

(ix) Wind speed throughout the period of driving;

(x) Track surface temperatures throughout the period of driving cycle ( $T_{sur}$ );

(xi) Percent cloud cover during the period of driving; and

(xii) Ambient temperature, wind speed, and percent cloud cover reported by the nearest weather station for the time corresponding most closely to the period of driving.

(6) *Fuel tank pressure.* Tank pressure shall not exceed 10 inches of water at any time during the temperature profile determination unless a pressurized system is used and the manufacturer demonstrates that vapor would not be vented to the atmosphere upon fuel cap removal.

(7) *Calculation of temperature profiles.*

(i) The traces from the driving schedule shall be verified to meet the speed tolerance requirements of § 86.115. The following conditions shall be verified:

(A)  $T_{amb, i} \geq T_{amb, o} - 2 \text{ }^\circ\text{F}$ .

Where,

(1)  $i$ =instantaneous measurement throughout the drive; and

(2)  $o$ =initial measurement at the start of the specified driving schedule.

(B)  $T_{amb, o} \geq 95 \text{ }^\circ\text{F}$ .

(C)  $T_{sur, i} - T_{amb, i} \geq 30 \text{ }^\circ\text{F}$ .

(D)  $W_{max} \leq 15 \text{ mph}$ .

(ii) Failure to comply with any of these requirements shall result in invalidation of the data and require that the procedure be repeated, beginning with the fuel drain at paragraph (d)(4)(i) of this section.

(iii) If all these requirements are met, the following calculations shall be performed to determine a profile for liquid fuel temperatures and, if applicable, for vapor temperatures:

$T_{i, profile} = T_i - T_o$ .

Where:

(A)  $T_{i, profile}$  = the series of temperatures that comprise the relative temperature profile.

(B)  $T_i$  = the series of observed liquid fuel or vapor temperatures during the drive.

(C)  $T_o$  = the liquid fuel or vapor temperature observed at the start of the specified driving schedule.

(iv) The relative temperature profile consists of the set of temperatures at each 1-minute interval. If temperatures

are sampled more frequently than once per minute, the temperature data points may represent a rolling average of temperatures sampled for up to one-minute intervals. If multiple valid test runs are conducted for any model, then all the collected data shall be used to calculate a composite profile, based on the average temperatures at each point. The absolute temperature profile is determined by adding 95 °F (35 °C) to each point of the relative profile. Other methodologies for developing corrected liquid fuel and vapor space temperature profiles may be used if demonstrated to yield equivalent results and approved in advance by the Administrator.

(v) Manufacturers may use a lower initial fuel temperature for the running loss test, if approved in advance by the Administrator. To demonstrate the need for such an adjustment, manufacturers would be expected to determine the maximum fuel temperature experienced by a vehicle during an extended park or after driving one UDDS cycle when exposed to the ambient conditions described in paragraph (d)(3) of this section. To use this provision, manufacturers would have to show maximum fuel temperatures no greater than 92 °F.

[56 FR 25775, June 5, 1991, as amended at 58 FR 16033, Mar. 24, 1993; 59 FR 39649, Aug. 3, 1994; 60 FR 43891, Aug. 23, 1995; 65 FR 59956, Oct. 6, 2000]

**§ 86.130-96 Test sequence; general requirements.**

Paragraphs (a) through (d) of this section are applicable to vehicles tested for the FTP test. Paragraph (e) of this section is applicable to vehicles tested for the SFTP supplemental tests of air conditioning (SC03) and aggressive driving (US06). Paragraph (f) of this section is applicable to all emission testing.

(a)(1) *Gasoline- and methanol-fueled vehicles.* The test sequence shown in figure B96-10 shows the steps encountered as the test vehicle undergoes the procedures subsequently described to determine conformity with the standards set forth. The full three-diurnal sequence depicted in figure B96-10 tests vehicles for all sources of evaporative

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emissions. The supplemental two-diurnal test sequence is designed to verify that vehicles sufficiently purge their evaporative canisters during the exhaust emission test. Sections 86.132-96, 86.133-96 and 86.138-96 describe the separate specifications of the supplemental two-diurnal test sequence.

(2) *Gaseous-fueled vehicles.* The test sequence shown in figure B96-10 shows the steps encountered as the test vehicle undergoes the procedures subsequently described to determine conformity with the standards set forth, with the exception that the fuel drain and fill and precondition canister steps are not required for gaseous-fueled vehicles. In addition, the supplemental two-diurnal test and the running loss test are not required.

(b) The vehicle test for fuel spitback during fuel dispensing is conducted as a stand-alone test (see § 86.146). This test is not required for gaseous-fueled vehicles.

(c) Ambient temperature levels encountered by the test vehicle shall be not less than 68 °F nor more than 86 °F, unless otherwise specified. If a different ambient temperature is specified for soaking the vehicle, the soak period may be interrupted once for up to 10 minutes to transport the vehicle from one soak area to another, provided the ambient temperature experienced by the vehicle is never below 68 °F. The temperatures monitored during testing must be representative of those experienced by the test vehicle.

(d) The vehicle shall be approximately level during all phases of the test sequence to prevent abnormal fuel distribution.

(e) The supplemental tests for exhaust emissions related to aggressive driving (US06) and air conditioning (SC03) use are conducted as stand-alone tests as described in §§ 86.158 through 86.160. These tests may be performed in any sequence that maintains the appropriate preconditioning requirements as specified in § 86.132.

(f) If tests are invalidated after collection of emission data from previous test segments, the test may be repeated to collect only those data points needed to complete emission measurements. Compliance with emission standards may be determined by com-

paring emission measurements from different test runs. If any emission measurements are repeated, the new measurements supersede previous values.

[58 FR 16034, Mar. 24, 1993, as amended at 59 FR 48509, Sept. 21, 1994; 60 FR 43893, Aug. 23, 1995; 79 FR 23696, Apr. 28, 2014]

### § 86.131-96 Vehicle preparation.

(a) For gasoline- and methanol-fueled vehicles prepare the fuel tank(s) for recording the temperature of the prescribed test fuel, as described in § 86.107-96(e).

(b) Provide additional fittings and adapters, as required, to accommodate a fuel drain at the lowest point possible in the tank(s) as installed on the vehicle.

(c) For preconditioning that involves loading the evaporative emission canister(s) with butane, provide valving or other means as necessary to allow purging and loading of the canister(s).

(d) For vehicles to be tested for running loss emissions, prepare the fuel tank(s) for measuring and recording the temperature and pressure of the fuel tank as specified in § 86.107-96 (e) and (f). Measurement of vapor temperature is optional during the running loss test. If vapor temperature is not measured, fuel tank pressure need not be measured.

(e) For vehicles to be tested for running loss emissions, prepare the exhaust system by sealing or plugging all detectable sources of exhaust gas leaks. The exhaust system shall be tested or inspected to ensure that detectable exhaust hydrocarbons are not emitted into the running loss enclosure during the running loss test.

(f) For vehicles to be tested for aggressive driving emissions (US06), provide a throttle position sensing signal that is compatible with the test dynamometer. This signal provides the input information that controls dynamometer dynamic inertia weight adjustments (see §§ 86.108-00(b)(2)(ii) and 86.129-00(f)(2)). If a manufacturer chooses not to implement dynamic inertia adjustments for a portion or all of their product line, this requirement is not applicable.