

§ 85.2221

40 CFR Ch. I (7-1-07 Edition)

180 seconds (mt=180), the measured values are less than or equal to the applicable short test standards as determined by the procedure described in paragraph (a)(2) of this section.

(D) The vehicle fails the high-speed mode and the test is terminated if none of the provisions of paragraphs (d)(2)(iii) (A), (B), and (C) of this section is satisfied by an elapsed time of 180 seconds (mt=180).

(iv) In the case where the second-chance high-speed mode is followed by the second-chance idle mode, the pass/fail analysis begins after an elapsed time of ten seconds (mt=10). A pass or fail determination is made for the vehicle and the mode is terminated in accordance with paragraphs (d)(2)(iv)(A) and (B) of this section.

(A) The vehicle passes the high-speed mode and the mode is terminated at the end of an elapsed time of 180 seconds (mt=180) if any measured values are less than or equal to the applicable short test standards as determined by the procedure described in paragraph (a)(2) of this section.

(B) The vehicle fails the high-speed mode and the mode is terminated if paragraph (d)(2)(iv)(A) of this section is not satisfied by an elapsed time of 180 seconds (mt=180).

(3) *Second-chance preconditioning mode.* The mode timer starts (mt=0) when engine speed is between 2200 and 2800 rpm. The mode continues for an elapsed time of 180 seconds (mt=180). If the engine speed falls below 2200 rpm or exceeds 2800 rpm for more than five seconds in any one excursion, or 15 seconds over all excursions, the mode timer resets to zero and resumes timing.

(4) *Second-chance idle mode—(i) Ford Motor Company and Honda vehicles.* The engines of 1981-1987 model year Ford Motor Company vehicles and 1984-1985 model year Honda Preludes must be shut off for not more than ten seconds and then restarted. The probe may be removed from the tailpipe or the sample pump turned off if necessary to reduce analyzer fouling during the restart procedure. This procedure may also be used for 1988-1989 model year Ford Motor Company vehicles but may not be used for other vehicles.

(ii) The mode timer starts (mt=0) when the vehicle engine speed is between 350 and 1100 rpm. If the engine speed exceeds 1100 rpm or falls below 350 rpm the mode timer resets to zero and resumes timing. The minimum second-chance idle mode length is determined as described in paragraph (d)(4)(iii) of this section. The maximum second-chance idle mode length is 90 seconds elapsed time (mt=90).

(iii) The pass/fail analysis begins after an elapsed time of ten seconds (mt=10). A pass or fail determination is made for the vehicle and the mode is terminated in accordance with paragraphs (d)(4)(iii) (A) through (D) of this section.

(A) The vehicle passes the second-chance idle mode and the test is immediately terminated if, prior to an elapsed time of 30 seconds (mt=30), measured values are less than or equal to 100 ppm HC and 0.5 percent CO.

(B) The vehicle passes the second-chance idle mode and the test is terminated at the end of an elapsed time of 30 seconds (mt=30) if, prior to that time, the criteria of paragraph (d)(4)(iii)(A) of this section are not satisfied, and the measured values are less than or equal to the applicable short test standards as determined by the procedure described in paragraph (a)(2) of this section.

(C) The vehicle passes the second-chance idle mode and the test is immediately terminated if, at any point between an elapsed time of 30 seconds (mt=30) and 90 seconds (mt=90), measured values are less than or equal to the applicable short test standards described in paragraph (a)(2) of this section.

(D) The vehicle fails the second-chance idle mode and the test is terminated if none of the provisions of paragraphs (d)(4)(iii) (A), (B), and (C) of this section is satisfied by an elapsed time of 90 seconds (mt=90).

[58 FR 58411, Nov. 1, 1993, as amended at 61 FR 40947, Aug. 6, 1996]

§ 85.2221 [Reserved]

§ 85.2222 On-board diagnostic test procedures.

The test sequence for the inspection of on-board diagnostic systems on 1996

and newer light-duty vehicles and light-duty trucks shall consist of the following steps:

(a) The on-board diagnostic inspection shall be conducted with the key-on/engine running (KOER), with the exception of inspecting for MIL illumination as required in paragraph (d)(4) of this section, during which the inspection shall be conducted with the key-on/engine off (KOEO).

(b) The inspector shall locate the vehicle connector and plug the test system into the connector.

(c) The test system shall send a Mode \$01, PID \$01 request in accordance with SAE J1979 to determine the evaluation status of the vehicle's on-board diagnostic system. The test system shall determine what monitors are supported by the on-board diagnostic system, and the readiness evaluation for applicable monitors in accordance with SAE J1979. The procedure shall be done in accordance with SAE J1979 "E/E Diagnostic Test Modes," (DEC91). This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of SAE J1979 may be obtained from the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096-0001. Copies may be inspected at the EPA Docket No. A-94-21 at EPA's Air Docket (LE-131), Room 1500 M, 1st Floor, Waterside Mall, 401 M Street SW., Washington, DC, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(1) Coincident with the beginning of mandatory testing, repair, and re-testing based upon the OBD-I/M check, if the readiness evaluation indicates that any on-board tests are not complete the customer shall be instructed to return after the vehicle has been run under conditions that allow completion of all applicable on-board tests. If the readiness evaluation again indicates that any on-board test is not complete the vehicle shall be failed.

(2) An exception to paragraph (c)(1) of this section is allowed for MY 1996 to

MY 2000 vehicles, inclusive, with two or fewer unset readiness monitors, and for MY 2001 and newer vehicles with no more than one unset readiness monitor. Vehicles from those model years which would otherwise pass the OBD inspection, but for the unset readiness code(s) in question may be issued a passing certificate without being required to operate the vehicle in such a way as to activate those particular monitors. Vehicles from those model years with unset readiness codes which also have diagnostic trouble codes (DTCs) stored resulting in a lit malfunction indicator light (MIL) must be failed, though setting the unset readiness flags in question shall not be a prerequisite for passing the retest.

(d) The test system shall evaluate the malfunction indicator light status bit and record status information in the vehicle test record.

(1) If the malfunction indicator status bit indicates that the malfunction indicator light (MIL) has been commanded to be illuminated the test system shall send a Mode \$03 request to determine the stored diagnostic trouble codes (DTCs). The system shall repeat this cycle until the number of codes reported equals the number expected based on the Mode 1 response. All DTCs resulting in MIL illumination shall be recorded in the vehicle test record and the vehicle shall fail the on-board diagnostic inspection.

(2) If the malfunction indicator light bit is not commanded to be illuminated the vehicle shall pass the on-board diagnostic inspection, even if DTCs are present.

(3) If the malfunction indicator light bit is commanded to be illuminated, the inspector shall visually inspect the malfunction indicator light to determine if it is illuminated. If the malfunction indicator light is commanded to be illuminated but is not, the vehicle shall fail the on-board diagnostic inspection.

(4) If the malfunction indicator light (MIL) does not illuminate at all when the vehicle is in the key-on/engine-off (KOEO) condition, the vehicle shall fail the on-board diagnostic inspection,

§ 85.2223

40 CFR Ch. I (7-1-07 Edition)

even if no DTCs are present and the MIL has not been commanded on.

[61 FR 40947, Aug. 6, 1996, as amended at 63 FR 24433, May 4, 1998; 66 FR 18178, Apr. 5, 2001]

§ 85.2223 On-board diagnostic test report.

(a) Motorists whose vehicles fail the on-board diagnostic test described in § 85.2222 shall be provided with the on-board diagnostic test results, including the codes retrieved, the name of the component or system associated with each fault code, the status of the MIL illumination command, and the customer alert statement as stated in paragraph (c) of this section.

(b) [Reserved]

(c) In addition to any codes which were retrieved, the test report shall include the following language:

Your vehicle's computerized self-diagnostic system (OBD) registered the fault(s) listed below. This fault(s) is probably an indication of a malfunction of an emission component. However, multiple and/or seemingly unrelated faults may be an indication of an emission-related problem that occurred previously but upon further evaluation by the OBD system was determined to be only temporary. Therefore, proper diagnosis by a qualified technician is required to positively identify the source of any emission-related problem.

[61 FR 40948, Aug. 6, 1996, as amended at 66 FR 18179, Apr. 5, 2001]

§ 85.2224 Exhaust analysis system—EPA 81.

(a) Applicability. The requirements of this subsection apply to short tests conducted under Emissions Performance Warranty through December 31, 1993. The requirements of § 85.2225 apply concurrently until December 31, 1993, after which the requirements of § 85.2225 are solely in effect. The following exceptions apply: In a state where the Administrator has approved a SIP revision providing for implementation of a basic centralized program meeting the requirements of part 51, subpart S of this chapter, according to the schedule specified in § 51.373 of this chapter, the requirements of this section are concurrently in effect until June 30, 1994 for 1995 and earlier model year vehicles or engines; in a state where the Administrator has approved

a SIP revision providing for implementation of an enhanced program meeting the requirements of part 51, subpart S of this chapter, according to the schedule specified in § 51.373 of this chapter, the requirements of this section are concurrently in effect until December 31, 1995 for 1995 and earlier model year vehicles or engines.

(b) *Sampling system*—(1) *General requirements.* The exhaust sampling system shall consist of a sample probe, moisture separator and analyzers for HC and CO.

(2) *Dual sample probe requirements.* If used, a dual sample probe must provide equal flow in each leg. The equal flow criterion is considered to be met if the flow rate in each leg of the probe (or an identical model) has been measured under two sample flow rates (the normal rate and a rate equal to the onset of low flow), and if the flow rates in each of the legs are found to be equal to each other ($\pm 15\%$).

(c) *Analyzers*—(1) *Accuracy.* The HC analyzer shall have an accuracy of ± 15 ppm at 200 to 220 ppm concentration HC (as hexane). The CO analyzer shall have an accuracy of $\pm 0.1\%$ CO from 1.0% to 1.2% concentration.

(2) *Response time.* Response time of the analyzers shall be 15 seconds to 95% of the final reading.

(3) *Drift.* Analyzer drift (up-scale and down-scale zero and span wander) shall not exceed $\pm 0.1\%$ CO and ± 15 ppm HC (as hexane) on the lowest range capable of reading 1.0% or 200 ppm HC (as hexane) during a one-hour period.

[49 FR 24323, June 12, 1984. Redesignated and amended at 58 FR 58403, 58412, Nov. 1, 1993]

§ 85.2225 Steady state test exhaust analysis system—EPA 91.

(a) *Special calendar and model year applicability.* The requirements of § 85.2224 apply concurrently for tests conducted under Emission Performance Warranty on 1995 and earlier model year vehicles or engines until December 31, 1993, after which the requirements of this section are solely in effect. The following exceptions apply: in a state where the Administrator has approved a SIP revision providing for implementation of a basic centralized program meeting the requirements of part 51, subpart S of this chapter, according to