

provide technical and other justification for such suggested dates.

In addition, at this time the mobile sources (including aircraft engines) regulated under the authority of the Clean Air Act (Title II—Emission Standards for Moving Sources) have emission standards for newly manufactured engines or vehicles. However, except for aircraft engines, all current CAA mobile source programs involving new emission standards apply to newly manufactured engines or vehicles based on the certification model year (new standards apply to newly and already certified engines or vehicles in the same year). In these programs, EPA has incorporated emission averaging programs to make a more orderly product phase-in and phase-out (the average emissions within a manufacturer's product line is required to meet the applicable standard, which allows a manufacturer to produce some engine families with emission levels above the standard).<sup>115</sup> However, averaging is not part of the ICAO protocol, and it is not clear that it is of any value here since most in-production engines already meet the proposed standards. Nonetheless, we solicit comment on whether an emission averaging program for such engines would be useful.

#### *C. Amendments to Criteria on Calibration and Test Gases for Gaseous Emissions Test and Measurement Procedures*

In today's proposed rule, EPA proposes to incorporate by reference ICAO's 1997 amendments to the criteria on calibration and test gases for the test procedures of gaseous emissions (ICAO International Standards and Recommended Practices Environmental Protection, Annex 16, Volume II, "Aircraft Engine Emissions," Second Edition, July 1993; Amendment 3, March 20, 1997, Appendices 3 and 5) in 40 CFR 87.64. ICAO's amendments, which became effective on March 20, 1997, apply to subsonic (newly certified and newly manufactured or already certified engines) and supersonic gas turbine engines. The proposed technical changes would correct a few inconsistencies between the specifications for carbon dioxide (CO<sub>2</sub>) analyzers (Attachment B of Appendices 3 and 5) and the calibration and test gases (Attachment D of Appendices 3 and 5) of gaseous emissions. The test procedure amendments incorporated by

reference would be effective 60 days after the publication of the final rule.

For CAEP/3 in 1995, the Russian Federation presented a working paper entitled, "Corrections to Annex 16, Volume II," that stated the following:<sup>116</sup>

According to CAEP/2 recommendations, in the list of calibration and test gases (see the table in Attachment of Appendices 3 and 5) "CO<sub>2</sub> in N<sub>2</sub>" was replaced with "CO<sub>2</sub> in air" gas. At the same time the following subparagraph was newly introduced into Attachment B (Appendices 3 and 5):

(g) The effect of oxygen (O<sub>2</sub>) on the CO<sub>2</sub> analyzer response shall be checked. For a change from 0 percent O<sub>2</sub> to 21 percent O<sub>2</sub> the response of a given CO<sub>2</sub> concentration shall not change by more than 2 percent of reading. If this limit cannot be met and appropriate correction factor shall be applied.

Since the best way to carry out this checking procedure is to calibrate the analyzer first with CO<sub>2</sub> in nitrogen and then with CO<sub>2</sub> in air, both "CO<sub>2</sub> in N<sub>2</sub>" and "CO<sub>2</sub> in air" gases have to be retained in the list. It seems then that "CO in air," "CO<sub>2</sub> in air," "NO in N<sub>2</sub>" and now "CO<sub>2</sub> in N<sub>2</sub>" have to be replaced with "CO in zero air," "CO<sub>2</sub> in zero air," "CO<sub>2</sub> in zero nitrogen" and "NO in zero nitrogen" just by analogy with the gaseous mixtures of different hydrocarbons diluted by zero air and listed in the same table.

In addition, at CAEP/3 the United Kingdom then presented a working paper on this same issue.<sup>117</sup> They indicated that CAEP's Working Group 3 (Emissions Working Group) had accepted the above proposals of the Russian Federation paper on correcting inconsistencies in the list of calibration and test gases specified in Annex 16, Volume II, Attachment D to Appendices 3 and 5, and Working Group 3 had recommended that these proposals be presented at CAEP/3. The United Kingdom also recommended the adoption of these Russian Federation proposals—to utilize CO<sub>2</sub> in nitrogen gas mixture to check the effect of oxygen on CO<sub>2</sub> analyzers. In addition, they recommended the specification of all calibration and test gases required for all

the gaseous emissions tests required in Annex 16.

At CAEP/3, the CAEP members agreed that the above amendments to the calibration and test gases were justified, and thus, these amendments were then adopted.<sup>118</sup> In today's notice, EPA proposes to incorporate by reference the amendments to the criteria on calibration and test gases for the test procedures of gaseous emissions, because the changes improve the test procedures by correcting inconsistencies and distinguishing between calibration and test gases. The amendments would include the following: (1) Listing all calibration gases separately from test gases for HC, CO<sub>2</sub>, CO and NO<sub>x</sub> analyzers, (2) changing "N<sub>2</sub>" to "zero nitrogen" in relation to the test gases for the HC and NO<sub>x</sub> analyzers, (3) adding "CO<sub>2</sub> in zero nitrogen" as a test gas for CO<sub>2</sub> analyzer, (4) changing "air" to "zero air" in relation to the test gas for CO and CO<sub>2</sub> analyzers, (5) revising the accuracy to "± 1 percent" for the "propane in zero air" test gas of HC analyzer, (6) amending the accuracy to "± 1 percent" for the "CO<sub>2</sub> in zero air" test gas of CO<sub>2</sub> analyzer, (7) adding the accuracy "± 1 percent" for the "CO<sub>2</sub> in zero nitrogen" test gas of CO<sub>2</sub> analyzer, (8) changing accuracy to "± 1 percent" for test gas of CO analyzer, and (9) revising accuracy to "± 1 percent" for test gas of NO<sub>x</sub> analyzer.

Manufacturers are already voluntarily complying with ICAO's 1997 amendments to the criteria on calibration and test gases for the test procedures of gaseous emissions. Thus, formal adoption of these ICAO test procedure amendments would require no new action by manufacturers. In addition, the existence of ICAO's requirements would ensure that the costs of compliance (as well as the air quality impact) with these test procedures would be minimal. (In the 1982 and 1997 final rules on aircraft engine emissions (47 FR 58462, December 30, 1982 and 62 FR 25356, May 8, 1997, respectively), EPA incorporated by reference the then-existing ICAO testing and measurement procedures for aircraft engine emissions (ICAO International Standards and Recommended Practices Environmental Protection, Annex 16, Volume II, "Aircraft Engine Emissions," First and Second Editions, Appendices 3 and 5 were incorporated by reference in 40 CFR 87.64) in order to eliminate confusion over minor differences in

<sup>115</sup> Typically, the calculations used for averaging are based upon an engine families yearly production or sales (among other characteristics—e.g., average power rating of engines families).

<sup>116</sup> Russian Federation, "Corrections to Annex 16, Volume II," Agenda Item 2: Review of reports of working groups relating to engine emissions and the development of recommendations to the Council thereon, Working Paper 19, Presented by A.A. Gorbakto, November 11, 1995 (distributed November 30, 1995), CAEP/3, Montreal, December 5 to 15, 1995. A copy of this paper can be found in Docket OAR-2002-0030.

<sup>117</sup> United Kingdom, "Amendments to Annex 16, Volume II, Attachment D to Appendices 3 and 5 (Calibration and Test Gases)," Agenda Item 2: Review of reports of working groups relating to engine emissions and the development of recommendations to the Council thereon, Working Paper 20, Presented by M.E. Wright, November 14, 1995 (distributed November 30, 1995), CAEP/3, Montreal, December 5 to 15, 1995. A copy of this paper can be found in Docket OAR-2002-0030.

<sup>118</sup> ICAO/CAEP, Report of Third Meeting, Montreal, Quebec, December 5–15, 1995, Document 9675, CAEP/3.