§ 92.125 Pre-test procedures and pre-conditioning.

(a) Locomotive testing. (1) Determine engine lubricating oil and coolant levels and fill as necessary to manufacturers recommended full levels.

(2) Connect fuel supply system and purge as necessary; determine that the fuel to be used during emission testing is in compliance with the specifications of §92.113.

(3) Install instrumentation, engine loading equipment and sampling equipment as required.

(4) Operate the engine until it has reached the specified operating temperature.

(b) Engine testing. (1) Determine engine lubricating oil level and fill as necessary to manufacturers recommended full level.

(2)(i) Connect fuel supply system and purge as necessary; determine that the fuel to be used during emission testing is in compliance with the specifications of §92.113.

(ii) Connect engine cooling system.

(3) Install instrumentation, and sampling equipment as required. Couple the engine to the dynamometer or locomotive alternator/generator.

(4) Start cooling system.

(5) Operate the engine until it has reached the specified operating temperature.

(6) Establish that the temperature of intake air entering the engine after compression and cooling in the charge air cooler(s), at each test point, is within ±5 °F of the temperatures which occur in locomotive operations at the ambient temperature represented by the test.

(c) Both locomotive and engine testing. (1) Allow a minimum of 30 minutes warm-up in the stand-by or operating mode prior to spanning the analyzers.

(2) Replace or clean filter elements (sampling and analytical systems) as necessary, and then vacuum leak check the system, §92.118. A pressure leak check is also permitted per §92.118. Allow the heated sample line, filters, and pumps to reach operating temperature.

(3) Perform the following system checks:

(i) If a stainless steel NO₂ to NO converter is used, purge the converter with air (zero-grade air, room air, or O₂) for a minimum of 30 minutes. The converter must be at operational temperature while purging.

(ii) Check the sample system temperatures (see §92.114).

(iii) Check the system response time (see §92.118). System response time

<table>
<thead>
<tr>
<th>Mode No.</th>
<th>Notch setting</th>
<th>Time in notch</th>
<th>Emissions measured</th>
<th>Power and fuel consumption measured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warmup</td>
<td>Notch 8</td>
<td>5 ±1 min</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Warmup</td>
<td>Lowest Idle</td>
<td>15 min maximum</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>1a</td>
<td>Low idle</td>
<td>6 min minimum</td>
<td>All</td>
<td>Both</td>
</tr>
<tr>
<td>1</td>
<td>Normal Idle</td>
<td>6 min minimum</td>
<td>All</td>
<td>Both</td>
</tr>
<tr>
<td>2</td>
<td>Dynamic Brake</td>
<td>6 min minimum</td>
<td>All</td>
<td>Both</td>
</tr>
<tr>
<td>3</td>
<td>Notch 1</td>
<td>6 min minimum</td>
<td>All</td>
<td>Both</td>
</tr>
<tr>
<td>4</td>
<td>Notch 2</td>
<td>6 min minimum</td>
<td>All</td>
<td>Both</td>
</tr>
<tr>
<td>5</td>
<td>Notch 3</td>
<td>6 min minimum</td>
<td>All</td>
<td>Both</td>
</tr>
<tr>
<td>6</td>
<td>Notch 4</td>
<td>6 min minimum</td>
<td>All</td>
<td>Both</td>
</tr>
<tr>
<td>7</td>
<td>Notch 5</td>
<td>6 min minimum</td>
<td>All</td>
<td>Both</td>
</tr>
<tr>
<td>8</td>
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<tr>
<td>9</td>
<td>Notch 7</td>
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<td>Both</td>
</tr>
<tr>
<td>10</td>
<td>Notch 8</td>
<td>15 min minimum</td>
<td>All</td>
<td>Both</td>
</tr>
</tbody>
</table>

Omit if not so equipped.

The EPA test sequence for locomotives and locomotive engines may be performed once, with gaseous, particulate and smoke measurements performed simultaneously, or it may be performed twice with gaseous, and particulate measurements performed during one test sequence and smoke measurements performed during the other test sequence. The minimum time in notch is three minutes for test sequences in which only smoke is measured.

[63 FR 18998, Apr. 16, 1998, as amended at 70 FR 40454, July 13, 2005]
§ 92.126 Test run.

(a) The following steps shall be taken for each test:

1. Prepare the locomotive, engine, dynamometer, (as applicable) and sampling system for the test. Change filters, etc. and leak check as necessary.
2. Connect sampling equipment as appropriate for the sampling procedure employed; i.e. raw or dilute (evacuated sample collection bags, particulate, and raw exhaust sampling equipment, particulate sample filters, fuel flow measurement equipment, etc.).
3. Start the particulate dilution tunnel, the sample pumps, the engine cooling fan(s) (engine dynamometer testing) and the data collection and sampling systems (except particulate sample collection). The heated components of any continuous sampling systems(s) (if applicable) shall be preheated to their designated operating temperatures before the test begins.
4. Adjust the sample flow rates to the desired flow rates and set gas flow measuring devices to zero (particulate dilution tunnel).
5. Read and record all required general and pre-test data (i.e., all required data other than data that can only be collected during or after the emission test).
6. Warm-up the locomotive or locomotive engines according to normal warm-up procedures.
7. Begin the EPA Test Sequence for Locomotives and Locomotive Engines (see §92.124). Record all required general and test data throughout the duration of the test sequence.
   (i) Mark the start of the EPA Test Sequence for Locomotives and Locomotive Engines on all data records.
   (ii) Begin emission measurement after completing the warmup phase of the EPA Test Sequence for Locomotives and Locomotive Engines, as specified in paragraph (b) of this section. Mark the start and end of each mode on all data records.
   (iii) A mode shall be voided where the requirements of this subpart that apply to that test mode are not met. This includes the following:
      (A) The data acquisition is terminated prematurely; or
      (B) For engine testing, the engine speed or power output exceeds the tolerance bands established for that mode; or
      (C) Measured concentrations exceed the range of the instrument; or
      (D) The test equipment malfunctions.