defined as the GVWR of the power unit plus the GVWR of the towed unit or units.

“Heavy-duty diesel vehicle” or “HDDV” means a diesel-powered motor vehicle, other than a diesel bus, that has a GVWR exceeding 8,500 pounds and is designed primarily for transporting persons or property.

“High idle” means the highest engine speed obtainable when the engine is disengaged from the transmission and is free-wheeling.

“Idle” means an operating mode where the vehicle engine is not engaged in gear and where the engine operates at a speed at the revolutions per minute specified by the engine or vehicle manufacturer.

“Indicator light” means a light that serves to inform about a given condition in a circuit or device, such as a malfunction.

“Inspector” means any person authorized by the State of New Jersey to determine whether a vehicle complies with the requirements of N.J.A.C. 7:27-14 and 32.

“Key on engine off” or “KOEO” means the motor vehicle ignition position of key-on, engine-off. This may be denoted on some ignitions by a “run” position and is the key position just prior to holding the key in the “start” position to start the engine. Although this is the same key position as KOER, the KOEO position implies that the motor vehicle engine is not running.

“Key on engine running” or “KOER” means the motor vehicle ignition position of key-on, engine-running. This may be denoted on some ignitions by a “run” position and is the key position just prior to holding the key in the “start” position to start the engine. Although this is the same key position as KOEO, the KOER position implies that the motor vehicle engine is running.

“Light-duty diesel vehicle” or “LDDV” means a diesel-powered motor vehicle, other than a diesel bus, that has a GVWR of 8,500 pounds or less and is designed primarily for transporting persons or property.

“Low idle” or “curb idle” means the minimum operating speed of an engine with the accelerator pedal released and the transmission disengaged, as specified by the engine manufacturer.

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“Malfunction indicator light” or “MIL” means the light located on the dashboard instrument panel of an OBD-equipped motor vehicle that indicates a malfunction detected by the OBD system by illuminating the words “check engine,” “service engine” or an engine pictograph with the word “check” or “service.”

“Maximum governed RPM” means, for an engine which has a functioning governor, the manufacturer’s recommended maximum engine speed as restricted by the governor. For an engine which does not have a functioning governor, this term means a value of 80 percent of the manufacturer’s recommended maximum engine speed.

“Measurement path” means the linear path between the sending and receiving points of a full-flow smokemeter.

“Motor vehicle” means all vehicles propelled otherwise than by muscular power, excepting motorized bicycles and such vehicles as run only upon rails or tracks.

“MPH” means miles per hour.

“MVC” means the New Jersey Motor Vehicle Commission.

“Neutral density filter” means a device used to calibrate or verify the accuracy of the raw opaque value within the measurement path of a smokemeter which consists of a lens of neutral particle density and which filters visible light to a known opacity value.

“Nominal stack size” means the exhaust pipe diameter to be used in conducting smoke opacity measurements to determine compliance with diesel smoke opacity standards, based on engine horsepower, as set forth in N.J.A.C. 7:27B-4.3 Table 1.

“On board diagnostics” or “OBD” means an automotive diagnostic system complying with California OBD regulations at Title 13 California Code section 1968.1 or EPA OBD regulations at 40 CFR Part 86.

“Opacity” means the property of a substance whereby it partially or wholly obstructs the transmission of visible light expressed as the percentage to which light is obstructed.

“Partial-flow smokemeter” means a smokemeter which samples, at frequent intervals, a representative portion of the total exhaust flow and directs it to a measurement cell, and which calculates smoke opacity based upon the sample smoke density and the diameter of the exhaust pipe.

“Particles” means any material, except uncombined water, which exists as liquid particles or solid particles at standard conditions.



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“Peak smoke opacity” means the highest numerical value of smoke opacity measured during a snap acceleration smoke opacity test at N.J.A.C. 7: 27B-4.3(a).

“Person” means an individual, public or private corporation, company, partnership, firm, association, society or joint stock company, municipality, state, interstate body, the United States, or any board, commission, employee, agent, officer or political subdivision of a state, an interstate body or the United States. “Person” expressly includes the Port Authority of New York and New Jersey, and the South Jersey Port Corporation.

“Private inspection facility” or “PIF” means a facility licensed by the MVC to perform emissions inspections that may also offer motor vehicle parts and repair services.

“Readiness” means the state of a motor vehicle's OBD system that has successfully completed self-diagnostic routines on all supported subsystems as indicated by a showing of “ready” on all supported readiness monitors. Readiness does not indicate that the motor vehicle has passed the OBD inspection but only that the motor vehicle's OBD system is ready for inspection.

“Readiness monitors” means the various indicators used by a motor vehicle's on board computer to record the status of subsystem diagnostic routines. A readiness monitor may record a subsystem as “ready,” “not ready” or “not supported.”

“Regulated emission” means any solid, liquid or gaseous substance which is emitted from a motor vehicle or motor vehicle engine and which is regulated by the EPA pursuant to 40 C.F.R. Part 86.

“Retrofit device” means any emissions control apparatus, including exhaust aftertreatment device, that has been installed on the vehicle or engine after the original manufacturing date of the complete vehicle.

“RPM” means revolutions per minute.

“RPM sensor” means a mechanism integral to the smokemeter which senses the engine speed in revolutions per minute.

“SAE J1667” means the recommended practice incorporated in document number J1667 published by the Society of Automotive Engineers in February 1996, entitled Snap-Acceleration Smoke Test Procedure for Heavy-Duty Diesel-Powered Vehicles, and all appendices attached thereto, incorporated herein by reference.

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“SAE J1939” means the recommended practice in document number J1939 published by the Society of Automotive Engineers in April 2000, entitled Recommended Practice for a Serial Control and Communications Vehicle Network, and all appendices attached thereto, incorporated herein by reference, as supplemented or amended ([www.sae.org](http://www.sae.org)).

“School bus” means a school bus as defined under N.J.S.A. 39:1-1.

“Selective catalytic reduction” or “SCR” means an emission control system that injects diesel exhaust fluid into the exhaust stream where it reacts with a catalyst to reduce NO<sub>x</sub> emissions.

“Smoke” means the emissions, including airborne solid and/or liquid particles, exclusive of water vapor, released into the atmosphere from a process of combustion.

“Smokemeter” means, in the context of this subchapter, a component of diesel emissions testing equipment. The smokemeter is not separable from the diesel emissions testing equipment. Inspections performed using a smokemeter must employ diesel emissions testing equipment.

“Tailpipe” means the final downstream section of pipe in a motor vehicle’s exhaust system.

“Wide open throttle” or “WOT” means, in reference to a diesel-powered motor vehicle, the positioning of the primary engine power control to deliver maximum potential power and fuel. In most cases this is the positioning of the vehicle’s accelerator control at its forward-most or downward-most position.

#### **7:27B-4.2 General instructions for all tests**

- (a) An inspector conducting an emissions test on a heavy-duty diesel vehicle or diesel bus pursuant to any provision of this subchapter including, but not limited to, N.J.A.C. 7:27B-4.3, 4.4(a) and 4.4(b), shall perform the test in accordance with the following general procedures:
1. Test the vehicle in as-received condition;
  2. Prior to testing, verify that the smokemeter is calibrated in accordance with the manufacturer’s requirements;

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3. Prior to testing, ensure that the engine is at normal operating temperature by operating the vehicle on a highway for a minimum of 15 minutes;
4. Examine the vehicle's exhaust system for integrity. For testing at a PIF, only, tighten all loose pipe connections and repair all significant exhaust leaks before performing a test;
5. Prior to conducting a smoke opacity test on a diesel-powered motor vehicle equipped with multiple exhaust outlets, determine which exhaust outlet exhibits the highest opacity level by visually comparing the opacity level of each outlet during a single repetition of the snap acceleration test as set forth at N.J.A.C. 7:27B-4.3(a), if appropriate, or by liberally accelerating the engine at WOT, not to exceed maximum governed RPM. Conduct the testing using the highest-opacity exhaust outlet;
6. Do not conduct the test if the ambient temperature is below 35 degrees Fahrenheit or above 95 degrees Fahrenheit, or if the temperature is at the dew point as determined by using a thermometer and hygrometer. If the testing is conducted outdoors, do not conduct the test if there is any visible precipitation, such as rain or fog, at the test site during the time of testing;
7. Prior to testing, turn off the engine brake and all vehicle accessories, including, but not limited to, air conditioning, heating, defroster, radio and lights;
8. Determine that the engine speed governor is in proper operating condition. For PIFs only, make this determination as follows: operate the engine with the transmission in neutral and the clutch disengaged. Gradually increase the engine speed from curb idle to high idle while observing an RPM sensor connected to the engine. The engine speed should not exceed high idle as specified by the engine manufacturer with the accelerator pedal fully depressed. If the engine speed continues increasing beyond the manufacturer's rated high idle, immediately release the accelerator pedal. If the engine speed increases uncontrollably, immediately release the accelerator pedal and shut off the engine's fuel supply. Discontinue emission testing of any vehicle with dysfunctional or out-of-specification engine speed governors. Do not resume testing unless and until speed governor repairs are made;
9. If inspecting a vehicle which was either equipped by the manufacturer or was retrofitted in accordance with State or Federal law or regulation with a catalytic converter, particulate trap or trap oxidizer, or any other exhaust aftertreatment device, inspect the exhaust system for the presence of the device and for its physical integrity. Discontinue testing of any motor vehicle, which exhibits any

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missing exhaust aftertreatment device or perforating rust, crack, hole, tear or other such physical defect in the device. Discontinue testing if the vehicle's exhaust aftertreatment system is in regeneration mode or is producing high exhaust temperatures, as indicated by the instrument panel controls. If the vehicle being tested is a heavy-duty diesel vehicle or diesel bus with an exhaust aftertreatment device, discontinue testing and fail the vehicle if the device is found not to be in proper functioning condition. Do not resume testing unless and until the defect(s) are repaired;

10. If, at any time before or during the inspection of a diesel-powered motor vehicle, continuous smoke of any color is observed in the exhaust emissions for more than three seconds, discontinue the testing and determine that the vehicle has failed to pass the smoke opacity test conducted pursuant to N.J.A.C. 7:27-14.6;
- (b) An inspector conducting an emissions test on a light-duty diesel vehicle pursuant to any provision of this subchapter, including, but not limited to, N.J.A.C. 7:27B-4.7 and 4.8, shall perform the test in accordance with the following general procedures:
1. Test the vehicle in as-received condition without making any repairs immediately prior to testing;
  2. Prior to testing, turn off all vehicle accessories, including, but not limited to, air conditioning, heating, defroster, radio and lights;
  3. Prior to testing, ensure that the diesel emissions testing equipment is calibrated and warmed-up in accordance with the manufacturer's requirements;
  4. Prior to testing, ensure that the vehicle is at normal operating temperature by doing one of the following:
    - i. Check the vehicle's engine coolant temperature gauge to confirm that the vehicle is at a normal operating temperature, as indicated by the gauge (that is, that engine coolant temperature is in the "normal" range as specified by the vehicle manufacturer, or, if the "normal" range is not specified by the vehicle manufacturer, is at least 70 degrees Celsius (160 degrees Fahrenheit); or
    - ii. Operate the vehicle on the road at speeds above 35 MPH for at least 20 minutes; and
  5. Discontinue testing any vehicle in an overheated condition, as indicated by a temperature gauge or warning light, or boiling of engine coolant;

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- (c) Equipment to be used in conducting an emissions test on a diesel-powered motor vehicle in accordance with N.J.A.C. 7:27-14.5 shall satisfy all specifications and standards for diesel emissions testing equipment as set forth in N.J.A.C. 7:27B-4.6.
- (d) An inspector conducting a motor vehicle emissions test on a diesel-powered motor vehicle as set forth in this subchapter shall use only diesel emissions testing equipment that has been approved by the Department prior to its use in the test. Approval by the Department is based on the following criteria:
  - 1. The equipment meets all applicable specifications;
  - 2. The equipment hardware and software comply with the data collection and transfer protocols in use throughout New Jersey's motor vehicle inspection programs;
  - 3. The equipment maintains compatibility with other test equipment used concurrently during the motor vehicle inspection process with which it is required to interface; and
  - 4. The equipment is complete in that it includes all options and accessories necessary for performing each emissions inspection test procedure for which it was designed and it is to be used.
- (e) The Department maintains a list of approved equipment for specific test procedures. The Department periodically reviews and evaluates equipment offered by manufacturers of motor vehicle testing equipment of which it is aware or has been made aware and update this list. A copy of this list can be obtained from:

Department of Environmental Protection  
Bureau of Mobile Sources – Diesel Inspection Program  
Mail Code 401-02E  
P.O. Box 420  
Trenton, N.J. 08625-0420

**7:27B-4.3 Procedures for using a smokemeter to measure the smoke opacity of heavy-duty diesel vehicles and diesel buses**

- (a) The testing procedures for the snap acceleration smoke opacity test, required pursuant to N.J.A.C. 7:27-14.5, shall be performed on heavy-duty diesel vehicles and diesel buses as follows:

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1. Determine the engine horsepower from the engine identification plate or engine serial number. Refer to Table 1 below and input the nominal stack size into the smokemeter. If the engine identification plate is missing, inaccessible or illegible, measure the outside diameter of the exhaust pipe extending from the exhaust manifold with a precision caliper or equivalent gauge, rounding to the nearest inch;
2. For a PIF, only, affix the RPM sensor to the engine and vehicle according to the smokemeter manufacturer's instructions;
3. For a PIF, only, connect the engine RPM sensor to the smokemeter according to the smokemeter manufacturer's instructions;
4. Affix the smokemeter according to the manufacturer's instructions to the end of the vehicle's exhaust pipe. For full-flow smokemeters, ensure that the final two feet and the exit of the exhaust pipe is straight, with an internal diameter not to exceed five inches. Appropriate exhaust pipe adapters shall be used as necessary to comply with these specifications. Do not use full-flow smokemeters on vehicles with underbody exhaust pipes which direct the exhaust flow to the ground unless the exhaust gases are redirected away from the ground by the appropriate exhaust pipe adaptor mentioned above;
5. Chock the drive-wheels and release all tractor and trailer brakes;
6. Ensure that the transmission is in neutral and start the engine;
7. Ensure that the smokemeter is warmed up and calibrated according to N.J.A.C. 7:27B-4.2 and the manufacturer's instructions.
8. Initiate the test sequence on the smokemeter;
9. If using a partial-flow smokemeter, select the appropriate smoke opacity pass/fail standards, set forth at N.J.A.C. 7:27-14.6, based upon the engine model year. If using a full-flow smokemeter, enter the engine horsepower and stack diameter as measured from the vehicle exhaust stack;
10. If using a smokemeter without horsepower input, select the appropriate stack size from Table 1 below, based upon the vehicle's engine horsepower;
11. With each prompt from the smokemeter to "accelerate engine," rapidly depress the accelerator pedal to the floor and hold it there until prompted by the smokemeter to release the pedal;

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- 124. Repeat (a)11 at least four more times. This shall include, at a minimum, two preliminary snap accelerations to remove loose soot from the exhaust system for a stabilized reading, and a minimum of three snap accelerations for the official test, the average of which shall constitute the final test result; and
- 13. The pass/fail determination shall be based upon three valid smoke opacity test results averaged arithmetically and compared to the pass/fail standards appropriate for the engine model year.

TABLE 1

Engine Horsepower Rating vs. Nominal Stack Size

<u>Manufacturer's Rated Horsepower</u>	<u>Nominal Stack Size in Inches*</u>
Less than 101	2
101-200	3
201-300	4
301 and over	5

\*Note: Nominal stack size shall always be used when measuring engine smoke opacity, irrespective of the stack size equipped on the vehicle being tested. For example, a vehicle equipped with an engine rated at 301 horsepower or above which has an exhaust stack measuring seven inches in diameter shall, for purposes of an official test, have a nominal stack size of five inches input to the smokemeter. If, for example, a vehicle has no engine identification plate and is equipped with an exhaust stack measuring six or seven inches in diameter - but the exhaust pipe from the manifold is five inches in diameter - then the nominal stack size shall be five inches.

**7:27B-4.4 Emission control apparatus, retrofit device and closed crankcase ventilation system examination procedure**

- (a) The procedure for examination of the emission control apparatus of a diesel-powered motor vehicle, required at N.J.A.C. 7:27-14.5(d), shall consist of a visual check to determine whether all emission control apparatus and exhaust system components are present on the motor vehicle.
- (b) If any emission control apparatus or exhaust system component has been disconnected, detached, deactivated or in any other way rendered inoperable or less effective than designed by the original equipment or vehicle or engine manufacturer, the vehicle shall fail the emission control apparatus compliance examination.

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- (c) The procedure for the one-time compliance inspection of the retrofit device of a diesel-powered motor vehicle required to be retrofitted pursuant to N.J.A.C. 7:27-32.7, as required at N.J.A.C. 7:27-32.21 and 14.5(e), shall be performed as follows:
1. Confirm that the vehicle identification number on the vehicle matches the vehicle identification number on the compliance form;
  2. Confirm that the diesel emission control strategy family name on the retrofit label matches the diesel emissions control strategy family name on the compliance form;
  3. Confirm that the BART number (BART 1, BART 2 or BART 3) on the compliance form matches the BART number on the retrofit label;
  4. Visually confirm the presence of a retrofit device upon the vehicle;
  5. If the vehicle satisfies all of the conditions of (c)1 through 4 above, certify on the compliance form that the retrofit requirement has been met; and
  6. If the vehicle fails to satisfy any of the conditions at (c)1 through 4 above, certify on the compliance form that the retrofit requirement has not been met.
- (d) The procedure for examination of the closed crankcase ventilation system of a school bus required to have a closed crankcase ventilation system installed pursuant to N.J.A.C. 7:27-32.4 and N.J.S.A. 26:2C-8.31, as required at N.J.A.C. 7:27-32.6 and 14.5(f), shall be performed as follows:
1. Confirm that the vehicle identification number on the vehicle matches the vehicle identification number on the compliance form;
  2. Visually confirm the presence of a closed crankcase ventilation system that meets the following:
    - i. The closed crankcase ventilation system must not have any opening that would permit the uncontrolled release of crankcase emissions from the engine, as specified by (d) 2ii through v below;
    - ii. The tubing or similar ducting material originating at the crankcase vent must be ducted to the engine air intake plenum and may include an in-line filtration system;
    - iii. An in-line filtration system may also have a drainpipe that returns condensed fluids to the crankcase or a collection vessel;



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- iv. All tubing, ducting or pipes, or connections thereto, leading from the crankcase vent to the terminal point in the air intake system must be closed and secure. This includes connections to any intermediary filters or drain lines, and their terminal points; and
  - v. There are no visible indications of leaks from closed crankcase ventilation system, such as oil residue at connection points or visible emissions from the closed crankcase ventilation system;
- 3. If the vehicle satisfies all of the conditions set forth at (d)1 and 2 above, certify upon the compliance form that the closed crankcase ventilation system installation requirement has been met; and
  - 4. If the vehicle fails to satisfy any of the conditions at (d)1 and 2 above certify on the compliance form that the closed crankcase ventilation system installation requirement has not been met.

**7:27B-4.5 (Reserved)**

**7:27B-4.6 Specifications for diesel emissions testing equipment for determining compliance with N.J.A.C. 7:27-14**

- (a) A smokemeter used to measure smoke opacity in the exhaust emissions of a diesel-powered motor vehicle in order to determine the vehicle's compliance with N.J.A.C. 7:27-14 shall conform to all specifications and standards set forth in SAE J1667.
- (b) Equipment used for performing the OBD inspection at N.J.A.C. 7:27B-4.8 shall be approved by the Department as provided at N.J.A.C. 7:27B-4.2(d) and shall meet the requirements of 40 CFR 85.2231, incorporated herein by reference and SAE J1939.

**7:27B-4.7 Procedures for the visible smoke, indicator light check, and visual fuel leak tests**

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- (a) An inspector conducting a visible smoke test to determine a diesel vehicle's compliance with the inspection requirements at N.J.A.C. 7:27-14.5(d)1 and (e)1 shall perform the test as follows:
1. Place the vehicle in neutral gear with all accessories off and the emergency or parking brake secured;
  2. Increase the engine speed to an engine speed greater than the idle mode, and observe the exhaust emissions and crankcase emissions for visible continuous smoke;
  3. If there is visible smoke in the exhaust emissions or crankcase emissions for a period in excess of three consecutive seconds, the motor vehicle has failed the smoke test; and
  4. If there is no visible smoke in the exhaust emissions or crankcase emissions for a period in excess of three consecutive seconds, the motor vehicle has passed the smoke test.
- (b) An inspector conducting an indicator light check test to determine a diesel vehicle's compliance with the inspection requirements at N.J.A.C. 7:27-14.5(d)2 shall perform the test as follows:
1. Determine if the check engine light is functional as follows:
    - i. Turn off the motor vehicle's engine;
    - ii. Turn the motor vehicle ignition system to the KOEO position;
    - iii. If the check engine light is not functional, the motor vehicle has failed the indicator light check test; and
    - iv. If the check engine light is functional and remains illuminated with the engine on, the motor vehicle has failed the inspection;
  2. If the vehicle is equipped with a DPF, determine if the DPF is functional as follows:
    - i. If the motor vehicle is in regeneration mode, then the vehicle cannot be inspected;
    - ii. Turn off the motor vehicle's engine;
    - iii. Turn the motor vehicle ignition system to the KOEO position; and

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- iv. If the DPF light is not functional, the motor vehicle has failed the indicator light check test;
  3. If the vehicle is equipped with a SCR, determine if the SCR is functional as follows:
    - i. Turn off the motor vehicle's engine;
    - ii. Turn the motor vehicle ignition system to the KOEO position;
    - iii. If the SCR light is not functional, the motor vehicle has failed the indicator light check test;
    - iv. If the DEF tank gauge indicates empty or no fluid, the motor vehicle has failed the inspection.
- (c) An inspector conducting a visual fuel leak test to determine a motor vehicle's compliance with the visual fuel leak test requirements at N.J.A.C. 7:27-14.5(d)3 and (e)3 shall examine the fuel system for the presence of any leaking fuel. If any fuel is visibly leaking from the motor vehicle, the motor vehicle has failed the visual fuel leak test.

**7:27B-4.8 Procedures for the on-board diagnostics inspection**

- (a) The procedure for the OBD inspection, to be used to determine a diesel vehicle's compliance with the OBD inspection requirements at N.J.A.C. 7:27-14.5 is as follows:
  1. Turn off the motor vehicle's engine and connect the analyzer to the motor vehicle computer via the DLC located on the motor vehicle;
  2. If the DLC is damaged, missing or obstructed, the motor vehicle has failed the OBD inspection;
  3. Determine if the MIL is functional by briefly turning the motor vehicle ignition system to the KOEO position;
  4. If the MIL is not functional, the motor vehicle has failed the OBD inspection;
  5. Start the motor vehicle and leave the engine running. Determine if the MIL remains illuminated while the engine is running;
  6. If the MIL is illuminated with the engine running, the motor vehicle has failed the OBD inspection;

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7. The analyzer will attempt to communicate with the motor vehicle's OBD system;
  8. If the analyzer cannot successfully communicate with the motor vehicle's OBD system, the motor vehicle has failed the OBD inspection;
  9. If the analyzer successfully communicates with the motor vehicle OBD system, it will then retrieve stored information relating to the identification of the motor vehicle and any malfunctions recorded by the OBD system;
  10. If the analyzer determines that the OBD system or the motor vehicle is malfunctioning, the motor vehicle has failed the OBD inspection;
  11. If the analyzer indicates that the motor vehicle does not meet the EPA's criteria for "readiness," that is, if the vehicle's OBD system does not indicate that the critical number of supported readiness monitors have been set, the motor vehicle is deemed "not ready" for an OBD inspection and has failed the OBD inspection; and
  12. If the analyzer indicates that the motor vehicle is deemed "ready" and determines that all components of the OBD system are functioning properly, and the OBD system is not indicating any malfunctions of the motor vehicle, then the motor vehicle has passed the OBD inspection.
- (b) The OBD inspection procedure is largely a process whereby the diesel emissions testing equipment and the motor vehicle's OBD system interface and exchange information. As such, the description of the on board diagnostics inspection procedure set forth at (a) above is a brief, simplified description that does not contain explicit technical details. A more detailed flow chart version, reflecting the logic flow of pass and fail determinations within the procedure, as well as the Department's OBD equipment specifications, which contain additional technical details, are available electronically by contacting the Department's Bureau of Mobile Sources at the address at N.J.A.C. 7:27B-4.2(e) or by calling (609) 292-7953.

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**7:27B-4.9 (Reserved)**

**7:27B-4.10 (Reserved)**

**7:27B-4.11 (Reserved)**

**7:27B-4.12 (Reserved)**

**7:27B-4.13 (Reserved)**

**7:27B-4.14 (Reserved)**

**7:27B-4.15 (Reserved)**