

§91.211

be void except as provided in paragraph (h) of this section. Erroneous negative credit balances may be adjusted by EPA.

(h) If within 270 days of the end of the model year, EPA review determines a reporting error in the manufacturer's favor (that is, resulting in an increased credit balance) or if the manufacturer discovers such an error within 270 days of the end of the model year, EPA shall restore the credits for use by the manufacturer.

§91.211 Notice of opportunity for hearing.

Any voiding of the certificate under §§91.203(f), 91.206(d), 91.207(d), 91.208(c), or §91.209(g) shall be made only after the manufacturer concerned is offered an opportunity for a hearing conducted in accordance with §§91.512, 91.513 and 91.514 and, if a manufacturer requests such a hearing, will be made only after an initial decision by the Presiding Officer.

Subpart D—Emission Test Equipment Provisions

§91.301 Scope; applicability.

(a) This subpart describes the equipment required in order to perform exhaust emission tests on new marine gasoline-fueled spark-ignition propulsion engines subject to the provisions of subpart A of this part 91.

(b) Exhaust gases are sampled while the test engine is operated using a steady state test cycle on an engine dynamometer. Exhaust gas sampling may be performed using either the raw gas sampling method or the constant volume sampling (CVS) method. The exhaust gases receive specific component analysis determining concentration of pollutant, exhaust volume, the fuel flow, and the power output during each mode. Emissions are reported on a gram per brake-kilowatt hour (g/kW-hr). See subpart E of this part for a complete description of the test procedure.

(c) Additional information about system design, calibration methodologies, and so forth, for raw gas sampling can be found in part 86, subpart D of this chapter. Examples for system design, calibration methodologies, and so

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forth, for dilute sampling can be found in part 86, subpart N of this chapter.

§91.302 Definitions.

The definitions in §91.3 apply to this subpart.

§91.303 Acronyms and abbreviations.

(a) The acronyms and abbreviations in §91.5 apply to this subpart.

(b) The symbols in Table 1 in appendix A of this subpart apply to this subpart.

§91.304 Test equipment overview.

(a) All engines subject to this subpart are tested for exhaust emissions. Engines are operated on dynamometers meeting the specification given in §91.305.

(b) The exhaust is tested for gaseous emissions using either a constant volume sampling (CVS) system as described in §91.414, or using the raw gas sampling system as described in §91.421. Both systems require analyzers (see paragraph (c) of this section) specific to the pollutant being measured.

(c) Analyzers used are a non-dispersive infrared detector (NDIR) absorption type for carbon monoxide and carbon dioxide analysis; paramagnetic detector (PMD), zirconia (ZRDO), or electrochemical type (ECS) for oxygen analysis; a flame ionization detector (FID) or heated flame ionization detector (HFID) type for hydrocarbon analysis; and a chemiluminescent detector (CLD) or heated chemiluminescent detector (HCLD) for oxides of nitrogen analysis.

§91.305 Dynamometer specifications and calibration accuracy.

(a) *Dynamometer specifications.* (1) The dynamometer test stand and other instruments for measurement of engine speed and torque must meet the accuracy requirements shown in Table 2 in appendix A to this subpart. The dynamometer must be capable of performing the test cycle described in §91.410.

(b) *Dynamometer calibration accuracy.* (1) The dynamometer test stand and other instruments for measurement of engine torque and speed must meet the calibration frequency shown in Table 2 in appendix to this subpart.

(2) A minimum of three calibration weights for each range used is required. The weights must be equally spaced and traceable to within 0.5 percent of National Institute of Standards and Testing (NIST) weights. Laboratories located in foreign countries may certify calibration weights to local government bureau standards.

§ 91.306 Dynamometer torque cell calibration.

(a)(1) Any lever arm used to convert a weight or a force through a distance into a torque must be used in a horizontal position for horizontal shaft dynamometers (\pm five degrees). For vertical shaft dynamometers, a pulley system may be used to convert the dynamometer's horizontal loading into the vertical plane.

(2) Calculate the indicated torque (IT) for each calibration weight to be used by:

IT=Moment Arm (meters) \times Calibration Weight (Newtons)

(3) Attach each calibration weight specified in § 91.305(b)(2) to the moment arm at the calibration distance determined in paragraph (a)(2) of this section. Record the power measurement equipment response (N-m) to each weight.

(4) Compare the torque value measured to the calculated torque.

(5) The measured torque must be within two percent of the calculated torque.

(6) If the measured torque is not within two percent of the calculated torque, adjust or repair the system. Repeat steps in paragraphs (a)(1) through (a)(6) of this section with the adjusted or repaired system.

(b) Option. A master load-cell or transfer standard may be used to verify the torque measurement system.

(1) The master load-cell and read out system must be calibrated with weights specified in § 91.305(b)(2).

(2) Attach the master load-cell and loading system.

(3) Load the dynamometer to a minimum of three equally spaced torque values as indicated by the master load-cell for each in-use range used.

(4) The in-use torque measurement must be within two percent of the

torque measured by the master system for each load used.

(5) If the in-use torque is not within two percent of the master torque, adjust or repair the system. Repeat steps in paragraphs (b)(2) through (b)(4) of this section with the adjusted or repaired system.

(c) Calibrated resistors may not be used for dynamometer torque transducer calibration, but may be used to span the transducer prior to engine testing.

(d) Other engine dynamometer system calibrations such as speed are performed as specified by the dynamometer manufacturer or as dictated by good engineering practice.

§ 91.307 Engine cooling system.

An engine cooling system is required with sufficient capacity to maintain the engine at normal operating temperatures as prescribed by the engine manufacturer. Auxiliary fan(s) may be used to maintain sufficient engine cooling during dynamometer operation.

§ 91.308 Lubricating oil and test fuel.

(a) *Lubricating oil.* (1) Use the engine lubricating oil which meets the marine engine manufacturer's requirements for a particular engine and intended usage. Record the specifications of the lubricating oil used for the test.

(2) For two-stroke engines, the fuel/oil mixture ratio must be that which is recommended by the manufacturer. If the flow rate of the oil in the engine is greater than two percent of the fuel flow rate, then the oil supplied to the engine must be added to the fuel flow in the emission calculations described in § 91.419 and § 91.426. Good engineering judgment may be used to estimate oil flow when oil injection is used.

(b) *Test fuels—certification.* The manufacturer must use gasoline having the specifications or substantially equivalent specifications approved by the Administrator, as specified in Table 3 in appendix A of this subpart for exhaust emission testing of gasoline fueled engines. The specification range of the fuel to be used under this paragraph must be reported in accordance with § 91.109(d).