

§ 86.004-40

40 CFR Ch. I (7-1-00 Edition)

allow the vehicle to meet applicable emission standards at elevations above 4,000 feet, or at elevations of 4,000 feet or less.

(g) [Reserved]. For guidance see § 86.094-38.

(h) The manufacturer shall furnish or cause to be furnished to the purchaser of each new motor engine subject to the standards prescribed in § 86.004-10 or § 86.004-11, as applicable, the following:

(1) Instructions for all maintenance needed after the end of the useful life of the engine for critical emissions-related components as provided in § 86.004-25(b), including recommended practices for diagnosis, cleaning, adjustment, repair, and replacement of the component (or a statement that such component is maintenance free for the life of the engine) and instructions for accessing and responding to any emissions-related diagnostic codes that may be stored in on-board monitoring systems;

(2) A copy of the engine rebuild provisions contained in § 86.004-40.

[62 FR 54728, Oct. 21, 1997]

§ 86.004-40 Heavy-duty engine rebuilding practices.

The provisions of this section are applicable to engines subject to the standards prescribed in § 86.004-10 or § 86.004-11 and are applicable to the process of engine rebuilding (or rebuilding a portion of an engine or engine system). The process of engine rebuilding generally includes disassembly, replacement of multiple parts due to wear, and reassembly, and also may include the removal of the engine from the vehicle and other acts associated with rebuilding an engine. Any deviation from the provisions contained in this section is a prohibited act under section 203(a)(3) of the Clean Air Act (42 U.S.C. 7522(a)(3)).

(a) When rebuilding an engine, portions of an engine, or an engine system, there must be a reasonable technical basis for knowing that the resultant engine is equivalent, from an emissions standpoint, to a certified configuration (i.e., tolerances, calibrations, specifications) and the model year(s) of the resulting engine configuration

must be identified. A reasonable basis would exist if:

(1) Parts installed, whether the parts are new, used, or rebuilt, are such that a person familiar with the design and function of motor vehicle engines would reasonably believe that the parts perform the same function with respect to emissions control as the original parts; and

(2) Any parameter adjustment or design element change is made only:

(i) In accordance with the original engine manufacturer's instructions; or

(ii) Where data or other reasonable technical basis exists that such parameter adjustment or design element change, when performed on the engine or similar engines, is not expected to adversely affect in-use emissions.

(b) When an engine is being rebuilt and remains installed or is reinstalled in the same vehicle, it must be rebuilt to a configuration of the same or later model year as the original engine. When an engine is being replaced, the replacement engine must be an engine of (or rebuilt to) a configuration of the same or later model year as the original engine.

(c) At time of rebuild, emissions-related codes or signals from on-board monitoring systems may not be erased or reset without diagnosing and responding appropriately to the diagnostic codes, regardless of whether the systems are installed to satisfy requirements in § 86.004-25 or for other reasons and regardless of form or interface. Diagnostic systems must be free of all such codes when the rebuilt engine is returned to service. Such signals may not be rendered inoperative during the rebuilding process.

(d) When conducting a rebuild without removing the engine from the vehicle, or during the installation of a rebuilt engine, all critical emissions-related components listed in § 86.004-25(b) not otherwise addressed by paragraphs

(a) through (c) of this section must be checked and cleaned, adjusted, repaired, or replaced as necessary, following manufacturer recommended practices.

(e) Records shall be kept by parties conducting activities included in paragraphs (a) through (d) of this section. The records shall include at minimum

the mileage and/or hours at time of rebuild, a listing of work performed on the engine and emissions-related control components including a listing of parts and components used, engine parameter adjustments, emissions-related codes or signals responded to and reset, and work performed under paragraph (d) of this section.

(1) Parties may keep records in whatever format or system they choose as long as the records are understandable to an EPA enforcement officer or can be otherwise provided to an EPA enforcement officer in an understandable format when requested.

(2) Parties are not required to keep records of information that is not reasonably available through normal business practices including information on activities not conducted by themselves or information that they cannot reasonably access.

(3) Parties may keep records of their rebuilding practices for an engine family rather than on each individual engine rebuilt in cases where those rebuild practices are followed routinely.

(4) Records must be kept for a minimum of two years after the engine is rebuilt.

[62 FR 54729, Oct. 21, 1997]

§ 86.078-3 Abbreviations.

(a) The abbreviations in this section apply to this subpart and also to subparts B, D, H, I, J, N, O and P of this part and have the following meanings:

accel.—acceleration.
 AECD—Auxiliary emission control device.
 API—American Petroleum Institute.
 ASTM—American Society for Testing and Materials.
 BHP—Brake horsepower.
 BSCO—Brake specific carbon monoxide.
 BSHC—Brake specific hydrocarbons.
 BSNO_x—Brake specific oxides of nitrogen.
 C—Celsius.
 cfh—cubic feet per hour.
 CFV—Critical flow venturi.
 CFV—CVS—Critical flow venturi—constant volume sampler.
 CL—Chemiluminescence.
 CO₂—carbon dioxide.
 CO—Carbon monoxide.
 conc.—concentration.
 cfm—cubic feet per minute.
 CT—Closed throttle.
 cu. in.—cubic inch(es).
 CVS—Constant volume sampler.
 decel.—deceleration.

EP—End point.
 evap.—evaporative.
 F—Fahrenheit.
 FID—Flame ionization detector.
 FL—Full load.
 ft.—feet.
 g—gram(s).
 gal.—U.S. gallon(s).
 GVW—Gross vehicle weight.
 GVWR—Gross vehicle weight rating.
 h—hour(s).
 H₂O—water.
 HC—hydrocarbon(s).
 HFID—Heated flame ionization detector.
 Hg—mercury.
 hi—high.
 hp.—horsepower.
 IBP—Initial boiling point.
 ID—Internal diameter.
 in.—inch(es).
 K—kelvin.
 kg—kilogram(s).
 km—kilometer(s).
 kPa—kilopascal(s).
 lb.—pound(s).
 lb.-ft.—pound-feet.
 m—meter(s).
 max.—maximum.
 mg—milligram(s).
 mi.—mile(s).
 min.—minute(s).
 ml—milliliter(s).
 mm—millimeter(s).
 mph—miles per hour.
 mv—millivolt(s).
 N₂—nitrogen.
 NDIR—Nondispersive infrared.
 NO—nitric oxide.
 NO₂—nitrogen dioxide.
 NO_x—oxides of nitrogen.
 No.—Number.
 O₂—oxygen.
 Pb—lead.
 pct.—percent.
 PDP—CVS—Positive displacement pump—constant volume sampler.
 ppm—parts per million by volume.
 ppm C—parts per million, carbon.
 psi—pounds per square inch.
 psig—pounds per square inch gauge.
 PTA—Part throttle acceleration.
 PTD—Part throttle deceleration.
 R—Rankin.
 rpm—revolutions per minute.
 RVP—Reid vapor pressure.
 s—second(s).
 SAE—Society of Automotive Engineers.
 SI—International system of units.
 sp.—speed.
 TEL—Tetraethyl lead.
 TML—Tetramethyl lead.
 UDDS—Urban dynamometer driving schedule.
 V—volt(s).
 vs—versus.
 W—watt(s).
 WF—Weighting factor.