TITLE 11 DEPARTMENT OF TRANSPORTATION

SUBTITLE 14 MOTOR VEHICLE ADMINISTRATION - VEHICLE INSPECTIONS

CHAPTER 08 VEHICLE EMISSIONS INSPECTION PROGRAM

11.14.08.01 Title.

This chapter is entitled Vehicle Emissions Inspection Program, as defined by Transportation Article, Title 23, Subtitle 2, Annotated Code of Maryland.

11.14.08.02 Definitions.

A. In this chapter, the following terms have the meanings indicated.

B. Terms Defined.

(1) "Administration" means the Motor Vehicle Administration of the Maryland Department of Transportation.

(2) "Analyzer" means equipment that measures the chemical composition of motor vehicle exhaust.

(3) "ASE" means the National Institute for Automotive Service Excellence.

(4) "Audit" means a periodic quality assurance check, performed by the Administration or the Department, on equipment and personnel regulated under this chapter.

(5) "Auditor" means an employee of the Administration or the Department who performs audits.

(6) "Basic certified emissions technician" means an individual who meets the provisions of Regulation .29A(1) of this chapter.

(7) "Certificate" means a vehicle inspection report issued by the contractor, a fleet inspection station, or the Administration, which certifies that:

(a) A vehicle has undergone an emissions inspection; or

(b) Emissions inspection standards have been waived for a vehicle.

(8) "Certified emissions repair facility" means a business certified by the Department which:

(a) Engages in emissions-related repairs to vehicles; and

(b) Meets the requirements of Regulation .30 of this chapter.

(9) "Certified emissions technician" means an individual certified by the Department who diagnoses emissions-related faults and supervises or performs emissions-related repairs and adjustments to bring vehicles into compliance with the requirements of this chapter.

(10) "Chemiluminescent analyzer" means an analyzer which measures the intensity of chemiluminescent radiation from the reaction of nitric oxide with ozone and, when used in conjunction with a nitrogen dioxide converter, permits the measurement of oxides of nitrogen.

(11) "Composite exhaust emissions test" means the entire exhaust emissions test, consisting of Phase 1 and Phase 2.

(12) "Constant volume sampler" means a device which:

(a) Is used for collecting samples of diluted exhaust gas; and

(b) Maintains a constant flow rate of exhaust gas and dilution air.

(13) "Contractor" means a business under contract with the State to operate and manage the vehicle emissions inspection stations.

(14) "Date of scheduled inspection" means a specific date, as assigned by the Administration, by which a vehicle shall be inspected.

(15) "Dealer" means a person licensed under Transportation Article, §15-302, Annotated Code of Maryland.

(16) "Department" means the Maryland Department of the Environment.

(17) "Dynamometer" means a power absorption unit which allows the road operation of a vehicle to be simulated by reproducing the inertia and road load power developed by the vehicle.

(18) "Emissions control device" means a design element or device installed on a motor vehicle by the vehicle manufacturer to comply with the standards of the Clean Air Act, 42 U.S.C. §7521, including, but not limited to, the oxygen sensor, catalytic converter, the fuel inlet restrictor, and devices integral to the:

(a) Exhaust gas recirculation (EGR) system;

(b) Evaporative emissions control system;

(c) Positive crankcase ventilation (PCV) system;

(d) Air injection system;

(e) Fuel metering system; and

(f) Ignition system.

(19) "Emissions inspection area" means Anne Arundel, Baltimore, Calvert, Carroll, Cecil, Charles, Frederick, Harford, Howard, Montgomery, Prince George's, Queen Anne's, and Washington cou nties, and Baltimore City.

(20) "Emissions-related recall" means a manufacturer plan to remedy vehicle emissions-related defects or nonconformity with new vehicle emissions standards through either a voluntary emissions recall as defined in 40 CFR §85.1902(d), 1992 edition, which is incorporated by reference, or a remedial plan determination made pursuant to the Clean Air Act, 42 U.S.C. §7541, which is incorporated by reference.

(21) "Emissions-related repair" means the inspection, adjustment, repair, or replacement of motor vehicle engine systems, subsystems, or components necessary to bring a vehicle into compliance with the emissions standards set forth in this chapter.

(22) "Emissions standard" means a requirement that limits the quantity, quality, rate, or concentration of emissions from a vehicle.

(23) "Fail certificate" means a certificate which indicates that a vehicle is not in compliance with an emissions inspection standard.

(24) "Flame ionization detector" means an analyzer which uses a hydrogen-air flame detector to produce a signal proportional to the mass flow rate of hydrocarbons.

(25) "Fleet inspection station" means an establishment licensed by the Department as of December 31, 1994 to perform certain emissions inspections.

(26) "Gross vehicle weight rating (GVWR)" means the total vehicle weight, including load, as designated by the vehicle manufacturer.

(27) "Highway" has the meaning stated in Transportation Article, §11-127, Annotated Code of Maryland.

(28) "Initial inspection" means the first inspection of a vehicle in an inspection cycle.

(29) "Inspection cycle" means an approximate 2-year period which begins with the date of scheduled inspection.

(30) "Inspector" means an employee of the contractor who performs emissions inspec tions, or an employee of the Administration or the Department who performs referee or other inspections, at a vehicle emissions inspection station.

(31) "Loaded vehicle weight (LVW)" means the weight of the vehicle in operational status and the weight of fuel at nominal tank capacity, plus 300 pounds.

(32) "Master certified emissions technician" means an individual who meets the provisions of Regulation .29B(1) of this chapter.

(33) "Misfueling" means the introduction of improper fuel into a vehicle as prohibited under the Clean Air Act, 42 U.S.C. §7545.

(34) "Model year" means the vehicle model year as designated by the manufacturer or the model year designated by the Administration for a vehicle constructed by other than the original manufacturer.

(35) "Motor vehicle" has the meaning stated in Transportation Article, §11-135, Annotated Code of Maryland.

(36) "Nondispersive infrared analyzer" means an analyzer which uses the nondispersive infrared analytical technique to measure components of motor vehicle exhaust.

(37) "On-board diagnostics" means an emissions control diagnostics system installed on a vehicle as required by the Clean Air Act, 42 U.S.C. §7521(m), which identifies deterioration or malfunction of vehicle systems and stores the information for retrieval.

(38) "Pass certificate" means a certificate which indicates that a vehicle is in compliance with all applicable emissions standards.

(39) "Passenger vehicle" means a vehicle which is registered or may be registered as a Class A passenger vehicle.

(40) "Period of permitted operation" means the period beginning with the Wednesday on or before an initial inspection failure and, for an initial inspection performed:

(a) In 1998 and 1999, ending 8 weeks after the Wednesday on or after the initial inspection failure; and

(b) After December 31, 1999, ending 17 weeks after the Wednesday on or before the initial inspection failure.

(41) "Phase" means a portion of the exhaust emissions test. Phase 1 is seconds 0 through 93 of the test, and Phase 2 is seconds 94 through 239 of the test.

(42) "Recognized repair technician" means a person who:

(a) Performs vehicle repairs as a profession, or is certified as a certified emissions technician under this chapter; and

(b) Is employed at a facility whose purpose is vehicle repair.

(43) "Referee inspection" means an emissions inspection conducted by the Administration or the Department for the purpose of resolving disputes or gathering data.

(44) "Registered gross vehicle weight" means the total vehicle weight including load as designated on the vehicle registration record of the Administration.

(45) "Remote sensing equipment" means equipment capable of measuring vehicle exhaust emissions as the vehicle is driven past the equipment.

(46) "Vehicle", for the purposes of this chapter, is synonymous with the definition of motor vehicle in § B(35) of this regulation.

(47) "Vehicle emissions inspection station" means a facility operated by the contractor and approved by the Administration to conduct emissions inspections pursuant to this chapter.

(48) "Vehicle emissions inspection program station representative" means an employee of the Administration who is assigned to a vehicle emissions inspection station and who is responsible for processing waiver applications, issuing waivers, and resolving technical issues and differences.

(49) "Waiver certificate" means a certificate which indicates that a vehicle has met the waiver provisions set forth in Regulation .06 of this chapter.

11.14.08.03 Applicability.

A. Unless exempt under Regulation .04 of this chapter, a vehicle is subject to the provisions of this chapter if it is:

(1) Titled and registered within the emissions inspection area;

(2) Owned or leased by a state, or local government and assigned and operated within the emissions inspection area for more than 60 days in a calendar year; or

(3) Owned or leased by an employee of the federal government, and operated on any property or facility owned by the federal government within the emissi ons inspection area for more than 60 days in a calendar year.

B. A vehicle that is authorized to be inspected by a fleet inspection station is subject to Regulations .01-.08 and .32--.42 of this chapter.

C. The idle exhaust emissions test and equipment c heck provisions of this chapter are applicable to 1977 through 1983 model year light duty vehicles, and all model year heavy duty vehicles with a gross vehicle weight rating from 10,000 pounds up through 26,000 pounds.

D. The transient exhaust emissions test provisions of this chapter are applicable to 1984 and newer model year light duty vehicles with a gross vehicle weight rating less than 10,000 pounds.

E. The on-board diagnostics test provisions of this chapter are applicable to 1996 and newer model year light duty vehicles with a gross vehicle weight rating of 8,500 pounds or less.

11.14.08.04 Exemptions.

A vehicle is exempt from the provisions of this chapter if it is:

A. A fire or rescue apparatus or ambulance, owned or leased by a state or local government, by a rescue squad, or by a volunteer fire or ambulance company, registered as an emergency vehicle as defined in Transportation Article, §11-118, Annotated Code of Maryland;

B. A motorcycle registered as a Class D motorcycle;

C. Registered as a Class E truck with a registered gross vehicle weight greater than 26,000 pounds;

D. Registered as a Class E farm truck;

E. Registered as a Class F truck tractor;

F. Registered as a Class F farm truck tractor;

G. Registered as a Class H school vehicle;

H. Registered as a Class K farm area vehicle;

I. Registered as a Class L historic vehicle;

J. Registered as a Class N street rod vehicle;

K. Registered as a Class P passenger bus;

L. Not self-propelled;

M. Powered solely by electricity or diesel fuel;

N. Of a model year earlier than 1977; or

O. A military vehicle owned by the federal government and used for tactical, combat, or relief operations, or for training for these operations.

11.14.08.05 Schedule of the Program.

A. After December 31, 1994, the owner of a nonexempt vehicle shall present the vehicle for a biennial inspection as scheduled by the Administration.

B. Schedule for Vehicle Inspection.

(1) The Administration shall assign each vehicle required to be inspected a date of scheduled inspection for each inspection cycle, and shall notify the vehicle owner approximately 8 weeks before the assigned date.

(2) A vehicle owner shall present the vehicle for a scheduled inspection after receipt of notification, but not later than the dat e of scheduled inspection. Presenting the vehicle for inspection at any other time does not alter the date of a future scheduled inspection.

(3) Unscheduled Inspection.

(a) A used vehicle owned by a dealer for which a date of scheduled inspection has not been established by the Administration may be inspected without notification, and the date the vehicle is initially inspected becomes the date of scheduled inspection.

(b) A new resident of Maryland who owns a vehicle for which a date of scheduled inspe ction has not been established by the Administration, and who chooses to have the vehicle inspected before titling and registration of the vehicle, may present the vehicle for inspection without notification, and the date the vehicle is initially inspected becomes the date of scheduled inspection.

(4) New Vehicles. For a vehicle of the current or preceding model year that has not been previously titled or registered in any jurisdiction and for which the ownership document is a manufacturer's certificate of origin, the Administration shall assign a date of scheduled inspection which is at least 24 months after the date of titling.

(5) Change of Address.

(a) Transportation Article, §13-414, Annotated Code of Maryland, requires the owner of a vehicle to not ify the Administration of a change of address within 30 days of the change. For purposes of this subsection, the term "address" means the bona fide domicile of the vehicle owner, as defined in COMAR 11.11.06.

(b) If a vehicle owner moves fro m an address outside of the emissions inspection area to an address within the emissions inspection area, the Administration shall establish a date of scheduled inspection.

(6) Transfer of Ownership.

(a) Unless exempt under Regulation .04 of this chapter , upon trans fer of ownership, a used vehicle shall undergo an emissions inspection in accordance with the provisions of this chapter if the date of scheduled inspection is not sufficiently later than the date of transfer of ownership to ensure that the new owner will receive notification.

(b) A dealer located in the emissions inspection area who sells a used vehicle to a person residing in the emissions inspection area shall have the vehicle inspected as required in § B(6)(a) of this regulation.

(c) A dealer located outside the emissions inspection area who sells a used vehicle to a person residing in the emissions inspection area may follow the requirements of § B(6)(b) of this regulation or may transfer the inspection requirements to the purchaser, if the transfer of requirements is disclosed to the purchaser in writing on a form approved by the Administration.

(7) Out-of-State Vehicles. Unless otherwise exempt, a vehicle which has been previously titled or registered in a jurisdiction outside Maryland shall be ass igned a date of scheduled inspection upon registration in the emissions inspection area.

(8) Vehicles Owned or Leased by the Federal Government. A department, agency, or instrumentality of the federal government with jurisdiction over any property or faci lity within the emissions inspection area shall provide to the Administration, in a format approved by the Administration, a list of all vehicles at each property or facility which are required to be inspected under Regulation .03 of this chapter, shall provide information on any additions or deletions to the list by the end of the calendar quarter in which the additions or deletions occurred, and shall provide an updated list biennially.

C. On-Highway Emissions Test.

(1) The owner of a vehicle which fail s to meet on-highway emissions test standards, as specified in Regulation .09F of this chapter, upon two occasions in a 2-year period, shall present the vehicle for an out-of-cycle inspection at a vehicle emissions inspection station as scheduled by the Administration, unless the vehicle:

(a) Is scheduled for inspection under A and B of this regulation within 6 months from the date of the second on-highway emissions test failure;

(b) Has failed an inspection and is operating during the period of permitted operation; or

(c) Has been issued a waiver certificate for the assigned inspection cycle.

(2) An out-of-cycle inspection required under §C(1) of this regulation does not alter the schedule for vehicle inspection specified in A and B of this regulation.

D. Compliance With Emissions-Related Recalls.

(1) The owner of a vehicle scheduled for inspection under this chapter shall have vehicle repairs performed as required by an emissions-related recall notice before presenting the vehicle for inspect ion.

(2) A vehicle found not to have had repairs performed as required by an emissions-related recall notice shall be rejected from inspection. The vehicle owner shall demonstrate compliance to the satisfaction of the Administration before the vehicle is inspected.

E. Reinspection.

(1) The owner of a vehicle which has failed an inspection shall present the vehicle for reinspection on or before the end of the period of permitted operation and after emissions-related repairs have been performed on the vehicle.

(2) The vehicle owner shall provide documentation, in a form prescribed by the Administration, indicating all of the following information for the vehicle:

(a) The repairs which were performed;

(b) By whom the repairs were performed; and

(c) Any emissions-related repairs recommended by the repair technician which were not performed.

(3) A vehicle presented for reinspection without the documentation required in §E(2) of this regulation shall be rejected from reinspection.

F. Rejection from Inspection or Reinspection. Rejection from inspection or reinspection does not alter the schedule for vehicle inspection specified in A and B of this regulation.

11.14.08.06 Certificates.

A. General Requirements.

(1) During each inspection cycle, a vehicle inspected under this chapter shall be issued a certificate that indicates the inspection status of the vehicle for the inspection cycle.

(2) Except for a waiver certificate, which may only be issued by the Administration, a certificate may be issued by the contractor, a fleet inspection station, or the Administration.

(3) For a vehicle inspected at a vehicle emissions inspection station, the contractor shall issue a certificate which contains the following information:

(a) The inspection station number, test lane number, and inspector identification number;

(b) The date of inspection;

(c) The exhaust emissions test start time and the time final exhaust emissions scores are determined;

(d) The vehicle identification number (VIN);

(e) The license plate number, if applicable;

(f) The gross vehicle weight rating, for a vehicle other than a passenger vehicle;

(g) The vehicle model year and vehicle make;

(h) Indication that the vehicle has full-time, four-wheel drive, if applicable;

(i) The odometer reading;

(j) The category of inspection performed (initial inspection, first reinspection, or subsequent reinspection);

(k) Indication that a second-chance emissions test was performed, as provided in Regulation .11-1B(5) of this chapter, if applicable;

(l) The fuel type of the vehicle;

(m) The overall pass/fail status for the inspection;

(n) The exhaust emissions test pass/fail status for hydrocarbons, carbon monoxide, oxides of nitrogen, and carbon monoxide plus carbon dioxide;

(o) The exhaust emissions measureme nts and the applicable standards for hydrocarbons, carbon monoxide, oxides of nitrogen, and carbon monoxide plus carbon dioxide, carried out to the appropriate number of significant digits as specified in Regulation .09 of this chapter;

(p) If applicable, the pass/fail status for the evaporative purge test and the applicable standard;

(q) If applicable, the pass/fail status for the evaporative integrity test and the applicable standard;

(r) Effective July 1, 2002, the pass/fail status for the on-board di agnostics interrogation and stored on-board diagnostics fault codes related to the emissions control equipment and to the power train for 1996 and newer model year vehicles;

(s) If applicable, the pass/fail status for the gas cap leak test and the applicable standard;

(t) The valid through date; and

(u) Other information the Administration or the Department may specify.

(4) For a vehicle inspected at a fleet inspection station, the fleet inspection station shall issue a certificate in a form and content established by the Administration and the Department.

(5) A vehicle owner shall ensure that the most recent certificate is carried at all times in the vehicle for which it was issued.

B. Pass Certificate. If a vehicle inspected at a vehicle emissions in spection station meets all applicable standards specified in Regulation .09 of this chapter during an inspection, the vehicle is considered to be in compliance for the assigned inspection cycle, and the contractor shall issue a pass certificate which includes a statement certifying that the inspection was performed in accordance with the provisions of this chapter and, if a vehicle passes a reinspection, the change in:

(1) Fuel economy resulting from emissions-related repairs; and

(2) Exhaust emissions, in pounds of pollutant per 10,000 miles of vehicle operation, resulting from emissions-related repairs.

C. Fail Certificate.

(1) If a vehicle inspected at a vehicle emissions inspection station does not meet all applicable standards specified in Regulatio n .09 of this chapter during an inspection, the vehicle is considered not to be in compliance and the contractor shall issue a fail certificate which includes the following information:

(a) The type of failure and the reason for failure; and

(b) A statement indicating any availability of warranty coverage as provided by the Clean Air Act, 42 U.S.C. §7541.

(2) A vehicle issued a fail certificate may be operated through the period of permitted operation.

(3) A person may not operate a vehicle after the en d of the period of permitted operation unless a pass certificate or a waiver certificate has been issued for the vehicle or the vehicle owner has been granted a time extension.

D. Waiver Certificate.

(1) The owner of a vehicle for which a fail certifica te has been issued may apply to the Administration for a waiver from inspection standards for the assigned inspection cycle if all of the following requirements are met:

(a) All applicable warranty coverage has been used, or the vehicle manufacturer or a dealer has

issued written denial of the warranty coverage provided for vehicles by the Clean Air Act, 42 U.S.C. §7541;

(b) The vehicle has received emissions-related repairs appropriate to the cause of inspection failure, and the repairs have been performed by a recognized repair technician;

(c) Emissions control devices have not been tampered with or removed, and the vehicle has not been misfueled; and

(d) The owner satisfies the requirements of State law, except for provisions which are superseded by federal law.

(2) The vehicle owner shall submit proof of expenditures for repairs with the waiver application in a form and content acceptable to the Administration. Repair costs, including parts and labor, are limited to only those repairs necessary to bring the vehicle into compliance with applicable emissions standards, and do not include costs:

(a) Determined to be necessary to correct tampering with or the removal of an emissions control device, or to repair damage resulting from misfueling; or

(b) Associated with the repair or replacement of the exhaust system or any of its components.

(3) The Administration shall evaluate each waiver application, examine the vehicle for verification of repairs and the presence of required emissions control devices , and may issue a waiver certificate if the owner has acted in good faith to bring the vehicle into compliance with the provisions of this chapter.

(4) The Administration may grant a time extension to a waiver applicant so that additional repairs may be obtained, or to adequately evaluate and verify the contents of the waiver application.

(5) A waiver certificate may be issued only by the Administration.

(6) A waiver certificate is valid until the next date of scheduled inspection.

(7) Senior Citizens. A waiver certificate may be granted to vehicle owners who are 70 years old or older at the time of scheduled inspection and drive less than 5,000 miles per year. In the case of more than one owner of a vehicle, all owners listed on the vehicle title must meet the age requirement. All information provided by the vehicle owner is subject to verification by the Administration.

11.14.08.07 Extensions.

A. The Administration may grant a time extension for a vehicle owner to comply with the requirements of this chapter. An extension may be granted only if the Administration

determines that the vehicle owner has made good faith efforts to have the vehicle inspected or repaired and circumstances have developed which are beyond the reasonable control of the vehicle owner. An extension shall be of the shortest duration possible, as determined by the Administration.

B. The Administration may grant a time extension for a vehicle registered in the emissions inspection area but operated in or assigned t o an area outside of the emissions inspection area. The vehicle owner shall present the vehicle for inspection upon its return to the emissions inspection area.

C. Economic Hardship. The Administration may grant a time extension, not to exceed the period of the inspectio n cycle, to a motorist to obtain needed repairs on a vehicle in the case of economic hardship.

11.14.08.08 Enforcement.

A. The requirements of this chapter relating to vehicle inspection shall be enforced by the Administration through the use of administrative sanctions in the form of:

(1) Suspension of vehicle registration;

(2) Denial of vehicle registration renewal; or

(3) Confiscation of the vehicle registration plates.

B. If the vehicle is not issued a pass certificate, a waiver certificate, or an extension on or before the date of scheduled inspection or, if applicable, the end of the period of permitted operation, a notice of suspension of registration shall be forwarded to the vehicle owner of record by the Administration. The notice shall:

(1) Contain vehicle identification information and a suspension date which is at least 15 days after the date of the notice; and

(2) Provide a means for the owner to resolve, to the satisfaction of the Administration, any issues so that the Administration may cancel the impending suspension.

C. Suspension.

(1) If the issues which led to the notice of suspension of registration are not resolved before the suspension date, the vehicle registration shall be suspended and the owner shall forward the vehicle registration plates to the Administration.

(2) If the vehicle owner fails to comply with the suspension, the Administration may issue an order to confiscate the vehicle registration plates.

(3) If the vehicle registration is suspended and a pass certificate , a waiver certificate, or an extension has not been issued, the vehicle registration remains suspended and subsequent renewal of registration shall be denied until the vehicle is in compliance with the requirements of this chapter.

11.14.08.09 Inspection Standards.

A. Exhaust Emissions Standards for Idle Emissions Test.

(1) Carbon dioxide emissions may not be less than 6 percent by volume.

(2) Exhaust emissions of hydrocarbons (HC) and carbon monoxide (CO) from a vehicle may n ot exceed the following v alues for the exhaust emissions test specified in Regulation .11 of this chapter for the indicated vehicle type or vehicle weight:

(a) Gross vehicle weight rating less than or equal to 6,000 pounds, including passenger vehicles:

Vehicle Model Year	*HC (parts per million)*	*CO (percent)*
1977	500	6.0
1978	430	5.5
1979	400	4.0
1980	220	1.7
1981 and later	220	1.2

(b) Gross vehicle weight rating greater than 6,000 pounds but less than or equal to 10,000 pounds, excluding passenger vehicles:

Vehicle Model Year	*HC (parts per million)*	*CO (percent)*
1977	580	7.0
1978	550	6.7
1979	470	5.0
1980	350	5.0
1981	250	3.0
1982	220	2.5
1983	220	1.5

Vehicle Model Year	*HC (parts per million)*	*CO (percent)*
1984 and later	220	1.2

(c) Gross vehicle weight rating greater than 10,000 pounds:

Vehicle Model Year	*HC (parts per million)*	*CO (percent)*
1977	650	7.0
1978	650	7.0
1979	650	6.5
1980	500	6.0
1981	500	6.0
1982	500	6.0
1983	500	3.5
1984	440	3.0
1985	440	3.0
1986	280	2.5
1987 and later	220	1.2

B. Exhaust Emissions Standards for Transient Emissions Test.

(1) Composite Exhaust Emissions Standards. Except as provided in §B(2) of this regulation, exhaust emissions, in grams per mile traveled, of hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) from a vehicle may not exceed the following values for the composite exhaust emissions test specified in Regulation .11-1 of this chapter for the indicated vehicle type or vehicle weight:

(a) For an initial inspection performed before January 1, 2000:

(i) Passenger vehicle:

Vehicle Model Year	*HC (grams/mile)*	*CO (grams/mile)*	*NOx (grams/mile)*
1977—1979	7.50	90.0	6.0
1980	2.00	60.0	6.0
1981—1982	2.00	60.0	3.0
1983—1990	2.00	30.0	3.0
1991—1995	1.20	20.0	2.5
1996 and newer	0.80	15.0	2.0

(ii) Gross vehicle weight rating less than or equal to 6,000 pounds, excluding passenger vehicles:

Vehicle Model Year	*HC (grams/mile)*	*CO (grams/mile)*	*NOx (grams/mile)*
1977—1978	8.00	120.0	9.0
1979—1983	7.50	100.0	7.0
1984—1987	3.20	80.0	7.0
1988—1990	3.20	80.0	3.5
1991—1995	2.40	60.0	3.0
1996 and newer: 3,750 lbs. or less LVW	0.80	15.0	2.0
Over 3,750 lbs. LVW	1.00	20.0	2.5

(iii) Gross vehicle weight rating greater than 6,000 pounds but less than or equal to 10,000 pounds, excluding passenger vehicles:

Vehicle Model Year	*HC (grams/mile)*	*CO (grams/mile)*	*NOx (grams/mile)*
1977—1978	8.00	120.0	9.0
1979—1983	7.50	100.0	7.0
1984—1987	3.20	80.0	7.0

1988—1990	3.20	80.0	5.0
1991—1995	2.40	60.0	4.5
1996 and newer: 5,750 lbs. or less LVW	1.00	20.0	2.5
Over 5,750 lbs. LVW	2.40	60.0	4.0

(iv) Gross vehicle weight rating greater than 10,000 pounds:

Vehicle Model Year	*HC (grams/mile)*	*CO (grams/mile)*	*NOx (grams/mile)*
1977—1978	13.0	200.0	50.0
1979—1986	11.5	180.0	30.0
1987—1989	8.5	170.0	30.0
1990	8.5	170.0	16.0
1991—1997	8.5	170.0	14.0
1998 and newer:	8.5	170.0	11.0

(b) For an initial inspection performed after December 31, 1999:

(i) Passenger vehicle:

Vehicle Model Year	*HC (grams/mile)*	*CO (grams/mile)*	*NOx (grams/mile)*
1977—1979	13.0	65.0	4.0
1980	0.80	30.0	4.0
1981—1982	0.80	30.0	2.0
1983—1995	0.80	15.0	2.0
1996 and newer	0.60	10.0	1.5

(ii) Gross vehicle weight rating less than or equal to 6,000 pounds, excluding passenger vehicles:

Vehicle Model Year	*HC (grams/mile)*	*CO (grams/mile)*	*NOx (grams/mile)*
1977—1978	4.00	80.0	6.0
1979—1983	3.40	70.0	4.5
1984—1987	1.60	40.0	4.5
1988—1995	1.60	40.0	2.5
1996 and newer: 3,750 lbs. or less LVW	0.60	10.0	1.5
Over 3,750 lbs. LVW	0.80	13.0	1.8

(iii) Gross vehicle weight rating greater than 6,000 pounds but less than or equal to 10,000 pounds, excluding passenger vehicles:

Vehicle Model Year	*HC (grams/mile)*	*CO (grams/mile)*	*NOx (grams/mile)*
1977—1978	4.00	80.0	6.0
1979—1983	3.40	70.0	4.5
1984—1987	1.60	40.0	4.5
1988—1995	1.60	40.0	3.5
1996 and newer: 5,750 lbs. or less LVW	0.80	13.0	1.8
Over 5,750 lbs. LVW	0.80	15.0	2.0

(iv) Gross vehicle weight rating greater than 10,000 pounds:

Vehicle Model Year	*HC (grams/mile)*	*CO (grams/mile)*	*NOx (grams/mile)*
1977—1978	13.0	80.0	32.0
1979—1986	5.0	75.0	20.0

1987—1989	3.5	70.0	20.0
1990	3.5	70.0	11.0
1991—1997	3.5	70.0	9.0
1998 and newer:	3.5	70.0	7.0

(2) Composite Fast-Pass Exhaust Emissions Standards for Passenger Vehicles. Beginning at second 30 of the driving cycle, a model year 1984 or newer passenger vehicle is considered to be in compliance with exhaust emissions test requirements for hydrocarbons (HC), carbon monoxide (CO), or oxides of nitrogen (NOx) before the completion of the composite exhaust emis sions test if the cumulative exhaust emissions, in grams, are below the following composite fast-pass exhaust emissions standards for the second under consideration of the composite exhaust emissions test specified in Regulation .11-1 of this chapter, for an initial inspection before January 1, 2000:

(a) Vehicle model years 1984 through 1990:

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
30	0.407	3.804	0.419
31	0.415	3.985	0.425
32	0.423	4.215	0.431
33	0.436	4.440	0.449
34	0.451	4.579	0.476
35	0.464	4.688	0.497
36	0.468	4.749	0.515
37	0.475	4.783	0.516
38	0.487	4.813	0.519
39	0.506	4.876	0.527
40	0.530	5.104	0.542
41	0.549	5.217	0.560
42	0.569	5.383	0.598
43	0.588	5.571	0.616

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
44	0.609	5.888	0.645
45	0.621	6.199	0.670
46	0.636	6.245	0.691
47	0.649	6.318	0.716
48	0.666	6.418	0.735
49	0.679	6.540	0.765
50	0.696	6.690	0.802
51	0.712	6.875	0.836
52	0.727	7.029	0.868
53	0.745	7.129	0.890
54	0.760	7.359	0.918
55	0.776	7.722	0.936
56	0.797	8.017	0.947
57	0.814	8.249	0.958
58	0.826	8.425	0.970
59	0.837	8.563	0.982
60	0.849	8.686	0.994
61	0.862	8.804	1.019
62	0.872	8.916	1.042
63	0.887	9.025	1.049
64	0.895	9.138	1.058
65	0.903	9.250	1.062
66	0.925	9.354	1.064
67	0.933	9.457	1.070
68	0.945	9.575	1.077

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
69	0.959	9.728	1.085
70	0.970	9.938	1.092
71	0.980	10.140	1.101
72	0.988	10.222	1.111
73	0.997	10.261	1.121
74	1.022	10.278	1.131
75	1.037	10.290	1.141
76	1.051	10.715	1.159
77	1.064	10.790	1.164
78	1.075	10.844	1.186
79	1.087	10.921	1.221
80	1.097	11.010	1.260
81	1.105	11.090	1.268
82	1.114	11.136	1.272
83	1.136	11.136	1.277
84	1.160	11.165	1.288
85	1.182	11.191	1.310
86	1.201	11.205	1.319
87	1.217	11.211	1.320
88	1.233	11.211	1.337
89	1.248	11.211	1.348
90	1.262	11.211	1.361
91	1.271	11.220	1.366
92	1.279	11.294	1.369
93	1.287	11.332	1.373

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
94	1.295	11.355	1.375
95	1.302	11.383	1.377
96	1.309	11.410	1.379
97	1.316	11.433	1.381
98	1.325	11.516	1.383
99	1.339	11.820	1.385
100	1.356	12.104	1.399
101	1.365	12.344	1.405
102	1.378	12.781	1.466
103	1.397	13.472	1.485
104	1.420	14.405	1.546
105	1.445	14.808	1.623
106	1.470	14.965	1.699
107	1.491	15.121	1.760
108	1.506	15.372	1.788
109	1.517	15.530	1.798
110	1.528	15.687	1.842
111	1.542	16.018	1.864
112	1.559	16.527	1.888
113	1.578	16.810	1.905
114	1.594	16.961	1.920
115	1.605	17.120	1.926
116	1.615	17.135	1.939
117	1.625	17.249	1.958
118	1.642	17.451	1.972

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
119	1.670	17.509	1.981
120	1.694	17.605	1.987
121	1.705	17.734	1.991
122	1.717	18.049	1.996
123	1.732	18.447	2.012
124	1.747	18.592	2.040
125	1.763	18.657	2.060
126	1.779	18.796	2.069
127	1.795	18.952	2.092
128	1.810	19.137	2.114
129	1.823	19.329	2.132
130	1.835	19.519	2.144
131	1.845	19.707	2.152
132	1.854	19.882	2.157
133	1.862	19.905	2.160
134	1.870	20.049	2.163
135	1.883	20.460	2.165
136	1.888	20.746	2.168
137	1.896	21.068	2.171
138	1.911	21.380	2.186
139	1.928	21.748	2.235
140	1.949	22.046	2.298
141	1.969	22.348	2.333
142	1.982	22.397	2.373
143	1.999	22.407	2.406

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
144	2.011	22.417	2.416
145	2.022	22.922	2.420
146	2.035	22.951	2.424
147	2.043	22.976	2.435
148	2.049	23.017	2.455
149	2.063	23.073	2.471
150	2.085	23.161	2.484
151	2.104	23.218	2.495
152	2.117	23.253	2.509
153	2.127	23.337	2.522
154	2.138	23.425	2.533
155	2.152	23.534	2.541
156	2.168	23.652	2.552
157	2.186	23.739	2.589
158	2.205	24.606	2.631
159	2.224	25.615	2.704
160	2.242	26.073	2.758
161	2.268	24.496	2.802
162	2.308	29.772	2.904
163	2.352	31.056	2.960
164	2.406	33.351	3.027
165	2.421	34.890	3.127
166	2.435	35.937	3.187
167	2.470	37.012	3.306
168	2.501	37.892	3.384

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
169	2.537	39.028	3.467
170	2.571	40.406	3.565
171	2.625	41.379	3.640
172	2.657	42.033	3.718
173	2.683	42.432	3.781
174	2.701	42.742	3.827
175	2.717	43.399	3.852
176	2.732	43.895	3.903
177	2.756	42.227	3.930
178	2.781	44.926	3.970
179	2.811	45.256	4.015
180	2.853	45.553	4.074
181	2.898	45.753	4.159
182	2.946	46.210	4.230
183	2.988	47.017	4.286
184	3.023	48.185	4.334
185	3.057	48.741	4.388
186	3.076	49.462	4.447
187	3.101	50.313	4.505
188	3.120	51.285	4.561
189	3.136	52.076	4.625
190	3.151	52.857	4.696
191	3.163	52.876	4.731
192	3.209	53.067	4.780
193	3.223	53.777	4.837

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
194	3.237	54.242	4.876
195	3.263	54.489	4.928
196	3.302	54.601	4.972
197	3.338	54.912	5.025
198	3.372	55.588	5.104
199	3.390	56.266	5.189
200	3.428	56.617	5.275
201	3.470	56.836	5.336
202	3.493	57.204	5.366
203	3.509	57.371	5.387
204	3.522	57.487	5.427
205	3.533	57.728	5.444
206	3.550	58.097	5.447
207	3.578	58.572	5.477
208	3.607	59.024	5.520
209	3.630	59.321	5.560
210	3.658	59.715	5.603
211	3.701	60.045	5.657
212	3.745	60.453	5.698
213	3.778	60.935	5.762
214	3.814	61.307	5.836
215	3.825	61.666	5.944
216	3.835	62.148	6.008
217	3.844	62.532	6.040
218	3.853	62.546	6.072

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
219	3.864	62.559	6.089
220	3.874	62.570	6.101
221	3.891	62.846	6.118
222	3.928	63.097	6.126
223	3.966	63.150	6.139
224	4.008	63.150	6.145
225	4.010	63.150	6.148
226	4.012	63.150	6.150
227	4.016	63.150	6.151
228	4.019	63.150	6.152
229	4.057	63.150	6.153
230	4.065	63.150	6.154
231	4.072	63.150	6.156
232	4.081	63.150	6.157
233	4.104	63.150	6.159
234	4.124	63.153	6.160
235	4.128	63.159	6.162
236	4.132	63.173	6.163
237	4.137	63.193	6.164
238	4.147	63.214	6.166
239	4.158	63.233	6.168

(b) Vehicle model years 1991 through 1995:

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
30	0.247	1.502	0.262

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
31	0.253	1.546	0.275
32	0.258	1.568	0.301
33	0.263	1.582	0.317
34	0.268	1.593	0.327
35	0.277	1.602	0.330
36	0.283	1.621	0.332
37	0.293	1.631	0.334
38	0.297	1.702	0.336
39	0.298	1.784	0.337
40	0.313	1.879	0.354
41	0.320	2.162	0.366
42	0.327	2.307	0.410
43	0.342	2.343	0.414
44	0.360	2.376	0.438
45	0.376	2.406	0.477
46	0.389	2.433	0.506
47	0.408	2.458	0.518
48	0.423	2.483	0.522
49	0.434	2.774	0.526
50	0.444	2.844	0.554
51	0.454	2.900	0.574
52	0.465	2.936	0.587
53	0.472	3.133	0.601
54	0.478	3.304	0.615
55	0.485	3.407	0.629

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
56	0.493	3.456	0.643
57	0.500	3.480	0.667
58	0.505	3.518	0.678
59	0.514	3.560	0.683
60	0.537	3.593	0.686
61	0.540	3.628	0.693
62	0.543	3.641	0.699
63	0.546	3.655	0.703
64	0.551	3.680	0.707
65	0.559	3.700	0.711
66	0.567	3.728	0.716
67	0.575	3.857	0.721
68	0.588	3.894	0.726
69	0.595	3.943	0.742
70	0.601	3.983	0.759
71	0.606	4.009	0.773
72	0.610	4.023	0.784
73	0.617	4.023	0.790
74	0.631	4.053	0.794
75	0.643	4.063	0.799
76	0.651	4.077	0.809
77	0.659	4.225	0.821
78	0.667	4.243	0.833
79	0.676	4.260	0.839
80	0.681	4.282	0.844

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
81	0.685	4.322	0.857
82	0.689	4.398	0.870
83	0.694	4.482	0.833
84	0.700	4.515	0.894
85	0.705	4.518	0.902
86	0.709	4.520	0.907
87	0.713	4.522	0.910
88	0.717	4.522	0.912
89	0.721	4.523	0.913
90	0.724	4.526	0.914
91	0.727	4.527	0.915
92	0.729	4.527	0.916
93	0.731	4.528	0.917
94	0.734	4.528	0.918
95	0.740	4.528	0.919
96	0.748	4.529	0.920
97	0.759	4.575	0.921
98	0.771	4.703	0.922
99	0.783	4.805	0.924
100	0.793	4.886	0.929
101	0.810	4.957	0.941
102	0.823	5.104	0.970
103	0.836	5.340	1.027
104	0.853	5.496	1.093
105	0.871	5.625	1.155

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
106	0.881	5.815	1.234
107	0.899	6.473	1.275
108	0.931	7.037	1.305
109	0.947	7.419	1.320
110	0.957	7.643	1.332
111	0.965	7.759	1.346
112	0.971	7.824	1.358
113	0.977	7.889	1.378
114	0.983	7.960	1.406
115	1.003	8.024	1.426
116	1.030	8.076	1.438
117	1.041	8.111	1.448
118	7.050	8.130	1.460
119	1.052	8.148	1.462
120	1.055	8.211	1.467
121	1.061	8.478	1.476
122	1.071	8.548	1.494
123	1.081	8.561	1.505
124	1.091	8.568	1.517
125	1.102	8.572	1.546
126	1.110	8.584	1.569
127	1.116	8.592	1.586
128	1.121	8.596	1.596
129	1.125	8.597	1.603
130	1.128	8.601	1.605

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
131	1.130	8.605	1.606
132	1.132	8.608	1.607
133	1.134	8.626	1.607
134	1.135	8.650	1.608
135	1.143	8.660	1.614
136	1.147	8.767	1.616
137	1.156	9.029	1.631
138	1.163	9.238	1.643
139	1.186	9.389	1.656
140	1.253	9.493	1.673
141	1.262	9.583	1.703
142	1.271	9.626	1.739
143	1.277	9.669	1.767
144	1.283	9.716	1.774
145	1.291	9.763	1.785
146	1.294	9.809	1.806
147	1.296	9.852	1.830
148	1.298	9.885	1.844
149	1.303	9.932	1.845
150	1.316	9.986	1.846
151	1.330	10.039	1.852
152	1.342	10.072	1.868
153	1.348	10.090	1.877
154	1.353	10.105	1.879
155	1.362	10.146	1.886

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
156	1.365	10.245	1.900
157	1.366	10.397	1.910
158	1.373	10.923	1.963
159	1.397	11.970	1.954
160	1.423	13.421	1.986
161	1.440	15.289	2.050
162	1.452	15.912	2.131
163	1.465	16.530	2.235
164	1.509	17.622	2.320
165	1.533	18.366	2.395
166	1.555	19.869	2.488
167	1.576	20.711	2.563
168	1.598	22.319	2.645
169	1.618	23.751	2.746
170	1.636	24.842	2.778
171	1.666	25.410	2.792
172	1.685	25.798	2.810
173	1.726	26.122	2.847
174	1.742	26.353	2.874
175	1.756	26.638	2.905
176	1.769	27.219	2.950
177	1.784	27.279	3.001
178	1.802	27.320	3.047
179	1.822	27.352	3.104
180	1.843	27.822	3.173

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
181	1.864	28.763	3.238
182	1.884	29.402	3.302
183	1.896	29.971	3.372
184	1.915	30.276	3.452
185	1.940	30.988	3.545
186	1.958	31.095	3.648
187	1.972	31.314	3.701
188	1.985	31.833	3.759
189	1.991	32.239	3.821
190	1.993	32.547	3.870
191	1.995	32.855	3.892
192	2.001	33.153	3.914
193	2.015	33.444	3.955
194	2.031	33.482	3.997
195	2.047	33.516	4.035
196	2.063	33.549	4.089
197	2.079	33.653	4.146
198	2.094	33.973	4.206
199	2.109	34.159	4.243
200	2.122	34.191	4.295
201	2.130	34.250	4.351
202	2.137	34.469	4.398
203	2.157	34.716	4.410
204	2.172	34.969	4.419
205	2.194	35.144	4.426

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
206	2.222	35.418	4.429
207	2.245	35.766	4.453
208	2.268	35.949	4.486
209	2.279	36.010	4.542
210	2.288	36.548	4.598
211	2.301	37.179	4.638
212	2.316	37.651	4.715
213	2.332	38.041	4.774
214	2.345	38.591	4.829
215	2.354	38.852	4.872
216	2.362	38.861	4.931
217	2.368	38.926	4.981
218	2.376	39.194	5.017
219	2.384	39.474	5.029
220	2.391	39.668	5.033
221	2.395	39.781	5.037
222	2.400	39.890	5.047
223	2.405	39.954	5.057
224	2.409	39.984	5.061
225	2.413	39.989	5.062
226	2.417	39.990	5.063
227	2.426	39.990	5.063
228	2.428	39.990	5.063
229	2.431	39.991	5.063
230	2.433	40.012	5.064

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
231	2.441	40.061	5.065
232	2.461	40.116	5.066
233	2.476	40.249	5.067
234	2.488	40.253	5.068
235	2.498	40.290	5.069
236	2.508	40.385	5.070
237	2.516	40.488	5.070
238	2.520	40.720	5.070
239	2.523	40.763	5.070

(c) Vehicle model years 1996 and newer:

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
30	0.124	0.693	0.167
31	0.126	0.773	0.177
32	0.129	0.837	0.188
33	0.135	0.851	0.214
34	0.140	0.853	0.232
35	0.146	0.857	0.240
36	0.150	0.900	0.243
37	0.153	0.960	0.245
38	0.156	1.034	0.246
39	0.160	1.070	0.246
40	0.165	1.076	0.250
41	0.169	1.083	0.260
42	0.172	1.102	0.277

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
43	0.173	1.111	0.311
44	0.177	1.114	0.328
45	0.197	1.157	0.343
46	0.200	1.344	0.359
47	0.208	1.482	0.373
48	0.221	1.530	0.383
49	0.232	1.542	0.385
50	0.235	1.553	0.400
51	0.238	1.571	0.410
52	0.240	1.595	0.434
53	0.242	1.633	0.464
54	0.246	1.685	0.472
55	0.249	1.689	0.480
56	0.252	1.693	0.491
57	0.261	1.700	0.500
58	0.271	1.723	0.506
59	0.276	1.852	0.509
60	0.278	1.872	0.512
61	0.280	1.872	0.516
62	0.282	1.872	0.519
63	0.283	1.900	0.523
64	0.284	1.917	0.529
65	0.285	1.944	0.533
66	0.286	2.000	0.535
67	0.288	2.060	0.540

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
68	0.291	2.064	0.551
69	0.294	2.076	0.563
70	0.296	2.104	0.575
71	0.298	2.117	0.588
72	0.300	2.125	0.600
73	0.302	2.130	0.603
74	0.304	2.138	0.604
75	0.307	2.152	0.613
76	0.308	2.170	0.624
77	0.308	2.188	0.646
78	0.308	2.200	0.651
79	0.314	2.212	0.659
80	0.320	2.212	0.673
81	0.324	2.221	0.696
82	0.327	2.222	0.706
83	0.329	2.227	0.715
84	0.333	2.236	0.724
85	0.336	2.243	0.737
86	0.339	2.262	0.747
87	0.343	2.271	0.748
88	0.347	2.284	0.748
89	0.350	2.299	0.748
90	0.356	2.308	0.748
91	0.358	2.326	0.748
92	0.360	2.330	0.748

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
93	0.363	2.331	0.748
94	0.367	2.344	0.748
95	0.370	2.347	0.748
96	0.372	2.355	0.748
97	0.376	2.395	0.748
98	0.388	2.451	0.748
99	0.396	2.508	0.751
100	0.405	2.590	0.764
101	0.410	2.660	0.789
102	0.411	2.749	0.822
103	0.412	2.913	0.867
104	0.413	3.162	0.905
105	0.421	3.170	0.925
106	0.428	3.197	0.955
107	0.430	3.288	0.985
108	0.455	3.419	0.993
109	0.459	3.587	0.995
110	0.462	3.595	0.996
111	0.464	3.640	1.010
112	0.466	3.740	1.028
113	0.468	3.868	1.034
114	0.471	3.877	1.044
115	0.488	3.934	1.059
116	0.513	4.015	1.075
117	0.538	4.061	1.080

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
118	0.561	4.063	1.080
119	0.577	4.079	1.081
120	0.580	4.140	1.091
121	0.586	4.185	1.096
122	0.594	4.199	1.111
123	0.603	4.205	1.122
124	0.610	4.212	1.135
125	0.615	4.232	1.138
126	0.624	4.298	1.139
127	0.628	4.344	1.139
128	0.632	4.361	1.139
129	0.637	4.366	1.139
130	0.641	4.369	1.139
131	0.643	4.372	1.139
132	0.644	4.435	1.139
133	0.645	4.523	1.139
134	0.647	4.524	1.139
135	0.651	4.525	1.139
136	0.658	4.531	1.160
137	0.663	4.534	1.174
138	0.666	4.542	1.183
139	0.668	4.553	1.197
140	0.670	4.554	1.223
141	0.672	4.554	1.225
142	0.675	4.554	1.272

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
143	0.678	4.554	1.286
144	0.681	4.554	1.304
145	0.684	4.554	1.307
146	0.686	4.554	1.312
147	0.688	4.554	1.317
148	0.690	4.554	1.321
149	0.692	4.554	1.325
150	0.694	4.554	1.328
151	0.696	4.556	1.332
152	0.698	4.556	1.338
153	0.700	4.565	1.344
154	0.702	4.612	1.350
155	0.704	4.834	1.357
156	0.706	5.702	1.365
157	0.708	5.841	1.379
158	0.710	6.170	1.414
159	0.712	6.670	1.466
160	0.716	7.425	1.514
161	0.750	8.379	1.559
162	0.784	9.648	1.591
163	0.805	10.918	1.641
164	0.840	12.157	1.719
165	0.853	12.731	1.777
166	0.874	12.831	1.832
167	0.903	12.892	1.919

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
168	0.910	12.932	1.972
169	0.914	13.702	2.013
170	0.916	14.139	2.100
171	0.919	14.964	2.200
172	0.931	15.704	2.251
173	0.948	16.253	2.270
174	0.983	16.907	2.301
175	1.018	17.655	2.318
176	1.027	18.020	2.335
177	1.035	18.349	2.349
178	1.051	18.671	2.387
179	1.074	18.972	2.423
180	1.084	19.228	2.462
181	1.099	20.123	2.503
182	1.121	20.405	2.545
183	1.132	20.754	2.586
184	1.152	21.684	2.627
185	1.161	21.955	2.673
186	1.168	22.650	2.749
187	1.175	22.989	2.804
188	1.181	23.535	2.851
189	1.188	23.876	2.984
190	1.203	24.018	2.931
191	1.219	24.464	2.971
192	1.233	24.685	3.020

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
193	1.251	24.931	3.077
194	1.255	25.188	3.132
195	1.258	25.468	3.185
196	1.265	25.627	3.219
197	1.280	25.746	3.268
198	1.293	25.850	3.299
199	1.301	25.974	3.350
200	1.313	26.141	3.406
201	1.324	26.225	3.346
202	1.332	26.388	3.497
203	1.341	26.547	3.514
204	1.357	26.818	3.517
205	1.375	27.052	3.519
206	1.392	27.393	3.523
207	1.408	27.501	3.545
208	1.422	27.632	3.570
209	1.433	27.803	3.600
210	1.443	27.953	3.619
211	1.453	28.205	3.639
212	1.463	28.543	3.686
213	1.468	28.997	3.732
214	1.470	29.000	3.791
215	1.474	29.005	3.833
216	1.478	29.081	3.890
217	1.481	29.281	3.932

Second	*HC (grams)*	*CO (grams)*	*NOx (grams)*
218	1.484	29.483	3.960
219	1.487	29.734	3.997
220	1.490	29.803	4.013
221	1.493	29.821	4.035
222	1.504	29.847	4.038
223	1.522	29.862	4.050
224	1.547	29.873	4.066
225	1.549	30.008	4.070
226	1.562	30.136	4.072
227	1.574	30.127	4.072
228	1.579	30.127	4.073
229	1.584	30.208	4.073
230	1.589	30.314	4.073
231	1.590	30.323	4.073
232	1.596	30.325	4.074
233	1.598	30.368	4.074
234	1.604	30.411	4.075
235	1.610	30.416	4.075
236	1.612	30.428	4.076
237	1.613	30.430	4.076
238	1.614	30.452	4.076
239	1.615	30.488	4.076

(3) Phase 2 Exhaust Emissions Standards. A vehicle which fails to meet a composite exhaust emissions standard for hydrocarbons (HC) or carbon monoxide (CO), as specified in §B(1) of this regulation, is subject to Phase 2 exhaust emissions standards. Except as provided in §B(4) of this regulation, exhaust emissions, in grams per mile traveled, of HC and CO from a vehicl e may not exceed the following values for Phase 2 of the exhaust emissions test specified in

Regulation .11-1 of this chapter for the indicated vehicle type or vehicle weight:

(a) For an initial inspection performed before January 1, 2000:

(i) Passenger vehicle:

Vehicle Model Year	*HC (grams/mile)*	*CO (grams/mile)*
1977—1979	5.00	72.0
1980—1982	1.25	48.0
1983—1990	1.25	24.0
1991—1995	0.75	16.0
1996 and newer	0.50	12.0

(ii) Gross vehicle weight rating less than or equal to 6,000 pounds, excluding passenger vehicles:

Vehicle Model Year	*HC (grams/mile)*	*CO (grams/mile)*
1977—1978	5.00	96.0
1979—1983	5.00	80.0
1984—1990	2.00	64.0
1991—1995	1.50	48.0
1996 and newer: 3,750 lbs. or less LVW	0.50	12.0
Over 3,750 lbs. LVW	0.63	16.0

(iii) Gross vehicle weight rating greater than 6,000 pounds but less than or equal to 10,000 pounds, excluding passenger vehicles:

Vehicle Model Year	*HC (grams/mile)*	*CO (grams/mile)*
1977—1978	5.00	96.0

Vehicle Model Year	*HC (grams/mile)*	*CO (grams/mile)*
1979—1983	5.00	80.0
1984—1987	2.00	64.0
1988—1990	2.00	64.0
1991—1995	1.50	48.0
1996 and newer: 5,750 lbs. or less LVW	0.63	16.0
Over 5,750 lbs. LVW	1.50	48.0

(iv) Gross vehicle weight rating greater than 10,000 pounds:

Vehicle Model Year	*HC (grams/mile)*	*CO (grams/mile)*
1977—1978	8.00	160.0
1979—1986	7.00	145.0
1987 and newer:	5.50	135.0

(b) For an initial inspection performed after December 31, 1999:

(i) Passenger vehicle:

Vehicle Model Year	*HC (grams/mile)*	*CO (grams/mile)*
1977—1979	2.00	52.0
1980—1982	0.50	24.0
1983—1990	0.50	12.0
1991—1995	0.50	12.0
1996 and newer	0.40	8.0

(ii) Gross vehicle weight rating less than or equal to 6,000 pounds, excluding passenger vehicles:

Vehicle Model Year	*HC (grams/mile)*	*CO (grams/mile)*
1977—1978	2.50	64.0
1979—1983	2.00	56.0
1984—1990	1.00	32.0
1991—1995	1.00	32.0
1996 and newer: 3,750 lbs. or less LVW	0.40	8.0
Over 3,750 lbs. LVW	0.50	10.0

(iii) Gross vehicle weight rating greater than 6,000 pounds but less than or equal to 10,000 pounds, excluding passenger vehicles:

Vehicle Model Year	*HC (grams/mile)*	*CO (grams/mile)*
1977—1978	2.50	64.0
1979—1983	2.00	56.0
1984—1987	1.00	32.0
1988—1990	1.00	32.0
1991—1995	1.00	32.0
1996 and newer: 5,750 lbs. or less LVW	0.50	10.0
Over 5,750 lbs. LVW	0.50	12.0

(iv) Gross vehicle weight rating greater than 10,000 pounds:

Vehicle Model Year	*HC (grams/mile)*	*CO (grams/mile)*
1977—1978	8.0	65.0
1979—1986	3.00	60.0
1987 and newer:	2.00	55.0

(4) Phase 2 Fast-Pass Exhaust Emissions Standards. Beginning at second 94 of the driving cycle, a model year 1984 or newer passenger vehicle is considered to be in compliance with exhaust emissions test requirements for hydrocarbons (HC) or carbon monoxide (CO) before the completion of Phase 2 of the exhaust emissions test if the cumulative exhaust emissions, in grams, are at or below the following Phase 2 fast-pass exhaust emissions standards for the second under consideration of Phase 2 of the exhaust emissions test specified in Regulation .11-1 of this chapter, for an initial inspection before January 1, 2000:

(a) Vehicle model years 1984 through 1990:

Second	*HC (grams)*	*CO (grams)*
94	0.001	0.000
95	0.002	0.000
96	0.003	0.001
97	0.004	0.006
98	0.008	0.020
99	0.015	0.051
100	0.021	0.092
101	0.026	0.131
102	0.039	0.200
103	0.044	0.307
104	0.055	0.582
105	0.094	0.800
106	0.110	0.925
107	0.116	0.973

Second	*HC (grams)*	*CO (grams)*
108	0.132	1.091
109	0.151	1.113
110	0.159	1.213
111	0.172	1.344
112	0.186	1.399
113	0.199	1.520
114	0.207	1.640
115	0.216	1.684
116	0.229	1.693
117	0.235	1.786
118	0.240	2.007
119	0.245	2.084
120	0.261	2.179
121	0.267	2.264
122	0.277	2.328
123	0.287	2.375
124	0.298	2.437
125	0.308	2.543
126	0.316	2.593
127	0.322	2.641
128	0.329	2.663
129	0.338	2.672
130	0.346	2.676
131	0.354	2.683
132	0.356	2.817

Second	*HC (grams)*	*CO (grams)*
133	0.357	2.992
134	0.359	3.111
135	0.362	3.234
136	0.364	3.304
137	0.368	3.310
138	0.378	3.320
139	0.391	3.354
140	0.402	3.436
141	0.408	3.443
142	0.422	3.452
143	0.428	3.490
144	0.432	3.552
145	0.434	3.588
146	0.439	3.600
147	0.450	3.616
148	0.460	3.627
149	0.467	3.636
150	0.472	3.676
151	0.480	3.882
152	0.491	4.011
153	0.503	4.047
154	0.505	4.067
155	0.515	4.081
156	0.522	4.116
157	0.527	4.251

Second	*HC (grams)*	*CO (grams)*
158	0.537	5.099
159	0.549	5.383
160	0.568	6.362
161	0.586	7.926
162	0.610	8.429
163	0.648	9.201
164	0.677	10.825
165	0.699	12.291
166	0.720	13.366
167	0.738	14.428
168	0.767	15.318
169	0.828	15.699
170	0.855	16.073
171	0.869	16.475
172	0.885	17.158
173	0.900	17.532
174	0.941	17.965
175	0.979	18.242
176	1.002	18.283
177	1.025	18.480
178	1.047	19.576
179	1.065	20.015
180	1.089	20.203
181	1.109	20.433
182	1.133	21.025

Second	*HC (grams)*	*CO (grams)*
183	1.158	21.882
184	1.184	22.204
185	1.209	22.859
186	1.222	23.533
187	1.231	24.281
188	1.239	25.078
189	1.254	25.276
190	1.278	25.578
191	1.300	25.859
192	1.313	25.985
193	1.324	26.153
194	1.340	26.582
195	1.367	27.067
196	1.387	27.456
197	1.402	27.805
198	1.417	28.070
199	1.432	28.590
200	1.446	28.914
201	1.460	29.063
202	1.477	29.502
203	1.492	29.697
204	1.501	29.713
205	1.510	29.783
206	1.522	29.942
207	1.561	30.284

Second	*HC (grams)*	*CO (grams)*
208	1.585	30.755
209	1.597	31.287
210	1.607	31.549
211	1.627	31.820
212	1.645	32.250
213	1.656	32.546
214	1.663	32.808
215	1.669	33.142
216	1.674	33.529
217	1.685	33.763
218	1.705	33.921
219	1.711	33.961
220	1.735	33.983
221	1.752	34.007
222	1.760	34.032
223	1.774	34.054
224	1.778	34.061
225	1.797	34.082
226	1.802	34.100
227	1.804	34.109
228	1.806	34.129
229	1.810	34.284
230	1.814	34.397
231	1.827	34.463
232	1.833	34.465

Second	*HC (grams)*	*CO (grams)*
233	1.837	34.466
234	1.841	34.468
235	1.845	34.470
236	1.851	34.471
237	1.855	34.472
238	1.857	34.472
239	1.860	34.473

(b) Vehicle model years 1991 through 1995:

Second	*HC (grams)*	*CO (grams)*
94	0.000	0.000
95	0.000	0.000
96	0.001	0.000
97	0.001	0.000
98	0.002	0.002
99	0.003	0.005
100	0.005	0.010
101	0.007	0.017
102	0.009	0.052
103	0.011	0.085
104	0.016	0.094
105	0.017	0.122
106	0.022	0.151
107	0.029	0.191
108	0.036	0.234

Second	*HC (grams)*	*CO (grams)*
109	0.040	0.246
110	0.047	0.257
111	0.052	0.286
112	0.056	0.379
113	0.061	0.425
114	0.064	0.457
115	0.072	0.477
116	0.081	0.494
117	0.082	0.504
118	0.083	0.512
119	0.092	0.519
120	0.094	0.529
121	0.097	0.529
122	0.100	0.530
123	0.103	0.531
124	0.106	0.532
125	0.108	0.533
126	0.110	0.548
127	0.112	0.610
128	0.114	0.614
129	0.116	0.622
130	0.118	0.631
131	0.120	0.640
132	0.122	0.646
133	0.123	0.650

Second	*HC (grams)*	*CO (grams)*
134	0.124	0.652
135	0.127	0.738
136	0.130	0.754
137	0.134	0.780
138	0.139	0.795
139	0.146	0.804
140	0.149	0.810
141	0.151	0.815
142	0.153	0.818
143	0.155	0.821
144	0.157	0.825
145	0.162	0.840
146	0.164	0.847
147	0.166	0.855
148	0.168	0.865
149	0.169	0.874
150	0.170	0.891
151	0.171	0.914
152	0.172	0.929
153	0.173	0.937
154	0.175	0.942
155	0.178	0.949
156	0.180	1.375
157	0.189	1.576
158	0.198	1.943

Second	*HC (grams)*	*CO (grams)*
159	0.203	2.820
160	0.207	3.281
161	0.214	3.483
162	0.221	3.620
163	0.229	4.168
164	0.247	4.338
165	0.274	4.682
166	0.309	5.633
167	0.318	6.137
168	0.322	6.853
169	0.333	7.136
170	0.343	7.320
171	0.356	7.685
172	0.385	8.052
173	0.409	8.344
174	0.433	8.602
175	0.453	8.898
176	0.463	9.251
177	0.507	10.253
178	0.523	10.828
179	0.528	10.933
180	0.541	11.060
181	0.549	11.188
182	0.559	11.345
183	0.571	11.733

Second	*HC (grams)*	*CO (grams)*
184	0.584	12.598
185	0.598	12.953
186	0.613	13.213
187	0.624	14.131
188	0.629	14.839
189	0.629	15.137
190	0.638	15.138
191	0.648	15.141
192	0.659	15.595
193	0.663	15.658
194	0.671	15.704
195	0.681	15.729
196	0.693	16.058
197	0.709	16.987
198	0.725	17.064
199	0.740	17.073
200	0.754	17.153
201	0.767	17.332
202	0.775	17.406
203	0.787	17.641
204	0.795	17.922
205	0.803	18.484
206	0.854	18.553
207	0.859	18.658
208	0.872	18.953

Second	*HC (grams)*	*CO (grams)*
209	0.892	19.266
210	0.896	19.309
211	0.903	19.731
212	0.924	19.902
213	0.938	20.012
214	0.941	20.260
215	0.951	20.739
216	0.966	21.346
217	0.979	21.810
218	0.980	22.001
219	0.981	22.290
220	1.005	22.324
221	1.016	22.343
222	1.022	22.522
223	1.028	22.683
224	1.035	22.850
225	1.041	22.853
226	1.045	22.853
227	1.051	22.853
228	1.055	22.872
229	1.059	22.872
230	1.064	22.872
231	1.069	22.895
232	1.071	22.911
233	1.072	22.922

Second	*HC (grams)*	*CO (grams)*
234	1.073	23.939
235	1.081	23.010
236	1.083	23.010
237	1.084	23.010
238	1.085	23.010
239	1.086	23.010

(c) Vehicle model years 1996 and newer:

Second	*HC (grams)*	*CO (grams)*
94	0.000	0.000
95	0.000	0.000
96	0.000	0.000
97	0.000	0.000
98	0.000	0.000
99	0.000	0.004
100	0.001	0.008
101	0.002	0.015
102	0.003	0.026
103	0.006	0.038
104	0.007	0.038
105	0.008	0.039
106	0.009	0.061
107	0.010	0.062
108	0.013	0.108
109	0.015	0.168

Second	*HC (grams)*	*CO (grams)*
110	0.017	0.173
111	0.021	0.237
112	0.024	0.266
113	0.024	0.280
114	0.025	0.291
115	0.026	0.314
116	0.029	0.331
117	0.032	0.345
118	0.035	0.350
119	0.035	0.356
120	0.036	0.367
121	0.038	0.388
122	0.040	0.407
123	0.041	0.463
124	0.042	0.480
125	0.042	0.506
126	0.042	0.518
127	0.045	0.522
128	0.046	0.525
129	0.046	0.528
130	0.049	0.530
131	0.050	0.530
132	0.052	0.534
133	0.054	0.550
134	0.054	0.554

Second	*HC (grams)*	*CO (grams)*
135	0.054	0.590
136	0.055	0.616
137	0.055	0.639
138	0.056	0.653
139	0.059	0.662
140	0.061	0.683
141	0.061	0.696
142	0.061	0.708
143	0.063	0.721
144	0.064	0.739
145	0.065	0.742
146	0.066	0.743
147	0.067	0.745
148	0.068	0.748
149	0.069	0.751
150	0.070	0.762
151	0.071	0.789
152	0.072	0.790
153	0.073	0.794
154	0.073	0.799
155	0.074	0.805
156	0.077	0.842
157	0.079	0.990
158	0.082	1.038
159	0.082	1.357

Second	*HC (grams)*	*CO (grams)*
160	0.086	1.455
161	0.095	1.546
162	0.107	1.824
163	0.115	2.746
164	0.122	3.073
165	0.127	3.633
166	0.159	4.505
167	0.186	4.952
168	0.189	5.254
169	0.200	5.730
170	0.220	6.051
171	0.236	6.333
172	0.247	6.490
173	0.257	6.796
174	0.267	7.205
175	0.283	8.151
176	0.295	8.230
177	0.312	8.584
178	.0318	8.800
179	0.323	8.847
180	0.337	8.913
181	0.345	9.122
182	0.350	9.532
183	0.359	10.256
184	0.387	10.862

Second	*HC (grams)*	*CO (grams)*
185	0.398	10.996
186	0.400	11.206
187	0.402	11.514
188	0.405	11.894
189	0.418	12.019
190	0.429	12.170
191	0.442	12.517
192	0.457	12.598
193	0.473	12.625
194	0.487	12.653
195	0.501	12.777
196	0.510	12.906
197	0.512	12.989
198	0.514	13.060
199	0.516	13.165
200	0.518	13.242
201	0.527	13.412
202	0.540	13.662
203	0.547	13.773
204	0.553	13.942
205	0.559	14.090
206	0.563	14.224
207	0.567	14.426
208	0.571	14.498
209	0.575	14.776

Second	*HC (grams)*	*CO (grams)*
210	0.579	14.907
211	0.595	14.916
212	0.605	15.014
213	0.614	15.221
214	0.662	15.472
215	0.627	15.555
216	0.638	15.652
217	0.643	15.969
218	0.643	16.028
219	0.645	16.375
220	0.651	16.487
221	0.655	16.524
222	0.663	16.578
223	0.671	16.684
224	0.675	16.755
225	0.684	16.770
226	0.694	16.805
227	0.701	16.865
228	0.702	16.960
229	0.708	16.960
230	0.708	16.962
231	0.709	16.988
232	0.710	17.072
233	0.710	17.094
234	0.711	17.184

Second	*HC (grams)*	*CO (grams)*
235	0.712	17.187
236	0.712	17.188
237	0.712	17.189
238	0.713	17.241
239	0.716	17.370

C. Reserved.

Note: The Administration and the Department intend to promulgate evaporative purge standards at a later date, based upon information to be provided by the U.S. Environmental Protection Agency.

D. Reserved.

Note: The Administration and the Department intend to promulgate evaporative integrity standards at a later date, based upon information to be provided by the U.S. Environmental Protection Agency.

E. Reserved.

Note: The Administration and the Department intend to promulgate gas cap leak test standards at a later date, based upon information to be provided by the U.S. Environmental Protection Agency.

F. On-Board Diagnostics Interrogation Standards. After June 30, 2002, a model year 1996 or newer vehicle equipped with on-board diagnostics shall fail the on-board diagnostic test if it fails to meet the requiremen ts as specified in 40 CFR 85.2007 (July 1, 2001 edition), which is incorporated by reference.

G. Reinspection Standards. Reinspection standards are the same as the inspection standards established in B-----F of this regulation.

H. On-Highway Emissions Test Standards. For the on-highway emissions test specified in Regulation .31 of this chapter, emissions of carbon monoxide from a vehicle may not exceed 7 percent by volume.

11.14.08.10 General Requirements for Inspection and Preparation for Inspection.

A. General Requirements.

(1) An inspector shall reject from inspection a vehicle which has not had repairs performed as required by an emissions-related recall notice, as specified in Regulation .05D of this chapter.

(2) Unless a fast-pass procedure is used, once an official test is initiated, the inspector shall conduct the test in its entirety.

(3) If a vehicle stalls during a test, the inspector shall void the test.

(4) The inspector shall repeat a test which is void for a reason other than an unsafe condition, except that if a vehicle stalls more than three times, the inspector shall reject the vehicle from inspection.

B. Vehicle Preparation.

(1) Before vehicle inspection, the inspector shall visually check the vehicle for a condition which has pote ntial to cause injury, damage the inspection station or the test equipment, or invalidate the inspection, including, but not limited to:

(a) Overheating;

(b) Leaks of coolant, oil, or fuel;

(c) Excessively worn or deflated tires on a drive axle (transient emissions test only);

(d) The use of a space-saver spare tire on a drive axle (transient emissions test only);

(e) Visible tailpipe emissions other than steam; or

(f) A missing, damaged, or leaking exhaust system.

(2) The inspector shall check the v ehicle for exhaust system leaks by a procedure approved by the Administration and the Department. Aural assessment while the exhaust flow is blocked, or measurement of exhaust emissions of carbon dioxide or other gases, is acceptable.

(3) If an unsafe condition or an exhaust leak is found, the inspector shall reject the vehicle from testing. If an unsafe condition develops during a test, the inspector shall abort the inspection.

(4) The inspector shall precondition the vehicle as specified by the Administration and the Department.

(5) The inspector shall ensure that all vehicle accessories are turned off.

(6) The inspector shall direct the vehicle operator to shift the transmission to park o r neutral and to set the parking brake, and request that all ve hicle occupants exit the vehicle and proceed to the customer waiting area. If the vehicle engine has been shut off, the inspector shall ensure that the engine is restarted as soon as possible and is running at least 30 seconds before the initiation of inspection procedures.

(7) The inspector shall ensure that the vehicle is at normal operating temperature. A touch-test of the upper radiator hose or a visual check of the vehicle dashboard temperature gauge is acceptable.

C. Exhaust Emissions Equipment Positioning and Settings.

(1) The inspector shall check the dynamometer to ensure that it is in a warmed-up condition for official testing.

(2) The inspector shall maneuver the vehicle onto the dynamometer, position the drive wheels on the dynamometer rolls, and rotate the rolls until the vehicle stabilizes laterally on the dynamometer. Wet drive wheel tires shall be dried to prevent slippage.

(3) The inspector shall position and activate the cooling equipment to direct air to the vehicle cooling system, but not at the vehicle catalytic converter.

(4) The inspector shall activate the vehicle restraint system and restrain the vehicle.

(5) The inspector shall position the exhaust gas collection system to ensure complete capture of the entire exhaust stream.

(6) Default Setting.

(a) The inspector shall test the vehicle with dynamometer power absorption and inertia weight settings automatically determined by the test equipment from a look-up table based on the vehicle information in the contractor database.

(b) Except as provided in §C(6)(f) of this regulation, the inspector shall test a vehicle not listed in the look-up table using the applicable default power absorption and inertia weight settings specified in §C(6)(c) or (d) of this regulation.

(c) Default power absorption and inertia weight settings for passenger vehicles are as follows:

Number of Cylinders	*Actual Road Load Horsepower*	*Test Inertia Weight (Pounds)*
3	8.3	2,000
4	9.4	2,500

Number of Cylinders	*Actual Road Load Horsepower*	*Test Inertia Weight (Pounds)*
5	10.3	3,000
6	10.3	3,000
8	11.2	3,500
10	11.2	3,500
12	12.0	4,000

(d) Default power absorption and inertia weight settings for vehicles with a gross vehicle weight rating of 10,000 pounds or less, excluding passenger vehicles, are as follows:

Number of Cylinders	*Actual Road Load Horsepower*	*Test Inertia Weight (Pounds)*
3	8.3	2,000
4	9.4	2,500
5	10.3	3,000
6	10.3	3,000
8	12.0	4,000
10	12.7	4,500
12	13.4	5,000

(e) The contractor shall maintain a record of the number of vehicles tested with a default setting, the type of setting, and the test lane.

(f) The contractor may use additional default settings after approval of the settings by the U.S. Environmental Protection Agency, the Administration, and the Department.

D. Ambient Conditions. The contractor shall record the ambient temperature, absolute humidity, and barometric pressure either contin uously during the driving cycle or as a single set of readings not more than 4 minutes before the start of the driving cycle.

E. Background Sample.

(1) The contractor shall sample, measure, an d record background concentrations of hydrocarbons, carbon mo noxide, oxides of nitrogen, and carbon dioxide in the vehicle emissions inspection station. The background concentrations:

(a) Shall be sampled as specified in Regulation .15A(3)(e) of this chapter, for a minimum of 15 seconds, within 120 seconds of the start of the driving cycle;

(b) Shall be measured with the analyzers used to measure tailpipe emissions;

(c) Of each pollutant shall be recorded in the test record as average readings over 15 seconds.

(2) The contractor shall suspend official testing if the background concentration of a pollutant exceeds both the outside ambient air level of the pollutant and the following applicable level:

(a) 20 ppm carbon of hydrocarbons;

(b) 35 ppm of carbon monoxide; or

(c) 2 ppm of oxides of nitrogen.

(3) The contractor may not resume official testing suspended under §E(2) of this regulation until the background concentration of the pollutant is equal to or below the specified level.

11.14.08.11 Idle Exhaust Emissions Test and Equipment Checks.

A. Exhaust Emiss ions Test. The inspector shall conduct the exhaust emissions test in accordance with the procedures specified in 40 CFR Part 51, Subpart S, Appendix B(I) (July 1, 1997 edition), which is incorporated by reference.

B. Catalytic Converter Check. If the veh icle is required to be equipped with a catalytic converter, the inspector shall check for the presence of the catalytic converter, and fail the vehicle if a catalytic converter is not present.

C. Gas Cap Seal Check. The inspector shall check the gas cap to ensure it is present and seals properly, and fail the vehicle if a gas cap is not present or not sealing properly.

11.14.08.11-1 Transient Exhaust Emissions Test and Evaporative Purge Test Sequence.

A. Driving Cycle.

(1) Except as provided in §A(3) and (4) of this regulation, the inspector shall drive the vehicle over the following transient driving cycle, where time is in seconds and speed is in miles per hour:

Time	*Speed*		*Time*	*Speed*
			119	17.2
0	0.0		120	18.1

Time	*Speed*		*Time*	*Speed*
1	0.0		121	18.6
2	0.0		122	20.0
3	0.0		123	20.7
4	0.0		124	21.7
5	3.0		125	22.4
6	5.9		126	22.5
7	8.6		127	22.1
8	11.5		128	21.5
9	14.3		129	20.9
10	16.9		130	20.4
11	17.3		131	19.8
12	18.1		132	17.0
13	20.7		133	17.1
14	21.7		134	15.8
15	22.4		135	15.8
16	22.5		136	17.7
17	22.1		137	19.8
18	21.5		138	21.6
19	20.9		139	22.2
20	20.4		140	24.5
21	19.8		141	24.7
22	17.0		142	24.8
23	14.9		143	24.7
24	14.9		144	24.6
25	15.2		145	24.6
26	15.5		146	25.1

Time	*Speed*		*Time*	*Speed*
27	16.0		147	25.6
28	17.1		148	25.7
29	19.1		149	25.4
30	21.1		150	24.9
31	22.7		151	25.0
32	22.9		152	25.4
33	22.7		153	26.0
34	22.6		154	26.0
35	21.3		155	25.7
36	19.0		156	26.1
37	17.1		157	26.7
38	15.8		158	27.3
39	15.8		159	30.5
40	17.7		160	33.5
41	19.8		161	36.2
42	21.6		162	37.3
43	23.2		163	39.3
44	24.2		164	40.5
45	24.6		165	42.1
46	24.9		166	43.5
47	25.0		167	45.1
48	25.7		168	46.0
49	26.1		169	46.8
50	26.7		170	47.5
51	27.5		171	47.5
52	28.6		172	47.3
53	29.3		173	47.2
54	29.8		174	47.2
55	30.1		175	47.4
56	30.4		176	47.9

Time	*Speed*		*Time*	*Speed*
57	30.7		177	48.5
58	30.7		178	49.1
59	30.5		179	49.5
60	30.4		180	50.0
61	30.3		181	50.6
62	30.4		182	51.0
63	30.8		183	51.5
64	30.4		184	52.2
65	29.9		185	53.2
66	29.5		186	54.1
67	29.8		187	54.6
68	30.3		188	54.9
69	30.7		189	55.0
70	30.9		190	54.9
71	31.0		191	54.6
72	30.9		192	54.6
73	30.4		193	54.8
74	29.8		194	55.1
75	29.9		195	55.5
76	30.2		196	55.7
77	30.7		197	56.1
78	31.2		198	56.3
79	31.8		199	56.6
80	32.2		200	56.7
81	32.4		201	56.7
82	32.2		202	56.3
83	31.7		203	56.0
84	28.6		204	55.0
85	25.1		205	53.4
86	21.6		206	51.6
87	18.1		207	51.8
88	14.6		208	52.1

Time	*Speed*		*Time*	*Speed*
89	11.1		209	52.5
90	7.6		210	53.0
91	4.1		211	53.5
92	0.6		212	54.0
93	0.0		213	54.9
94	0.0		214	55.4
95	0.0		215	55.6
96	0.0		216	56.0
97	0.0		217	56.0
98	3.3		218	55.8
99	6.6		219	55.2
100	9.9		220	54.5
101	13.2		221	53.6
102	16.5		222	52.5
103	19.8		223	51.5
104	22.2		224	50.5
105	24.3		225	48.0
106	25.8		226	44.5
107	26.4		227	41.0
108	25.7		228	37.5
109	25.1		229	34.0
110	24.7		230	30.5
111	25.2		231	27.0
112	25.4		232	23.5
113	27.2		233	20.0
114	26.5		234	16.5
115	24.0		235	13.0
116	22.7			
117	19.4			
118	17.7			

(2) The inspector shall follow a driving trace which is an electronic, visual depiction of the time/speed relationship of the driving cycle.

(3) Beginning with second 30 of the driving cycle, testing may be terminated if the vehicle meets fast-pass criteria for hydrocarbons, carbon monoxide, and oxides of nitrogen.

(4) The contractor may use alternate driving cycles which are consistent with federal requirements, and upon approval of the cycles by the Administration and the Department.

(5) Shift Schedule.

(a) Except as provided in § A(5)(b) of this regulation, the inspector shall shift the gears of a vehicle with manual transmission according to the following schedule over the driving cycle, so that the shift occurs at the point in the driving cycle when the specified speed is attained, and using only the shifts applicable to the number of gears:

Shift Sequence (gear)	*Speed (miles per hour)*	*Approximate Cycle Time (seconds)*
1—2	15	9.3
2—3	25	47.0
Declutch	15	87.9
1—2	15	101.6
2—3	25	105.5
3—2	17	119.0
2—3	25	145.8
3—4	40	163.6
4—5	45	167.0
5—6	50	180.0
Declutch	15	234.5

(b)The contractor may use alternate shift schedules after approval of the schedules by the U.S. Environmental Protection Agency, the Administration, and the Department.

B. Transient Exhaust Emissions Measurement.

(1) The contractor shall automatically initiate exhaust emissions measurement at the start of the driving cycle.

(2) The contractor shall sample and record dilute exhaust hydrocarbon, carbon monoxide, carbon dioxide, and oxides of nitrogen emissions over the driving cycle by the following procedure:

(a) Sample the analyzer voltage responses, constant volume sampler pressure, constant volume sample r temperature, dynamometer speed and dynamometer power at a frequency of no less than 5 Hertz, and average the analyzer voltage levels over 1-second intervals;

(b) Properly time-correlate each analyzer signal and the constant volume sampler signals to the driving trace;

(c) Convert the 1-second average analyzer voltage l evels to concentrations, correct the concentrations by subtracting the pretest background concentrations, and convert the corrected concentrations to grams for each second of the driving cycle; and

(d) If multiple analyzers are used:

(i) Simultaneously i ntegrate each analyzer, using as the official measurements the integrated values from the analyzer which is lowest in range, except if the cumulative total duration of emissions concentrations exceeding the low range scale is more than 5 seconds, then use as the official exhaust emissions measurements and integrated values from the analyzer highest in range, and

(ii) Read background concentrations by each analyzer, and use the reading made by the analyzer used to determine the official exhaust emissions measurements as the official background reading.

(3) The contractor shall integrate and record negative second-by-second values as zero.

(4) Alternative Ways to Pass. If a vehicle meets the composite exhaust emissions standard, or the composite fast-pass e xhaust emissions standard, for oxides of nitrogen, but does not meet a composite exhaust emissions standard, or composite fast-pass exhaust emissions standard, for hydrocarbons or carbon monoxide, as specified in Regulation .09B(1) or (2) of this chapter, the contractor shall apply the Phase 2 exhaust emissions standards, and Phase 2 fast-pass exhaust emissions standards when applicable, as specified in Regulation .09B(3) and (4) of this chapter.

(5) Second Chance Testing. For an initial inspection performed after December 31, 1999, the contractor shall immediately conduct a second chance exhaust emissions test on a vehicle if the vehicle:

(a) Fails the exhaust emissions test, and the exhaust emissions of hydrocarbons, carbon monoxide, and oxides of nitrogen are not greater than 1.5 times the applicable exhaust emissions standard; and

(b) Had been waiting in the test lane queue for more than 20 minutes.

C. Reserved.

Note: The Administration and the Department intend to promulgate evaporative purge measur ement procedures at a later date, based upon information to be provided by the U.S. Environmental Protection Agency.

D. Fast-Pass Procedures.

(1) The contractor shall apply fast-pass exhaust emissions standards as specified in Regulation .09 of this chap ter. The contractor shall make a fast-pass determination if the vehicle meets the composite fast-pass exhaust emissions standard for oxides of nitrogen and the:

(a) Composite fast-pass exhaust emissions standard for both hydrocarbons and carbon monoxide;

(b) Phase 2 fast-pass exhaust emissions standard for both hydrocarbons and carbon monoxide;

(c) Phase 2 fast-pass exhaust emissions standards for hydrocarbons and the composite fast-pass exhaust emissions standard for carbon monoxide; or

(d) Composite fast-pass exhaust emissions standard for hydrocarbons and the Phase 2 fast-pass exhaust emissions standard for carbon monoxide.

(2) The contractor shall continue to measure exhaust emissions until either a fast-pass determination is made as specified in § D(1) of this regulation, or until the end of the driving cycle.

11.14.08.12 Evaporative Integrity Test, Gas Cap Leak Test, and On-Board Diagnostics Interrogation Procedures.

A. Reserved.

Note: The Administration and the Department intend to promulgate e vaporative integrity test procedures at a later date, based upon information to be provided by the U.S. Environmental Protection Agency.

B. Gas Cap Leak Test.

(1) The inspector shall remove the gas cap from the vehicle, attach the gas cap to the test equ ipment, perform the leak test, return the gas cap to the vehicle, and properly tighten the gas cap on the vehicle.

(2) Reserved.

Note: The Administration and the Department intend to promulgate specifications to perform the gas cap leak test at a later d ate, based upon information to be provided by the U.S. Environmental Protection Agency.

C. On-Board Diagnostics Interrogation.

(1) For an initial inspection performed after June 30, 2002, a model year 1996 or newer vehicle equipped with on-board diagnost ics is subject to interrogation of the on-board diagnostics system.

(2) The inspector shall fail a vehicle if a component of the on-board diagnostics system is missing or damaged.

(3) Except as provided in C(2) of this regulation, the inspector shall int errogate the on-board diagnostics system following the test procedures specified by the equipment manufacturer, and in accordance with the procedures specified in 40 CFR 85.2222 (July 1, 2001 edition), which is incorporated by reference.

11.14.08.13 Failed Vehicle and Reinspection Procedures.

A. Failed Vehicle. The inspector shall refer the operator of a failed vehicle to the vehicle emissions inspection program station representative for further information.

B. Reinspection.

(1) The inspector shall reject from reinspection a vehicle for which the documentation required in Regulation .05E(2) of this chapter is not provided.

(2) The inspector shall collect the documentation required in Regulation .05E(2) of this chapter from the operator of each vehicle which is reinspected.

(3) For reinspection, the inspector shall perform the same inspection procedures as the initial inspection and apply the same inspection standards, including the exhaust emissions and evaporative purge and integrity tests, and the on-board diagnostics interrogation, regardless of the reason for initial failure.

11.14.08.14 Dynamometer System Specifications.

A. General Requirements. The contractor shall use a dynamometer system which operates reliably during all ambient and climatic conditions that may be experienced in the inspection area.

B. Automatic Setting Selection.

(1) The contractor shall use a dynamometer system capable of automatically selecting the proper horsepower and inertia settings based on vehicle parameters contained in or entered into the test system.

(2) The contractor shall maintain look-up or equivalent tab les for horsepower and inertia settings for affected vehicles, which tables shall be used after approval by the Administration and the Department.

C. Range and Curve of Power Absorber.

(1) For vehicles up to 10,000 pounds gross vehicle weight rating, the contractor shall use a dynamometer with a range of power absorption at 50 miles per hour of 4 horsepower to at least 40 horsepower, adjustable in 0.1 horsepower increments, and accurate to +/- 0.25 horsepower or +/- 2 percent of point, whichever is greater.

(2) For vehicles up to 26,000 pounds gross vehicle weight rating, the contractor shall use a dynamometer with a range of power absorption at 50 miles per hour of 4 horsepower to at least 75 horsepower, adjustable in 0.1 horsepower increments, and accurate to +/- 0.25 horsepower or +/- percent of point, whichever is greater.

D. Rolls. The contractor shall use dynamometers equipped with twin rolls which:

(1) Are coupled side to side and front to rear;

(2) Are of a diameter between 8.5 inches and 21 inches;

(3) Are spaced to comply with the following equation to within +0.5 inch and -0.25 inch, where all units are in inches: Roll spacing = (24.375 + roll diameter) x sine (31.5153);

(4) Accommodate tires with radii of 11 inches through 20 inches;

(5) Accommodate an inside track width of 30 inches and an outside track width of 108 inches; and

(6) Are of a size, surface finish, and hardness to:

(a) Minimize tire slip on initial acceleration under all weather conditions,

(b) Maintain accuracy of distance measurements, and

(c) Minimize tire wear and noise.

E. Inertia.

(1) The contractor shall use a dynamometer system with selectable inertia weight.

(2) Except as provided in §E(3) of this regulation, the contractor shall ensure that a dynamometer employing mechanical inertia simulation meets the following requirements:

(a) A dynamometer accommodating vehicles up to 10,000 pounds gross vehicle weight ra ting is equipped with mechanical inertia weights providing test inertias of 2,000 pounds through 5,500 pounds in increments not greater than 500 pounds;

(b) A dynamometer accommodating vehicles up to 26,000 pounds gross vehicle weight rating is equipped w ith mechanical inertia weights providing test inertias of 2,000 pounds through 19,500 pounds in 500-pound increments;

(c) The tolerance on the base inertia weight and each flywheel is +/- 1 percent of the specified test weight; and

(d) A method independent from the inertia weight selection system identifies which flywheels are actually rotating and the actual inertia during the driving cycle.

(3) The contractor may use a dynamometer employing electrical inertia simulation, or a combination of electric an d mechanical simulation, after approval of the equipment by the U.S. Environmental Protection Agency, the Administration, and the Department.

F. Test Distance and Vehicle Speed.

(1) The contractor shall use the total number of dynamometer roll revolution s to calculate the vehicle distance traveled by measuring the actual roll distance for the composite d riving cycle and for each phase of the driving cycle with a tolerance of +/- 0.01 mile. Pulse counters may be used to calculate the distance directly if there are at least 16 pulses per revolution.

(2) The contractor shall measure the roll speed with a tolerance of +/- 0.1 mile per hour using the roll speed measurement system capable of accurately measuring a 3.3 miles per hour per second acceleration rate over a 2-second period with a starting speed of 10 miles per hour.

G. Vehicle Restraint. The contractor shall use a vehicle restraint system which:

(1) Minimizes vertical and horizontal forces on the drive wheels such that exhaust emissions levels are not significantly affected;

(2) Is automatically or semiautomatically deployed and stowed upon inspector initiation;

(3) Permits unobstructed vehicle ingress and egress; and

(4) Safely restrains the vehicle under all operating conditions without damaging the vehicle.

H. Vehicle Cooling. The contractor shall use a cooling system which prevents vehicle overheating during the inspection and which:

(1) Directs air at 5,400 +/- 300 standard cubic feet per minute to the cooling system of the vehicle as measured within 12 inches of the intake of the vehicle cooling system;

(2) Is automatically or semiautomatically positioned; and

(3) Avoids cooling the catalytic converter.

I. Full-time Four Wheel Drive Vehicles. The contractor shall use equipment for testing full-time four wheel drive vehicles which:

(1) Accommodates vehicles of all wheel base lengths;

(2) Maintains speed synchronization between the front and rear wheel rolls to within 0.2 mile per hour;

(3) Applies the correct vehicle loading for the driving cycle; and

(4) Does not damage the four-wheel drive system during testing.

J. Augmented Braking.

(1) If augmented braking is used, the contractor shall use a system which is fully automatic and automatically interlocked so that actuation is allowe d only while the vehicle brakes are applied and simultaneous engine acceleration is prevented.

(2) Augmented braking may only be used from seconds 85 through 95, and after second 223 of the driving cycle.

11.14.08.15 Constant Volume Sampler, Analysis Sys tem, and Inspector Control Specifications.

A. Constant Volume Sampler.

(1) General Requirements. A constant volume sampler of the critical flow venturi type or the subsonic venturi type shall be used to collect vehicle exhaust samples. The contractor shall use a constant volume sampler system which conforms to the specifications of 40 CFR §86.109-90, which is incorporated by reference, and which:

(a) Prevents condensation in the dilute sample over the range of ambient conditions experienced during testi ng, and if heated lines are used to prevent condensation, the sample line and components shall be heated to a minimum of 120(F and a maximum of 250(F, with temperature being monitored during the driving cycle;

(b) Has sufficient flow capacity to maintain proper flow in the main venturi; and

(c) Uses materials which come into contact with exhaust gas which are unaffected by, and do not affect, the exhaust sample, such as stainless steel, silicon rubber, Teflon, or Tedlar.

(2) Sample System. The contractor shall use a sample system which:

(a) Continuously collects a correctly proportioned volume of sample for analysis;

(b) Automatically detects deterioration or malfunction of the exhaust sample collection system; and

(c) Is continuously purged when not taking samples.

(3) Mixing Tee. The contractor shall use a mixing tee for diluting the vehicle exhaust with ambient air which:

(a) Is placed at the vehicle tailpipe exit as specified in 40 CFR §86.109-90(a)(2)(iv);

(b) Collects all of the exhaust from the exhaust systems of all types of affected vehicles;

(c) Does not cause static pressure variations in the tailpipe greater than +/- 5 inches of water;

(d) Employs a device to positively locate the tee with respect to distance from the tailpipe so that th e exhaust stream remains in the center of the mixing tee flow area, even if the vehicle moves laterally from one extreme position on the dynamometer to the other extreme position;

(e) Collects the background sample within 12 lateral feet and 12 longitudinal feet of the tee's position during the driving cycle, and within approximately 4 vertical feet of the ground;

(f) Collects a continuous dilute exhaust sample for integration in a manner equivalent to the procedures for collecting bag samples as described in 40 CFR §86.109-90; and

(g) Collects all of the exhaust from each tailpipe of vehicles equipped with dual exhaust systems, and maintains equal flow from each tailpipe.

B. Analysis System.

(1) General Requirements. The contractor shall use an analysis system which:

(a) Automatically samples, integrates, and records dilute exhaust hydrocarbons, carbon monoxide, carbon dioxide, and oxides of nitrogen upon initiation of the transient driving cycle;

(b) Automatically determines the vehicle pass/fail status;

(c) Automatically prints a pass/fail report;

(d) Meets performance requirements with respect to accuracy, precision, drift, interferences, and noise described for test instruments in 40 CFR Part 86, Subparts B, D, and N, 1992 edition,

which is incorporated by reference, in the full range of operating conditions experienced in the inspection station;

(e) Uses materials which come into contact with exhaust gas which are unaffected by, and do not affect, the exhaust sample, such as stainless steel, silicon rubber, Teflon, or Tedlar;

(f) Is capable of reading a small volume sample bag, and may employ a portable pump for sampling the bag; and

(g) Has a filter element which is easily replaceable, ensures reliable sealing after a filter element change, and is heated if the sample line is heated.

(2) Detection Methods and Instrument Ranges.

(a) The analysis instrument ranges of this subsection are based on the use of a constant volume sampler with flow capacity of 700 standard cubic feet per minute. The contractor shall adjust the ranges given in this subsection only with the approval of the U.S. Environmental Protection Agency, the Administration, and the Department before a constant volume sampler with flow capacity other than 700 standard cubic feet per minute may be used.

(b) The contractor shall use a flame ionization detector with an analysis range of at least 0 ppm carbon to 2,000 ppm carbon to determine hydrocarbon emissions.

(c) The contractor shall use a nondispersive infrared analyzer with an analysis range of at least 0 ppm to 10,000 ppm (1 percent) to determine carbon monoxide emissions. If two analyzers are used, the contractor shall use one analyzer for the range of 0 ppm to 1,000 ppm, or 0 ppm to 2,000 ppm, and shall use another analyzer for the range of 0 to 1 percent carbon monoxide.

(d) The contractor shall use a nondispersive infrared analyzer with an analysis range of at least 0 ppm to 40,000 ppm (4 percent) to determine carbon dioxide emissions.

(e) The contractor shall use a chemil uminescent analyzer with an analysis range of at least 0 ppm to 500 ppm to determine oxides of nitrogen emissions. The nitrogen oxide (NO) and nitrogen dioxide (NO2) measurements shall be summed to determine the oxides of nitrogen measurement.

(3) System Response.

(a) The contractor shall use an analysis system which meets the system response requirements in §B(3)(b) and (c) of this regulation.

(b) Vehicle emissions measured by the integration system and from a bag sample simultaneously collected over the same integration period shall agree within +/- 5 percent.

(c) The system response time between a step change at the sample probe and a reading of 90 percent of the step change shall be less than 10 seconds. An alternative response time may be used after approval by the U.S. Environmental Protection Agency, the Administration, and the Department.

(4) Integration.

(a) The contractor shall use an analysis system which meets the integration requirements in §B(4)(b)-(e) of this regulation.

(b) The analyzer voltage responses, constant volume sampler pressure, constant volume sampler temperature, dynamometer speed, and dynamometer power shall be sampled at a frequency of not less than 5 Hertz, and the analyzer voltage levels shall be averaged over 1-second intervals.

(c) Each analyzer signal and the constant volume sampler signals shall be properly time-correlated to the driving trace.

(d) The 1-second average analyzer voltage levels shall be converted to concentrations, the concentrations corrected by subtr acting the pretest background concentrations, corrected concentrations converted to grams for each second, and negative second-by-second values integrated and recorded as zero.

(e) If multiple analyzers are used:

(i) The integration system shall simultan eously integrate each analyzer, and the official measurements shall be the integrated values from the analyzer which is lowest in range, except if the cumulative total duration of emissions concentrations exceeding the low range scale is more than 5 seconds, then the integrated values from the analyzer highest in range shall be the official measurements; and

(ii) Background concentrations shall be read by both analyzers, and the official background reading shall be the reading made by the analyzer used to determine the official measurements.

C. Inspector Controls. The contractor shall use inspector controls which are convenient to operate from the driver's seat of the test vehicle, and which provide for the inspector to:

(1) Maneuver the vehicle on and off the dynamometer without damage to the vehicle or console;

(2) Activate and deactivate the vehicle restraint system;

(3) Activate and deactivate the vehicle cooling system;

(4) Override the cooling system, if automatically activated;

(5) Initiate the driving cycle, if not automatically initiated;

(6) Observe and verify the test vehicle identification parameters and inertia weight and power absorption settings;

(7) Observe the driving trace which:

(a) Is an electronic, visual depiction of the time versus speed relationship of the driving cycle,

(b) Is of sufficient magnitude and detail so that the inspector may accurately track the driving trace and anticipate upcoming speed changes, and

(c) Clearly indicates gear shifts as specified in Regulation .11-1A(5)(a) of this chapter;

(8) Observe indicated horsepower and vehicle speed;

(9) Observe test time and coast-down time if not part of the video driver's aid; and

(10) Abort a test.

11.14.08.16 Evaporative Test Equipment, Gas Cap Leak Test Equipment, and On-Board Diagnostics Interrogation Equipment Specifications.

A. Reserved.

Note: The Administration and the Department intend to promulgate specifications for evaporative purge test equipment at a later date, based upon information to be provided by the U.S. Environmental Protection Agency.

B. Reserved.

Note: The Administration and the Department intend to promulgate specifications for evaporative integrity test equipment at a later date, based upon information to be provided by the U.S. Environmen tal Protection Agency.

C. Reserved.

Note: The Administration and the Department intend to promulgate gas cap leak test equipment specifications at a later date, based upon information to be provided by the U.S. Environmental Protection Agency.

D. On-Board Diagnostics Interrogation Equipment. To perform the on-board diagnostics interrogation, the contractor shall use equipment which has been approved by the Administration and the Department, and which is compatible with data collection and processing equipment used under this chapter, and which meets the requirements and functions as specified in 40 CFR 85.2231 (July 1, 2001 edition), which is incorporated by reference.

11.14.08.17 Quality Assurance and Maintenance-----General Requirements.

A. The contra ctor shall develop, maintain, and modify as required by the Administration and the Department a comprehensive quality assurance plan complying with the provisions of this chapter, and shall implement the quality assurance plan after approval of the plan by the Administration and the Department.

B. The contractor shall include the following information in the quality assurance plan:

(1) Test assurance procedures to be conducted by the contractor for each test;

(2) Periodic quality assurance check procedures and precision check procedures to be conducted by the contractor on the test equipment;

(3) For each test assurance procedure, periodic quality assurance check, and precision check conducted by the contractor, the:

(a) Primary standard to which each instrument, device, or material used for a check is traceable,

(b) Acceptable tolerance for each check,

(c) Corrective action to be taken for a check result outside of the acceptable tolerance, and

(d) Recheck procedure to follow corrective action;

(4) Maintenance procedures to be conducted by the contractor on the test equipment, which follow the equipment manufacturers' specifications at a minimum; and

(5) Record-keeping practices to be conducted by the contractor.

C. If a test assurance procedure is failed, the contractor shall record the event and void the test.

D. If a periodic quality assurance check or precision check is failed, the contractor shall record the event, automatically prevent official testing, and take immediate corrective action.

E. Maintenance Log.

(1) The contractor shall keep a maintenance log for each test system, in a form which has been approved by the Administration and the Department, and shall record each maintenance event in the log.

(2) Failure of the contractor to pr operly maintain equipment or to properly keep a maintenance log may be cause for the Administration or the Department to suspend official testing until the contractor takes corrective action which has been approved by the Administration or the Department.

(3) The contractor shall keep each maintenance log for the duration of the vehicle emissions inspection program unless otherwise directed by the Department.

F. Blind Sample Program Participation. The contractor shall participate in a nationally recognized blind gas sample program which has been approved by the Department, and shall:

(1) Analyze four samples each year;

(2) Analyze a sample once each year in each test lane; and

(3) Ensure that the blind sample vendor makes the results directly available to the Department.

G. The contractor shall allow access to inspection equipment, personnel, and records for Administration or Department personnel to perform quality assurance audits. Failure of a quality assurance audit may be cause for the Administration or the Department to suspend official testing until the contractor takes corrective action which has been approved by the Administration or the Department.

11.14.08.18 Test Assurance Procedures.

A. Speed Excursions From the Driving Cycle.

(1) Exceptions. A speed excursion from the driving cycle which is outside the limits specified in §A(2) of this regulation is acceptable if the excursion:

(a) Is not more than 2 seconds in duration;

(b) Is below the required speed during an acceleration, if the vehicle is operated at maximum available power until the vehicle speed is within the specified limits; or

(c) Does not exceed 4 miles per hour, and occurs during one of the following decelerations:

(i) Between seconds 85 to 95, inclusive, or

(ii) Between seconds 225 through 239, inclusive.

(2) Except as provided in §A(1) of this regulation, the contractor shall automatically void a test if an excursion from the driving cycle exceeds:

(a) An upper limit of 2 miles per hour higher than the highest point on the driving trace at the given time, within 1 second of the given time; or

(b) A lower limit of 2 miles per hour lower than the lowest point on the driving trace at the given time, within 1 second of the given time.

B. Speed Variations from the Driving Cy cle. After approval by the U.S. Environmental Protection Agency, the Administration, and the Department, the contractor shall employ a method to ensure that excessive speed variations are avoided, including criteria for automatically voiding a test in which an excessive speed variation occurs.

C. Distance Criteria.

(1) The contractor shall measure the actual distance traveled by the vehicle for the test and the equivalent vehicle speed.

(2) The contractor shall void a test if the difference between the measured distance traveled and the theoretical distance traveled exceeds +/- 0.05 mile.

D. Dynamometer Controller Check.

(1) For each test vehicle, the contractor shall compare the measured horsepower integrated over seconds 55 to 81 of the driving cycle and divided by 26 seconds, and the measured horse power integrated over seconds 189 to 201 of the driving cycle and divided by 12 seconds, to the theoretical horsepower calculated based on the observed speed over the same portion of the test.

(2) The contractor shall void a test if the difference between theoretical horsepower and measured horsepower exceeds one of the following limits:

(a) +/- 0.5 horsepower for vehicles of 8,500 pounds or less gross vehicle weight rating; or

(b) +/- 2 horsepower for vehicles of greater than 8,500 pounds gross vehicle weight rating.

(3) Alternate dynamometer controller checks may be used after approval by the Administration and the Department.

E. Inertia Weight Selection.

(1) The contractor shall verify operation of t he inertia weight selected for each test vehicle a s specified in Regulation .14E(2)(d) of this chapter. If a system using electrical inertia simulation is used, the contractor shall employ an algorithm to identify the actual inertia force applied during the driving cycle.

(2) The contractor shall void a test if the difference between the observed inertia and the required inertia exceeds +/- 1 percent.

F. Constant Volume Sampler Operation.

(1) The contractor shall verify constant volume sampler operation by one of the following methods:

(a) For a subsonic type constant volume sampler, verify the constant volume sampler operation throughout the test by monitoring the difference between upstream pressure and throat pressure; or

(b) For a critical flow type constant volume sampler, verify the constant volume sampler operation for each test by measuring the:

(i) Absolute pressure difference across the venturi, or

(ii) The blower vacuum behind the venturi for minimum levels needed to maintain choke flow for the venturi design.

(2) The contractor shall establish and use limits, with approval by the Administration and the Department, to satisfy the requirements of § F(1) of this regulation. The contractor shall void a test if the monitored pressure difference is outside the limits.

G. Fuel Economy.

(1) The contractor shall determine fuel economy limits for each test inertia selection by:

(a) Using the lowest horsepower setting typically selected for the inertia weight to determine an upper test vehicle fuel economy limit;

(b) Using the highest horsepower setting typically selected for the inertia weight to determine a lower test vehicle fuel economy limit; and

(c) When the range between the lowest and highest horsepower setting is greater than 5 horsepower, determining two sets of fuel economy limits as specified in § G(1)(a) and (b) of this regulation.

(2) For each test, the contractor shall calculate the fuel economy of the test vehicle and compare to the upper and lower limits determined in § G(1) of this regulation for the test inertia and horsepower sele cted. The contractor shall void a test if the measured fuel economy is greater than 1.5 times the upper limit.

11.14.08.19 Dynamometer Periodic Quality Assurance Checks.

A. Coast-Down Check.

(1) The contractor shall conduct a coast-down check once per week by a procedure equivalent to that described in 40 CFR §86.118-78, which is incorporated by reference, and shall:

(a) If a vehicle is used to motor the dynamometer to the initial coast-down speed, l ift the vehicle off the dynamometer before the start of the coast-down procedure, and conduct the procedure without a vehicle on the dynamometer;

(b) Check the base dynamometer inertia and the base inertia plus each prime inertia weight flywheel;

(c) Use at least two horsepower settings for each inertia weight, within the normal range of inertia weight;

(d) Check coast-down between the speeds of 55 to 45 miles per hour and between the speeds of 22 to 18 miles per hour;

(e) Use a clock which is routinely verified to be accurate to the nearest 0.01 second when summing 1,000 seconds;

(f) Provide for automatic computation of the coast-down check results;

(g) Automatically record the coast-down check results on electronic media with a date and time stamp.

(2) The contractor shall take corrective action if the difference between the measured coast-down time and the theoretical coast-down time exceeds one of the following values:

(a) For tests using inertia weights of less than 8,500 pounds:

(i) +/- 1 second for the 55 to 45 miles per hour coast-down check, or

(ii) +/- 7 percent on the 22 to 18 miles per hour coast-down check;

(b) +/- 10 percent for tests using inertia weights of 8,500 pounds or more.

B. Roll-Speed Check.

(1) The contractor shall check r oll speed and roll counts once each day by a mean s external to the dynamometer rolls, such as by photo tachometer, and shall take corrective action for a deviation exceeding +/- 0.2 mile per hour.

(2) As an alternative to the roll-speed check, the contra ctor may use a redundant roll-speed transducer independent of the primary transducer. The contractor shall check, once each month, the accuracy of redundant systems by means external to the dynamometer.

C. Full-time Four-Wheel Drive Dynamometer. For a dyn amometer accommodating full-time four-wheel drive vehicles, in addition to the checks required in A and B of this regulation, the contractor shall check the speed synchronization between the front and rear rolls once each day, and shall take corrective action for a deviation exceeding +/- 0.2 mile per hour.

11.14.08.20 Constant Volume Sampler Periodic Quality Assurance Checks.

A. Flow Calibration Check. The contractor shall calibrate the constant volume sampler flow 6 months after the constant volume sam pler is put into official use and once every 1 2 months after that, and following each repair, and shall:

(1) Calibrate the flow of a critical flow venturi at six flow rates, including the nominal, rated flow rate and a rate below the rated flow rate;

(2) Calibrate the flow rate of a subsonic venturi at six flow rates, including the nominal, rated flow rate, a rate below the rated flow rate, and a rate above the rated flow rate; and

(3) Use flow calibration points which cover the range of variation in flow experienced in testing.

B. System Check. The contractor shall check the constant volume sampler flow calibration at the nominal design flow once per day by a procedure that identifies deviations in flow from the true value and equivalent to the procedure in 40 CFR § 86.119-90(c), and shall take corrective action if a deviation in flow exceeds +/- 4 percent.

C. Flow Passages Check.

(1) The contractor shall check flow passages to ensure proper sample flow.

(2) Once per month the contractor shall check the sample probe and clean it, if necessary.

(3) Once per year the contractor shall check critical flow venturi passages and clean them, if necessary.

D. Probe Flow Check. Once per day the contractor shall check the indicator identifying the presence of proportional probe flow.

E. Leak Check. The contractor shall check the vacuum portion of the sample system for leaks once per day, and after an action which violates the system's integrity.

11.14.08.21 Analysis System Periodic Quality Assurance Checks.

A. Calibration Curve Limit Check. The contractor shall use a software algorithm to perform a zero and span adjustment and subsequent calibration curve adjustment, and shall take corrective action if:

(1) The adjustment of an up-scale span point exceeds a tolerance of +/- 0.4 percent of point; or

(2) A cumulative software up-scale, zero, or span adjustment differs by more than +/- 10 percent from the most recent calibration curve.

B. Daily Calibration Check. The contractor shall check the calibration curve for each analyzer each day before official testing by the following procedure:

(1) Introduce a zero gas and adjust the analyzer, if necessary, to correctly read zero;

(2) Introduce an up-scale span gas and adjust the analyzer, if necessary, within the tolerance of §A(2) of this regulation; and

(3) Introduce a mid-scale span gas and ensure that the analyzer reads the gas to within 2.5 percent of point.

C. Spanning Frequency.

(1) Except as specified in §C(2) of this regulation, the contractor shall check, and adjust as necessary, the zero and upscale span points as specified in §B(1) and (2) of this regulation each day at 2-hour intervals following the daily calibration check of §B of this regulation. Beginning with the first check after the daily calibration check, the contractor shall cease official testing and take corrective action if the:

(a) Up-scale span point differs by more than +/- 2 percent from the previous check; or

(b) Zero point differs from the previous check by more than 2 ppmC hydrocarbons, 1 ppm oxides of nitrogen, 10 ppm carbon monoxide, or 40 ppm carbon dioxide.

(2) After approval by the Department, the contractor may zero the analyzer before each test as an alternative to the span checks specified in §C(1) of this regulation.

D. Daily Cross-Check.

(1) The contractor shall analyze a checking sample of gas each day following the daily calibration check of §B of this regulation.

(2) The contractor shall use a checking sample which differs from the calibration gas used for the daily calibration check.

(3) The concentration of the checking sample of gas may be either in the lower end, the higher end, or near the middle of the range which corresponds to approximately 0.5 to 3 times the composite exhaust emissions standards in grams p er mile for hydrocarbons, carbon monoxide, carbon dioxide, and oxides of nitrogen for 1984 and later model year gasoline-powered passenger vehicles, as specified in Regulation .09 of this chapter. The contractor shall select the checking sample concentration in a random manner such that an even distribution over the range is chosen over time.

(4) In an inspection station, the contractor shall use the same checking sample mixture for each analyzer.

(5) The contractor shall suspend official testing and take corrective action if the deviation in analysis of the concentration of the checking sample from the historical mean and standard

deviation for the analyzers at the inspection station and for the analyzers at all inspection stations exceeds 3 sigma.

E. Oxides of Nitrogen Convertor Check. The contractor shall check the convertor efficiency of the nitrogen dioxide to nitric oxide convertor once each week by a procedure equivalent to 40 CFR § 86.123-78, which is incorporated by reference, except that the contractor shall use nitric oxide gas with concentration in the range of 100 ppm to 300 ppm.

F. NO/NOx Flow Balance. The contractor shall check the flow balance between the nitric oxide and oxides of nitrogen test modes once per week, and may combine the chec k with the oxides of nitrogen convertor check of §E of this regulation.

G. Monthly Calibration Check.

(1) The contractor shall verify the analyzer calibration curve monthly, and shall:

(a) Consider the entire range of the analyzer as one curve, and if the analyzer has more than one measurement transducer, consider each transducer as an analyzer;

(b) Use at least 5 calibration points plus zero in the lower portion of the analyzer range, corresponding to an approximate average concentration of 2 grams per mile hydrocarbons, 30 grams per mile carbon monoxide, 3 grams per mile oxides of nitrogen, and 400 grams per mile carbon dioxide;

(c) If two analyzers are used in conjunction, one for the low range and the other for the high range, use at least 5 calibra tion points plus zero in the lower portion of the high range scale, corresponding to approximately 100 percent of the full-scale value of the low range analyzer;

(d) Use at least 5 calibration points to define the calibration curve above the 5 lower calibration points;

(e) Use the calibration zero gas to set the analyzer zero;

(f) Use a curve which is a polynomial of not greater order than 4th order; and

(g) Except as provided in §G(2) of this regulation, ensure that the curve fits the data within +/- 2 percent at each calibration point as specified in 40 CFR §§86.121-90, 86.122-78, 86.123-78, and 86.124-78, which are incorporated by reference.

(2) For the two lowest calibration points, the allowable curve fit required by §G(1)(g) of this regulation may be 5 percent if the points are below a value corresponding to an average concentration of approximately 1 gram per mile of hydrocarbons, 15 grams per mile of carbon monoxide, 1.5 grams per mile of oxides of nitrogen, and 200 grams per mile of carbon dioxide.

(3) The contractor shall use a confirming calibration standard which is between 40 percent and 80 percent of full scale and which is not used for curve generation. The contractor shall take corrective action if the curve cannot be verified with a tolerance of +/- 2.5 percent.

H. Bag Sample Check.

(1) The contractor shall collect vehicle exhaust in a sample bag simultaneously with the collection of the continuous exhaust sample during an exhaust emissions test once each calendar quarter, for each of Phase 1 and Phase 2 at a minimum, and analyze the bag sample with the test equipment at the conclusion of the test.

(2) The contractor shall take corrective action if the difference between the bag sample measurement and the continuous sample measurement exceeds +/- 10 percent.

I. Response Time Check.

(1) The contractor shall check the response time of each analyzer, including the complete sample system from the sample probe to the analyzer, once each week, during the check for compliance with the bag sample check of § H of this regulation, and after a repair or modification to the flow system.

(2) The contractor shall suspend official testing and take corrective action for a system response time which does not meet the requirements of Regulation .15B(3) of this chapter.

J. Flame Ionization Detector Check.

(1) The contractor shall check the flame ionization detector for proper peaking and characterization once each month and after each maintenance event, using the analyzer manufacturer's recommended pr ocedures.

(2) The contractor shall check the me thane response of the flame ionization detector once each month with a concentration of approximately 50 ppm methane. The contractor shall take corrective action if the methane response is outside the range of 1.0 through 1.3, calculated by the following equation: Ratio of methane response = Flame ionization detector response (ppmC) Cylinder methane (ppmC)

K. Integrator Check.

(1) The contractor shall check the integrator once every 3 months by simultaneous ly sampling, by the normal integration method and by the bag method, the emissions from a vehicle with exhaust emissions test values between 60 percent and 400 percent of the exhaust emissions standards for a model year 1984 gasoline-powered passenger vehicle, as established in Regulation .09 of this chapter.

(2) The contractor shall store the data from each of the normal integration and bag methods in a historical data base for determining normal and deviant performance for each test lane, for each inspe ction station, and for all inspection stations combined.

(3) The contractor shall take corrective action if a deviation between the integrator and bag readings exceeds +/- 10 percent.

L. Interference.

(1) The contractor shall check the carbon monoxide, carbon dioxide, and oxides of nitrogen analyzers f or water interference before implementation, and once each year under the environmental conditions experienced on a high ambient temperature summer day.

(2) For analyzers used with a constant volume sampler of flow rate 700 standard cubic feet per minute or greater:

(a) For the carbon monoxide analyzer:

(i) A gas mixture of 4 percent CO2 in N2 bubbled through water with a saturated-mixture temperature of 40(C shall produce a response of not greater than 10 ppm at 40(C, and

(ii) The allowable interference level shall be adjusted to coincide with the saturated-mixture temperature used, using a rejection ratio of 9,000 to 1;

(b) For the carbon dioxide analyzer:

(i) A calibration zero gas bubbled through water with a saturated-mixture temperature of 40(C shall produce a response of not greater than 40 ppm, and

(ii) The allowable interference level shall be adjusted to coincide with the saturated-mixture temperature used, using a rejection ratio of 2,000 to 1;

(c) For the oxides of nitrogen analyzer:

(i) A calibration zero gas bubbled through water with a saturated-mixture temperature of 40(C shall produce a response of not greater than 1 ppm, and

(ii) The allowable interference level shall be adjusted to coincide with the saturated-mixture temperature used, using a rejection ratio of 90,000 to 1.

(3) For an analyzer used with a constant volume sampler of flow rate less than 700 standard cubic feet per minute, the contractor shall adjust the allowable int erference responses proportionately downward after approval from the Administration and the Department.

11.14.08.22 Evaporative Test Equipment, Gas Cap Leak Test Equipment, and On-Board

Diagnostics Interrogation Equipment Periodic Quality Assurance Checks.

A. Reserved.

Note: The Administration and the Department intend to promulgate requirements for evaporative purge test equipment periodic quality assurance checks at a later date, based upon information to be provided by the U.S. Environmental Protection Agency.

B. Reserved.

Note: The Administration and the Department intend to promulgate requirements for evaporative integrity test equipment periodic quality assurance checks, based upon information to be provided by the U.S. Environmental Protection Agency.

C. Reserved.

Note: The Administration and the Department intend to promulgate requirements for gas cap leak test equipment periodic quality assurance checks at a later date, based upon information to be provided by the U.S. Environmental Protection Agency.

D. On-Board Diagnostics Interrogation Equipment. For the on-board diagnostics interrogation equipment, the contractor shall follow the quality assurance procedures specified by the equipment manufacturer, the Administration, and the Department.

11.14.08.23 Overall System Performance Quality Assurance.

A. Emissions Levels.

(1) On a monthly basis, the contractor shall monitor and record the average, median, 10th percentile, and 90th percentile values of the composite emissions of hydrocarbons, carbon monoxide, carbon dioxide, and oxides of nitrogen measured for each test lane, for each inspection station, and for all inspection stations combined.

(2) If a difference in the monthly average of a test lane from the inspection station average or fr om the combined inspection station average , or of an inspection station from the combined inspection station average, is greater than +/- 10 percent, the contractor shall conduct an investigation to determine whether the single test lane or facility has a systematic equipment or operating error or difference. When it can be determined that the averages of an inspection station are offset from the averages of other inspection stations based on the mix of the vehicles tested, the offset shall be included in the calculation of the difference. If systematic equipment or operating error or difference is found, the contractor shall suspend official testing, initiate immediate corrective action, and resume testing when the situation is corrected.

(3) The contract or shall adjust the monitoring period, if necessary, after approval by the Administration and the Department, to ensure that a reasonably random sample of vehicles is tested in each test lane.

B. Pass/Fail Statistics.

(1) On a monthly basis, the contract or shall monitor and record the average number of passing vehicles and the average number of failing vehicles for each test lane, each inspection station, and all inspection stations combined.

(2) If a difference in the monthly average of a test lane from the inspection station average or from the combined inspection station average, or of an inspection station from the combined inspection station average, is greater than +/- 15 percent, the contractor shall conduct an investigation to determine whether th e single test lane or facility has a systematic equipment or operating error or difference. When it can be determined that the averages of an inspection station are offset from the averages of other inspection stations based on the mix of the vehicles test ed, the offset shall be included in the calculation of the difference. If a systematic equipment or operating error or difference is found, the contractor shall suspend official testing, initiate immediate corrective action, and resume testing when the situation is corrected.

(3) The contractor shall adjust the monitoring period, if necessary, after approval by the Administration and the Department, to ensure that a reasonably random sample of vehicles is tested in each test lane.

11.14.08.24 Control Charts.

A. General Requirements.

(1) The contractor shall use control charts and statistical process control theory to determine, forecast, and maintain performance of the inspection network.

(2) The contractor shall maintain control charts for each test la ne, each inspection station, and all inspection stations combined, and shall track key system parameters, as determined by the Administration and the Department. When a key system parameter approaches control chart limits, the contractor shall closely moni tor the system and initiate corrective action to prevent the system from exceeding control chart limits. If a key system parameter exceeds control chart limits, the contractor shall suspend official testing, initiate immediate corrective action, and resume testing when the situation is corrected.

(3) The contractor shall maintain control charts for each inspector. The contractor shall monitor performance near control chart limits and take corrective action as needed, which may include retraining or dismissal.

(4) The contractor shall make control charts available on-line to the Administration and the Department, and provide hard copies within 24 hours upon request.

B. Control Charts for a Test Lane. In the test lane control charts, the contractor shall in clude parameters that permit the cause for abnormal performance of a test lane to be pinpointed to a system or component, including at a minimum the following information:

(1) The number of voided tests, including test type and reason;

(2) The difference between theoretical and measured coast-down times for the dynamometer;

(3) The difference between theoretical and measured constant volume sampler flow;

(4) For the analysis system:

(a) Except for the first check of the day, the up-scale span change from the last up-scale span, or the software correction to the calibration curve as a result of an up-scale span change,

(b) The difference between the analyzer response to the daily cross-check and the test gas concentration,

(c) The difference between the integrated measurements and the bag measurements,

(d) The system response time,

(e) The flame ionization detector methane response ratio, and

(f) The ambient background concentrations;

(5) The emissions levels as required in Regulation .23A of this chapter;

(6) The pass/fail statistics as required in Regulation .23B of this chapter; and

(7) The difference between theoretical or measured values for other parameters measured during quality assurance procedures.

C. Control Charts for an Inspection Sta tion. In the inspection station control charts, the contractor shall include the station averages of the control charts for each test lane at the inspection station.

D. Combined Control Charts for All Inspection Stations. In the combined control charts fo r all inspection stations, the contractor shall include averages of the control charts for each inspection station.

E. Control Charts for Individual Inspectors.

(1) In the control charts for individual inspectors, the contractor shall include parameters that will allow the cause for abnormal performance to be evaluated, including the following at a minimum:

(a) The number of voided tests, overall and by test type and reason;

(b) The number of aborted tests, overall and by test type and reason;

(c) Data capture errors; and

(d) Record-keeping errors, including accountability for certificates.

(2) The contractor shall use the combined control charts for inspectors at each inspection station and at all inspection stations combined as references for compar ison to control charts for individual inspectors.

11.14.08.25 Gas Specifications.

A. Flame Ionization Detector.

(1) The contractor shall use propane for the flame ionization detector gas. A multicomponent gas may be used after approval by the Administration and the Department.

(2) The contractor shall use fuel for the flame ionization detector which is 40 percent +/- 2 percent hydrogen, and the balance helium.

(3) The contractor shall use zero grade air as the oxidizer for the flame ionization detector, which is artificial air containing 18 to 21 mol percent oxygen and the balance nitrogen.

B. Calibration Gas. To generate and check a calibration curve, the contractor shall use a gas traceable to a standard reference material or certified reference mate rial, to within 1 percent of the standard by gas comparison methods.

C. Calibration Zero Gas.

(1) The contractor shall ensure that impurities in calibration zero gas do not exceed:

(a) 0.1 ppm carbon;

(b) 0.5 ppm carbon monoxide;

(c) 1 ppm carbon dioxide; and

(d) 0.1 ppm oxides of nitrogen.

(2) The contractor shall use calibration zero grade air for the calibration zero gas for the flame ionization detector.

(3) For the calibration zero gases for the carbon monoxide, carbon dioxide, and oxides of nitrogen analyzers, the contractor shall use calibration zero grade nitrogen or calibration zero grade air.

D. Span Gas.

(1) For an up-scale span adjustment, cross-check, or mid-scale span check, the contractor shall use a gas which is traceable to a stan dard reference material or certified reference material, to within 2 percent of the standard by gas comparison methods.

(2) The contractor shall use zero span gas for the working zero gas. Working zero grade air or calibration zero grade air shall be used for the flame ionization detector zero span gas. Working zero grade nitrogen or air shall be used for the carbon monoxide, carbon dioxide, and oxides of nitrogen analyzers zero span gases. Calibration zero grade nitrogen or air may also be used.

(3) The contractor shall use an up-scale span gas with a concentration corresponding to approximately 80 percent of full scale.

(4) The contractor shall use a mid-scale span gas with a concentration corresponding to approximately 15 percent of full scale.

(5) The contractor shall verify a span g as concentration before the gas is placed into service and immediately after a monthly calibration curve check. If the reading on the span gas exceeds the tolerance given in § D(1) of this regulation, the contractor shall remove the system or gas from service until corrective action is taken.

E. Working Zero Gas. The contractor shall ensure that impurities in working zero grade gas do not exceed:

(1) 1 ppm carbon;

(2) 2 ppm carbon monoxide;

(3) 400 ppm carbon dioxide; and

(4) 0.3 ppm oxides of nitrogen.

11.14.08.26 Vehicle Emissions Inspection Station.

A. General Requirements.

(1) The contractor shall operate each vehicle emissions inspection station with contractor personnel, with overall supervision by the Administration and the Department.

(2) The contractor shall make available to the Administration or the Department, as required, vehicle emissions inspection station equipment and personnel to perform quality assurance checks, program evaluation functions, and referee inspections.

(3) The contractor shall collect, maintain, and make available to the Administration and the Department, as required, inspection data and inspection station operation data in compliance with the provisions of this chapter.

(4) The contractor, or a person employed by the contractor for inspection station operation, may not:

(a) Engage in, or have an interest in, the operation of automotive repair facilities located within the State;

(b) Perform emissions-related repairs for compensation;

(c) Recommend specific repairs or repair facilities to owners or operators of vehicles being inspected; or

(d) Promote the sale of vehicle diagnostic or repair equipment through the vehicle emissions inspection program.

B. Test Lanes. (1) The cont ractor shall ensure that each test lane accommodates all affected vehicles up to and including 10,000 pounds gross vehicle weight rating, other than full-time four-wheel-drive vehicles.

(2) The contractor shall ensure that a minimum of one test lane at ea ch inspection station accommodates all affected vehicles up to and including 26,000 pounds gross vehicle weight rating, other than full-time four-wheel-drive vehicles.

(3) The contractor shall ensure that a minimum of one test lane at each inspection station accommodates all affected vehicles with full-time four-wheel drive.

C. Inspectors.

(1) The contractor shall provide training which meets the provisions of this chapter to each inspector before the inspector may perform inspections.

(2) The contractor shall provide periodic in-service inspector training over a period established by the Administration and the Department.

(3) The performance of an inspector may be periodically reviewed by the Administration or the Department, either overtly or covertly . The contractor shall ensure that any failure of an inspector to adequately implement the provisions of this chapter is corrected. Correction may include retraining or dismissal of the inspector.

(4) The contractor shall develop, maintain, and modify, as required by the Administration and the Department, an inspector training program to include both classroom and hands-on training, with provisions for initial and periodic in-service training. The contractor shall use the training program after the training program has been approved by the Administration and the Department.

D. Record Keeping. The contractor shall maintain the following records, separately and in chronological order, for the duration of the contract, and make the records available for insp ection upon the request of the Administration or the Department:

(1) Inspection records stored on computer readable media in a format established by the Administration and the Department;

(2) Equipment maintenance records in compliance with the provisions of this chapter; and

(3) Results of periodic quality assurance checks in compliance with the provisions of this chapter, including:

(a) The test lane number, date, and start time,

(b) The concentration values of the calibration gases used to perform gas characterization, and

(c) Corrective action taken.

E. Fees.

(1) The contractor shall collect the fee established in COMAR 11.11.05 from the vehicle owner for an initial inspection or a second or subsequent reinspection.

(2) The contractor shall coll ect the late fee established in C OMAR 11.11.05 from a vehicle owner for an initial inspection which is performed after the date of scheduled inspection, or for a reinspection which is performed after the period of permitted operation.

(3) The contractor shall collect the fee established in COMAR 11.11.05 from the vehicle owner for an inspection performed but not required under this chapter.

(4) The contractor shall accept payment of inspection, reinspection, and late fees in cash or personal check, or with a major credit card which has been approved for use by the Administration.

(5) If a certificate is lost or damaged, a vehicle owner may obtain certification from the Administration as to whether the vehicle is in compliance with emissions inspection re quirements. The vehicle owner shall pay the fee established in COMAR 11.11.05.

11.14.08.27 Technician's Vehicle Report.

A. The contractor shall issue a report containing information on test results of a vehicle which has failed an emissions inspection to an individual seeking to have repairs performed on the vehicle.

B. The contractor shall make the report available electronically to repair facilities, and shall provide read-only, convenient, and standardized access.

C. The contractor shall include the following information in the report:

(1) The information specified in Regulation .06A(3) of this chapter;

(2) For a transient exhaust emissions failure, second-by-second emission levels in grams per second for each pollutant, and the corresponding averag e values for passing vehicles of the same model year, manufacturer, and engine family; and

(3) For an on-board diagnostics interrogation failure, fault codes stored in the vehicle's on-board diagnostics system related to the emissions control equipment and to the power train.

11.14.08.28 Feedback Reports.

A. The contractor shall make information electronically available to the Administration and the Department about vehicles which have received emissions-related repairs and which have been submitted for reinspection. The contractor shall provide, at a minimum, the information specified in B and C of this regulation, in a format approved by the Administration and the Department.

B. The contractor shall provide a monthly feedback report, in a format approv ed by the Administration and the Department, to vehicle repair facilities which have performed emissions-related repairs on vehicles submitted for reinspection. The report shall include, for the reporting period, the following statistics about vehicles submitted for reinspection:

(1) The total number;

(2) The number failing the first reinspection;

(3) The number receiving waivers after the first reinspection;

(4) The reinspection failure rate;

(5) The reinspection waiver rate; and

(6) The multiple reinspection rate.

C. The contractor shall provide information on emissions reductions and energy savings to the Department about vehicles which have received emissions-related repairs and which have been submitted for reinspection. The contractor shall provide, at a minimum, the following information on a monthly, quarterly, and yearly basis, in a format approved by the Department:

(1) Quantity, in tons or pounds, of hydrocarbon, carbon monoxide, and oxides of nitrogen emissions reductions, for:

(a) All emissions-related repairs,

(b) Repairs to passing vehicles,

(c) Repairs to waived vehicles, and

(d) Repairs to failed vehicles;

(2) Fuel economy savings for each initial inspection failure type for the categories of repairs specified in §C(1) of this regulation.

11.14.08.29 Certified Emissions Technician.

A. Basic Certified Emissions Technician.

(1) To qualify for certification, an individual shall:

(a) Possess current, valid certification as a certified emissions technician under this chapter on December 31, 1994; or

(b) Meet all of the following requirements:

(i) Demonstrate 2 years of full-time employment experience as an automotive technician performing emissions-related repairs on on-road vehicles not powered by diesel fuel or electricity, exce pt that an individual with 2 full years of full-time education related to the repair of on-road vehicles not powered by diesel fuel or electricity need only demonstrate 1 year of the required employment,

(ii) Possess current, valid ASE certification in Electrical Systems (A-6), and

(iii) Possess current, valid ASE certification in Engine Performance (A-8).

(2) An individual qualifying for certification as specified in §A(1) of this regulation may submit an application to the Department. Upon approval of the application, the Department shall provide documentation of certification. Certification is valid through March 31, 1997.

B. Master Certified Emissions Technician.

(1) To qualify for certification, an individual shall:

(a) Successfully complete an orientation course approved by the Department;

(b) Demonstrate 5 years of full-time employment experience as an automotive technician performing emissions-related repairs on on-road vehicles not powered by diesel fuel or electricity, except that an individual with 2 full years of full-time education related to the repair of on-road vehicles not powered by diesel fuel or electricity need only demonstrate 4 years of the required employment; and

(c) Possess all of the following current, valid ASE certifications:

(i) Electrical Systems (A-6),

(ii) Engine Performance (A-8), and

(iii) Advanced Engine Performance Specialist (L-1).

(2) An individual qualifying for certification as specified in §B(1) of this regulation may submit an application to the Department. Upon approval of th e application, the Department shall provide documentation of certification. Certification is valid through the earliest of the following dates:

(a) 3 years from the date the certification is issued;

(b) The expiration date of the individual's ASE Electrical Systems (A-6) certification;

(c) The expiration date of the individual's ASE Engine Performance (A-8) certification; or

(d) The expiration date of the individual's ASE Advanced Engine Performance Specialist (L-1) certification.

C. Certification Renewal.

(1) An individual with current, valid certification as issued under §B of this regulation may apply for certification renewal within 60 days before certification expiration.

(2) To renew a certification, an individual shall:

(a) Submit an application to the Department; and

(b) Possess current, valid applicable ASE certifications as required in §B(1)(c) of this regulation.

(3) Certification renewed under this section is valid through the applicable date defined in §B(2) of this regulation.

D. Suspension, Revocation, and Denial of Certification.

(1) The Department may suspend, revoke, or deny renewal of a certification if the certified individual:

(a) Knowingly communicates any false, inaccurate, or misleading information to any person or in any certificate, record, or document regarding the vehicle emissions inspection program;

(b) Fraudulently or deceptively obtains or attempts to obtain a certification; or

(c) Fails an audit under this regulation.

(2) An individual whose certification has been suspended may be subject to:

(a) Additional training or testing as approved by the Department before the certification is reinstated; or

(b) Revocation of a certification for which suspension has exceeded 6 months.

(3) An individual whose certification has been revoked may reapply for certification according to the procedures of §A or B of this regulation, as applicable, if:

(a) At least 90 days have elapsed since the revocation; and

(b) The individual has taken corrective action approved by the Department.

E. Performance Audit. The Department shall conduct an audit of the performance of a certified emissions technician periodically. The audit shall include an evaluation of vehicle repair history.

11.14.08.30 Certified Emissions Repair Facility.

A. Initial Application and Certification.

(1) To qualify for certification, a person shall:

(a) Submit an application to the Department;

(b) Maintain a repair facility capable of making emissions-related adjustments and repairs;

(c) Possess all required equipment as listed in §D of this regulation;

(d) Pass an audit as defined in §G of this regulation; and

(e) Employ all required personnel as listed in §E of this regulation.

(2) Certification under this section is valid for 3 years.

B. Certification Renewal.

(1) At least 60 days before expiration of certification, a person may apply for certification renewal. Upon approval of the completed application, the Department may extend the certification for an additional 3-year period.

(2) A certification which expires before receipt of the application by the Department may not be renewed. If a certification expires, a person may reapply according to the procedures of §A of this regulation.

C. Suspension, Revocation, and Denial of Renewal of Certification.

(1) The Department may suspend, revoke, or deny renewal of a certification under any of the following conditions:

(a) False, inaccurate, or misleading information is knowingly communicated to any person or in any certificate, record, or document regarding the vehicle emissions inspection program;

(b) Certification is obtained, or attempted to be obtained, fraudulently or deceptively;

(c) An audit under §G of this regulation is failed; or

(d) Evidence is exhibited that vehicles repaired by the facility under this chapter have repeatedly failed reinspections.

(2) The Department may reinstate a suspended certification upon the resumption of compliance by the facility with the requirements of this chapter.

(3) Upon revocation of certif ication a person shall, within 10 business days, return to the Department all materials which were issued as a result of the certification, including any signs and documents, and remove any other materials which may lead the public to believe that the facility continues to be certified.

(4) A person whose certification has been revoked may reapply for certification according to the procedures of §A of this regulation if:

(a) At least 90 days have elapsed since the revocation; and

(b) Corrective action approved by the Department has been taken.

D. Equipment and Tool Requirements.

(1) A certified emissions repair facility shall maintain and update as required all of the following equipment and tools:

(a) Emissions diagnostic and repair information for af fected model yea r vehicles, the most current of which applies to vehicles of model years not more than 2 years older than the current calendar year, and the information may be stored on magnetic media if a device to read the media is maintained at the facility;

(b) Scanner capability to interrogate on-board diagnostics systems of vehicles, the most current of which applies to vehicles of model years not more than 2 years older than the current calendar year;

(c) A voltmeter with AC and DC capability;

(d) A DC ammeter;

(e) An ohmmeter;

(f) An engine performance analyzer with a lab scope or an oscilloscope;

(g) A pyrometer;

(h) A fuel or hydraulic pressure gauge;

(i) A vacuum gauge;

(j) A vacuum pump;

(k) A compression tester or cylinder leak down tester;

(l) A timing light with advance capability;

(m) An exhaust emissions analyzer which conforms, at a minimum, to the "California Bureau of Automotive Repair Exhaust Gas Analyzer Specifications, 1979", also known as the BAR-80 specifications, which is incorporated by reference;

(n) A tachometer;

(o) A dwell meter or duty cycle meter; and

(p) Capability to access information via facsimile during operating hours.

(2) After December 31, 1997, in addition to the requirements of §D(1) of this regulation, a

certified em issions repair facility shall, with the approval of the Department, maintain and update as required the following equipment and tools to test the function and integrity of the vehicle evaporative system:

(a) Gas pressure measuring equipment; and

(b) Gas flow measuring equipment.

E. Personnel Requirements.

(1) A certified emissions repair facility shall ensure that only a certified emissions technician diagnoses emissions-related faults, and supervises or performs emissions-related repai rs and adjustments to bring vehicles into compliance with the provisions of this chapter.

(2) A certified emissions repair facility shall employ at least one full-time certified emissions technician at each certified emissions repair facility location and ensure that a certified emissions technician:

(a) Is routinely scheduled to work during the advertised operating hours of the facility; and

(b) Fills out completely the vehicle repair form and certifies by signature on the vehicle repair form that the repairs have been performed or supervised by a certified emissions technician.

F. Equipment Quality Assurance. For all equipment required under this regulation, a certified emissions repair facility shall follow, at a minimum, the manufacturer's specificat ions for maintenance and calibration, and the procedures established by the Department.

G. Audits.

(1) A certified emissions repair facility shall allow access to Department personnel to conduct audits of the facility. Audits will be conducted at random and with no prior notification.

(2) An audit shall include:

(a) A review of vehicle repair history; and

(b) Checks of record-keeping, equipment, calibration gas, and compliance with personnel requirements.

(3) Audit failure is cause for suspension, revocation, or denial of renewal of facility certification.

(4) Uncooperative or abusive behavior by an employee, representative, or individual at a certified emissions repair facility is cause for audit failure.

(5) A certified emissions repair facility may not use any piece of equipment which fails an audit until a subsequent audit is passed.

(6) A certified emissions technician shall be present for the audit. An audit is failed if a certified emissions technician who is present at the facility fails to b egin the audit within 30 minutes of the arrival of an auditor.

(7) The certified emissions repair facility shall allow further monitoring at the discretion of the Department to ensure quality control or to determine compliance with this chapter.

H. Record Keeping.

(1) A certified emissions repair facility shall maintain the following records, separately and in chronological order, for a period of 3 years, at the facility or at an alternative location approved by the Department:

(a) Records of quality assurance procedures in compliance with the provisions of this chapter;

(b) Records of audits conducted by the Department; and

(c) Vehicle repair records.

(2) A certified emissions repair facility shall make the records available for inspection or for duplication upon request of the Department.

11.14.08.30 Certified Emissions Repair Facility.

A. Initial Application and Certification.

(1) To qualify for certification, a person shall:

(a) Submit an application to the Department;

(b) Maintain a repair facility capable of making emissions-related adjustments and repairs;

(c) Possess all required equipment as listed in §D of this regulation;

(d) Pass an audit as defined in §G of this regulation; and

(e) Employ all required personnel as listed in §E of this regulation.

(2) Certification under this section is valid for 3 years.

B. Certification Renewal.

(1) At least 60 days before expiration of certification, a person may apply for certification renewal. Upon approval of the completed application, the De partment may extend the certification for an additional 3-year period.

(2) A certification which expires before receipt of the application by the Department may not be renewed. If a certification expires, a person may reapply according to the procedures of §A of this regulation.

C. Suspension, Revocation, and Denial of Renewal of Certification.

(1) The Department may suspend, revoke, or deny renewal of a certification under any of the following conditions:

(a) False, inaccurate, or misleading information is knowingly communicated to any person or in any certificate, record, or document regarding the vehicle emissions inspection program;

(b) Certification is obtained, or attempted to be obtained, fraudulently or deceptively;

(c) An audit under §G of this regulation is failed; or

(d) Evidence is exhibited that vehicles repaired by the facility under this chapter have repeatedly failed reinspections.

(2) The Department may reinstate a suspended certification upon the resumption of compliance by the facility with the requirements of this chapter.

(3) Upon revocation of certification a person shall, within 10 business days, return to the Department all materials which were issued as a result of the certification, including any signs and documents, and remove any other materials which may lead the public to believe that the facility continues to be certified.

(4) A person whose certification has been revoked may reapply for certification according to the procedures of §A of this regulation if:

(a) At least 90 days have elapsed since the revocation; and

(b) Corrective action approved by the Department has been taken.

D. Equipment and Tool Requirements.

(1) A certified emissions repair facility shall maintain and update as required all of the following equipment and tools:

(a) Emissions diagnostic and repair information for affected model year vehicles, the most current of which applies to vehicles of model years not more than 2 years older than the current

calendar year, and the information may be stored on magnetic media if a device to read the media is maintained at the facility;

(b) Scanner capability to interrogate on-board diagnostics systems of vehicles, the most current of which applies to vehicles of model years not more than 2 years older than the current calendar year;

(c) A voltmeter with AC and DC capability;

(d) A DC ammeter;

(e) An ohmmeter;

(f) An engine performance analyzer with a lab scope or an oscilloscope;

(g) A pyrometer;

(h) A fuel or hydraulic pressure gauge;

(i) A vacuum gauge;

(j) A vacuum pump;

(k) A compression tester or cylinder leak down tester;

(l) A timing light with advance capability;

(m) An exhaust emissions analyzer which conforms, at a minimum, to the "California Bureau of Automotive Repair Exhaust Gas Analyze r Specifications, 1979", also known as the BAR-80 specifications, which is incorporated by reference;

(n) A tachometer;

(o) A dwell meter or duty cycle meter; and

(p) Capability to access information via facsimile during operating hours.

(2) After December 31, 1997, in addition to the requirements of § D(1) of this regulation, a certified emissions repair facility shall, with the approval of the Department, maintain and update as required the following equipment and tools to test the function and integrity of the vehicle evaporative system:

(a) Gas pressure measuring equipment; and

(b) Gas flow measuring equipment.

E. Personnel Requirements.

(1) A certified emissions repair facility shall ensure that only a certified emissions technician diagnoses em issions-relate d faults, and supervises or performs emissions-related repairs and adjustments to bring vehicles into compliance with the provisions of this chapter.

(2) A certified emissions repair facility shall employ at least one full-time certified em issions technician at each certified emissions repair facility location and ensure that a certified emissions technician:

(a) Is routinely scheduled to work during the advertised operating hours of the facility; and

(b) Fills out completely the vehicle repair form and certifies by signature on the vehicle repair form that the repairs have been performed or supervised by a certified emissions technician.

F. Equipment Quality Assurance. For all equipment required under this regulation, a certified emission s repair facility shall follow, at a minimum, the manufacturer's specifications for maintenance and calibration, and the procedures established by the Department.

G. Audits.

(1) A certified emissions repair facility shall allow access to Department personnel to conduct audits of the facility. Audits will be conducted at random and with no prior notification.

(2) An audit shall include:

(a) A review of vehicle repair history; and

(b) Checks of record-keeping, equipment, calibration gas, and compliance with personnel requirements.

(3) Audit failure is cause for suspension, revocation, or denial of renewal of facility certification.

(4) Uncooperative or abusive behavior by an employee, representative, or individual at a certified emissions repair facility is cause for audit failure.

(5) A certified emissions repair facility may not use any piece of equipment which fails an audit until a subsequent audit is passed.

(6) A certified emissions technician shall be present for the audit. An audit is failed if a certified emissions technician who is present at the facility fails to begin the audit within 30 minutes of the arrival of an auditor.

(7) The certified emissions repair facility shall allow further monitoring at the discretion of the Department to ensure quality control or to determine compliance with this chapter.

H. Record Keeping.

(1) A certified emissions repair facility shall maintain the following records, separately and in chronological order, for a period of 3 years, at the facility or at an alternative location approved by the Department:

(a) Records of quality assurance procedures in compliance with the provisions of this chapter;

(b) Records of audits conducted by the Department; and

(c) Vehicle repair records.

(2) A certified emissions repair facility shall make the records available for inspection or for duplication upon request of the Department.

11.14.08.31 On-Highway Emissions Test.

A. General Requirements.

(1) For on-highway emissions tests, the contractor shall measure vehicle exhaust emissions of hydrocarbons, carbon dioxide, and carbon monoxide. When technologically feasible, the contractor shall also measure oxides of nitrogen emissions.

(2) The contractor shall conduct testing in each jurisdiction in the inspection area at least once each year, and shall test at least 0.5 percent of the affected vehicles in each jurisdiction.

(3) The contractor shall submit the schedule of the test date, time, and location to the Administration and the Department not less than 5 days and not more than 15 days in advance of the test date.

B. Test Procedure. The contractor shall follow the test procedures specified by the equipment manufacturer, the Administration, and the Department.

C. Test Equipment. The contractor shall use remote sensing equipment which has been approved by the U.S. Environmental Protection Agency, the Administration, and the Department.

D. Quality Assurance and Maintenance. The contractor shall submit a quality assurance and maintenance plan for on-highway emissions te sting equipment and procedures to the Administration and the Department for approval. The plan shall include test assurance procedures, periodic quality assurance checks, and, at a minimum, the maintenance procedures specified by the equipment manufacturer.

E. Data Collection and Reporting.

(1) At a minimum, the contractor shall collect the following data:

(a) Vehicle exhaust emissions measurements specified in §A(1) of this regulation;

(b) The date, time, and location of the test; and

(c) The license plate number of the test vehicle.

(2) Within 5 working days after a test, the contractor shall report the test data specified in § E(1) of this regulation to the Administration and the Department in a format approved by the Administration and the Department.

(3) Within 15 days after the end of the calendar year, the contractor shall submit a report of all on-highway emissions tests for the calendar year to the Administration and the Department, including, by jurisdiction, the number of vehicles tested and the dates, times, and locations of the tests.

11.14.08.32 Fleet Inspection Station.

A. A fleet inspection station with a current, valid license as of December 31, 1997, may continue to be licensed as a fleet inspection station through December 31, 1998, and i s authorized to:

(1) Inspect the vehicles that are part of the fleet designated by the licensee and are required to be inspected; and

(2) If the licensee is a dealer, inspect vehicles owned by other dealers, if a written agreement is in effect on December 31, 1994.

B. A licensee described in §A of this regulation shall:

(1) Maintain a repair facility capable of making emissions-related adjustments and repairs;

(2) Possess all required equipment in compliance with the provisions of Regulation .35 of this chapter;

(3) Allow access to Department personnel to perform quality assurance checks on equipment and personnel;

(4) Employ at least one certified emissions technician; and

(5) Present 25 percent of the vehicles that are part of the fleet de signated by the licensee and that are required to be inspected in 1998, or 500 vehicles, whichever is less, for inspection and any subsequent reinspections, at a vehicle emissions inspection station as scheduled by the Administration.

11.14.08.33 Fleet Inspection Standards.

The following exhaust emissions standards apply to a vehicle inspected by the procedures in Regulation .34 of this chapter:

A. Carbon dioxide emissions may not be less than 6 percent by volume;

B. Hydrocarbon (HC) and carbon monoxide (CO) emissions may not exceed the following applicable values:

(1) Gross vehicle weight less than or equal to 6,000 pounds:

Vehicle Model Year	*HC (ppm, as hexane)*	*CO (percent by volume)*
1977	500	6.0
1978	430	5.5
1979	400	4.0
1980	220	1.7
1981 and later	220	1.2

(2) Gross vehicle weight greater than 6,000 pounds but less than or equal to 10,000 pounds:

Vehicle Model Year	*HC (ppm, as hexane)*	*CO (percent by volume)*
1977	580	7.0
1978	550	6.7
1979	470	5.0
1980	350	5.0
1981	250	3.0
1982	220	2.5
1983	220	1.5
1984 and newer	220	1.2

(3) Gross vehicle weight greater than 10,000 pounds:

Vehicle Model Year	*HC (ppm, as hexane)*	*CO (percent by volume)*
1977	650	7.0
1978	650	7.0
1979	650	6.5
1980	500	6.0
1981	500	6.0
1982	500	6.0
1983	500	3.5
1984	440	3.0
1985	440	3.0
1986	280	2.5
1987 and newer	220	1.2

11.14.08.3 4 Fleet Inspection and Reinspection Methods.

A. Initial Inspection.

(1) General Requirements. A fleet inspection station shall:

(a) Perform an inspection using an analyzer conforming with the specifications of this regulation; and

(b) Inspect a vehicle only when it is operating on gasoline.

(2) Inspection Procedures.

(a) A fleet inspection station shall use the procedures in §A(2)(b)-----(p) of this regulation for an inspection.

(b) Check for the existence of a mechanical condition or other circumsta nce that may cause injury to inspection personnel, damage to the inspection station or its equipment, or affect the validity of the inspection. If one or more of these conditions exist, including, but not limited to, coolant, oil, or fuel leaks, reject the vehicle from inspection.

(c) Inspect the vehicle with:

(i) The parking brake engaged and all accessories off;

(ii) A standard transmission while it is idling in neutral;

(iii) An automatic transmission while it is idling in park.

(d) If the engine stalls during the inspection, restart the engine and repeat the test.

(e) Perform an electronic calibration of the analyzer according to the manufacturer specifications.

(f) Accelerate the vehicle engine speed to approximately 2,500 revolutions per minute for a least 15 seconds, but not longer than 30 seconds, and allow the vehicle's engine speed to return to idle.

(g) Insert the analyzer probe tip at least 10 inches into the vehicle tailpipe. If the probe tip cannot be inserted at least 10 inches, attach an extension boot to the tailpipe.

(h) Sample the vehicle exhaust until an accurate reading is obtained. If the analyzer has more than one range, select the range so that the emissions readings are between 20 percent and 80 percent of full scale, if possible.

(i) Compare the hydrocarbon, carbon monoxide, and carbon dioxide readings to the appropriate standards in Regulation .33 of this chapter.

(j) If the hydrocarbon, carbon monoxide, and carbon dioxide readings are all less than the appropriate standar ds, fail the vehicle for carbon dioxide, record the carbon dioxide concentration and inspection result, but not record the hydrocarbon or carbon monoxide concentrations or inspection results.

(k) If the carbon dioxide reading is less than the appropriate standard, and either the hydrocarbon or carbon monoxide reading is greater than the appropriate standard, fail the vehicle for carbon dioxide, and hydrocarbons or carbon monoxide as applicable, and record the hydrocarbon, carbon monoxide, and carbon dioxide concentrations and inspection results.

(l) If the carbon dioxide reading is greater than or equal to the appropriate standard and the vehicle has a single tailpipe or dual tailpipes being sampled simultaneously, base the pass/fail decision on the hydrocarbon and carbon monoxide readings and record the hydrocarbon, carbon monoxide, and carbon dioxide concentrations and inspection results.

(m) If the carbon dioxide reading is greater than or equal to the appropriate standard and the vehicle has dual tail pipes being sampled independently, perform the procedure in this regulation for the second tailpipe. If the carbon dioxide reading is greater than or equal to the appropriate standard, base the pass/fail decision on the average of the hydrocarbon and carbon monoxide readings from both tailpipes and record and average hydrocarbon, carbon monoxide, and carbon dioxide concentrations and inspection results.

(n) If the vehicle is required to be equipped with a fuel inlet restrictor, visually check for its pres ence. If a required restrictor is not present, fail the vehicle for both the fuel inlet restrictor and catalytic convertor inspections. If a restrictor is present, inspect it to determine whether it has been enlarged to accept a leaded fuel pump nozzle. The inside diameter of the restrictor may not exceed 0.950 inch. If the inside diameter exceeds 0.950 inch, fail the vehicle for both the fuel inlet restrictor and catalytic converter inspections.

(o) If the vehicle is required to be equipped with a catalytic converter, visually check for its presence. If a required catalytic converter is not present, fail the vehicle.

(p) Record the results of the inspections required by this regulation.

B. Reinspection Procedures. A fleet inspection station shall conduct a reinspection by the following procedures:

(1) If a vehicle did not meet an applicable hydrocarbon, carbon monoxide, or carbon dioxide standard, perform the emissions portion of the inspection as specified in this regulation;

(2) If a vehicle did not m eet the fuel inlet restrictor standard, verify that the Administration or the Department has determined that a replacement catalytic converter approved by the U.S. Environmental Protection Agency has been installed on the vehicle, and then perform the emissions control device portion of the inspection as specified in this regulation;

(3) If a vehicle did not meet the catalytic converter standard, perform the catalytic converter portion of the inspection as specified in this regulation and record the results.

11.14.08.35 Fleet Equipment and Quality Assurance Requirements.

A. A fleet inspection station shall own or lease an analyzer which remains at the fleet facility and is not transferred from one owner to another, and which meets the following requirements:

(1) Conforms at a minimum to "California Bureau of Automotive Repair Exhaust Gas Analyzer Specifications, 1979," also known as the BAR-80 specifications, which is incorporated by reference;

(2) Is capable of measuring hydrocarbon, carbon monoxide, and carbon dioxide emissions;

(3) Is equipped with the analyzer manufacturer's flexible probe or a substitute probe approved by the Department; and

(4) Is equipped with a bottle of calibration gas which meets the specifications of this regulation.

B. A fl eet inspection station shall comply with the following analyzer quality assurance requirements, and shall record the results of each quality assurance check in the quality

assurance log book issued by the Department or in an acceptable alternative approved by the Department:

(1) Perform an electronic calibration once per test, according to the analyzer manufacturer's specifications;

(2) Perform a sample line integrity check daily by the following procedures:

(a) Cap or plug the sample probe tip while the sampling pump is operating, and if a low-flow condition is not indicated on the analyzer, the sample line integrity check fails,

(b) Record the results of the sample line integrity check;

(3) Perform a span gas calibration weekly by the following procedures:

(a) Perform an electronic calibration,

(b) If the analyzer is capable of performing a gas check/proof calibration, perform the gas check/proof calibration and record the results,

(c) Place the analyzer in the gas calibration mode,

(d) Introduce calibration gas into the analyzer,

(e) If the analyzer is not capable of performing a gas check/proof calibration, record the analyzer readings, and

(f) Adjust the analyzer in accordance with the manufacturer's specifications until the gas calibration is passed.

C. If an analyzer fails any quality assurance checks required under this regulation, the fleet inspection station may not u se the analyzer under this chapter until all quality assurance checks required under this regulation are subsequently passed.

D. A fleet inspection station shall acquire and maintain any additional equipment specified by the Department as necessary to adequately inspect vehicles.

11.14.08.36 Fleet Personnel Requirements.

A fleet inspection station shall ensure that a certif ied emissions technician performs all inspection, adjustments, and repairs required to bring vehicles into compliance with the provisions of this chapter.

11.14.08.37 Fleet Calibration Gas Specifications and Standard Reference Materials.

A. A fleet inspection station shall use calibration gas which is:

(1) Certified to be traceable to a standard reference material as set forth in §C of this regulation, |+/-2 percent of the analytical concentration labeled on the gas tanks; and

(2) Blended to the following concentrations with a blend tolerance of +/-5 percent:

	HC Concentration (ppm, as propane)	*CO Concentration (percent by volume)*	*CO_2 Concentration (percent by volume)*	*N_2 Concentration*
Span gas	2,000	8.0	11.0	Balance
Warranty gas	440	1.2	6.0	Balance
Multipoint gases	3,500	8.5	13.5	Balance

B. A fleet inspection station shall equip each bottle of calibration gas with:

(1) A typed label which includes the certification in §A of this regulation, the gas concentrations in the units specified in § A of this regulation, and the company name of the distributor;

(2) A functional pressure gauge which reads in pounds per square inch; and

(3) A functional regulator to achieve the proper flow rate for the calibration, unless the analyzer is internally equipped with a flow regulator.

C. Standard Reference Material. A fleet inspection station shall use as standard reference material to meet the requirements of § A of this regulation an analyzed gas selected from the following list:

SRM Number	*Gas Type*	*Nominal Component*	*Concentration*
2639a	CO in nitrogen	CO	1 mol percent
2640	CO in nitrogen	CO	2 mol percent
2641	CO in nitrogen	CO	4 mol percent
2642	CO in nitrogen	CO	8 mol percent
2624a	CO_2 in nitrogen	CO_2	3.0 mol percent
2626a	CO_2 in nitrogen	CO_2	4.0 mol percent

1674b	CO_2 in nitrogen	CO_2	7.0 mol percent
1675b	Carbon dioxide	CO_2	14.0 mol percent
2645a	propane in nitrogen	C_3H_8	500 ppm
2646a	propane in nitrogen	C_3H_8	1,000 ppm
2647a	propane in nitrogen	C_3H_8	2,500 ppm
2648a	propane in nitrogen	C_3H_8	5,000 ppm

11.14.08.38 Fleet Record-Keeping Requirements.

A. A fleet inspection station shall maintain the following records, separately and in chronological order, for a period of 1 year:

(1) One copy of each certificate issued to each vehicle inspected;

(2) Records of quality assurance procedures performed in compliance with the provisions of this regulation; and

(3) Vehicle repair records.

B. The records required in §A of this regulation shall be made available for inspection upon the request of the Department.

C. The Department may monitor the emissions inspections conducted by the fleet inspection station and may require reinspection of vehicles as a quality control or compliance measure.

11.14.08.39 Fleet Fees.

A. A fleet inspection station shall pay to the Administration the fee established in COMAR 11.11.05 for each vehicle which passes an inspection conducted by the fleet inspection station as authorized in Regulation .32 of this chapter.

B. The total fee shall be based upon collected inspection data, and the fleet inspection station shall be billed quarterly.

C. The fleet inspection station shall pay the inspection fees in full to the Administration within 30 days of billing.

D. A fleet inspection station shall pay to the contractor the fee specified in Regulation .26E of this chapter for an inspect ion or a reinspection conducted at a vehicle emissions inspection station as required in Regulation .32B(5) of this chapter.

E. A fleet inspection station operated by the State or a county or local government is exempt from the fee in §A of this regulation.

11.14.08.40 Fleet License Suspension and Revocation.

A. The Department may suspend or revoke a license if the licensee:

(1) Fraudulently or deceptively obtains a license; or

(2) Fails at any time to meet the qualifications for a license or to fulfill any requirement, procedure, or standard established in this chapter.

B. Upon revocation of a license, a licensee shall deliver to the Department within 10 working days of the revocation all materials which were issued as a result of the licensing.

11.14.08.41 Audits.

A fleet inspection station shall allow access to Department personnel to conduct audits of the facility, equipment, and personnel. Audits shall be conducted at random and with no prior notification.

11.14.08.42 Fleet Inspection After 1998.

Requirements for inspections conducted after December 31, 1998, shall be established by the Department with the approval of the U.S. Environmental Pr otection Agency in order to maintain compliance with national performance standards for t he Vehicle Emissions Inspection Program.