Environmental Protection Agency

§ 1045.110 How must my engines diagnose malfunctions?

The following engine-diagnostic requirements apply for engines equipped with three-way catalysts and closed-loop control of air-fuel ratios:

(a) Equip your engines with a diagnostic system. Equip each engine with a diagnostic system that will detect significant malfunctions in its emission control system using one of the following protocols:

(1) If your emission control strategy depends on maintaining air-fuel ratios at stoichiometry, an acceptable diagnostic design would identify a malfunction whenever the air-fuel ratio does not cross stoichiometry for one minute of intended closed-loop operation. You may use other diagnostic strategies if we approve them in advance.

(2) If the protocol described in paragraph (a)(1) of this section does not apply to your engine, you must use an alternative approach that we approve in advance. Your alternative approach must generally detect when the emission control system is not functioning properly.

(3) Diagnostic systems approved by the California Air Resources Board for use with sterndrive/inboard engines


\[
\text{Not-to-exceed standard} = (\text{STD}) \times (M)
\]

Where:

- STD = The standard specified in paragraph (a) of this section if you certify without using ABT for that pollutant; or the FEL for that pollutant if you certify using ABT.
- M = The NTE multiplier for that pollutant, as defined in paragraphs (c) through (e) of this section.

(c) For engines equipped with a catalyst, use NTE multipliers from the following table across the applicable zone specified in §1045.515:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Subzone 1</th>
<th>Subzone 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC+NOx</td>
<td>1.50</td>
<td>1.00</td>
</tr>
<tr>
<td>CO</td>
<td>N/A</td>
<td>1.00</td>
</tr>
</tbody>
</table>

(d) For two-stroke engines not equipped with a catalyst, use an NTE multiplier of 1.2 for HC+NOx and CO. Compare the weighted value specified in §1045.515(c)(5) to the NTE standards specified in paragraph (b) of this section.

(e) For engines not covered by paragraphs (c) and (d) of this section, use the NTE multipliers from the following table across the applicable zone specified in §1045.515:

<table>
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<tr>
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<th>Subzone 1</th>
<th>Subzone 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC+NOx</td>
<td>1.40</td>
<td>1.60</td>
</tr>
<tr>
<td>CO</td>
<td>1.50</td>
<td>1.50</td>
</tr>
</tbody>
</table>

§ 1045.107 What are the not-to-exceed emission standards?

Not-to-exceed emission standards apply as follows:

(a) Measure emissions using the not-to-exceed procedures in subpart F of this part:

(b) Determine the not-to-exceed standard, rounded to the same number of decimal places as the emission standard in Table 1 to this section from the following equation:

\[
\text{Not-to-exceed standard} = (\text{STD}) \times (M)
\]

Where:

- STD = The standard specified in paragraph (a) of this section if you certify without using ABT for that pollutant; or the FEL for that pollutant if you certify using ABT.
- M = The NTE multiplier for that pollutant, as defined in paragraphs (c) through (e) of this section.

(c) For engines equipped with a catalyst, use NTE multipliers from the following table across the applicable zone specified in §1045.515:

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(d) For two-stroke engines not equipped with a catalyst, use an NTE multiplier of 1.2 for HC+NOx and CO. Compare the weighted value specified in §1045.515(c)(5) to the NTE standards specified in paragraph (b) of this section.

(e) For engines not covered by paragraphs (c) and (d) of this section, use the NTE multipliers from the following table across the applicable zone specified in §1045.515:
§ 1045.112 What are the standards for evaporative emissions?

Fuel systems must meet the evaporative emission requirements of 40 CFR part 1060 as specified in this section. These standards apply over a useful life period of five years for personal watercraft and ten years for all other vessels and for portable marine fuel tanks.

(a) Fuel line permeation. Nonmetal fuel lines must meet the permeation requirements specified in 40 CFR 1060.102 for EPA NRFL fuel lines as described in this section.

(1) Except as specified in paragraphs (a)(2) and (3) of this section, the emission standard for fuel lines starts for vessels or portable marine fuel tanks with a date of manufacture on or after January 1, 2009.

(2) The emission standard for primer bulbs applies starting January 1, 2011.

(3) The emission standard for under-cowl fuel lines used with outboard engines apply over a phase-in period as specified in this paragraph (a)(3).

(i) Except as specified in paragraph (a)(3)(ii) of this section, the phase-in period is based on total length of fuel lines as specified in Table 1 to this section. For example, at least 30 percent of the length of under-cowl fuel lines used on your full lineup of 2010 model year outboard engines must meet the specified permeation standards. See §1045.145(k) for administrative requirements related to this phase-in.