

electric vehicle operating without the use of its auxiliary power unit. For hybrid electric vehicles, the manufacturer may elect to conduct the All-Electric Range Test prior to vehicle preconditioning in the exhaust and evaporative emission test sequence specified in subpart B of this part.

(1) *Cold soak.* The vehicle shall be stored at an ambient temperature not less than 68 °F (20 °C) and not more than 86 °F (30 °C) for 12 to 36 hours. During this time, the vehicle's battery shall be charged to a full state-of-charge.

(2) *Driving schedule—(i) Determination of All-Electric Range—Highway.* At the end of the cold soak period, the vehicle shall be placed, either driven or pushed, onto a dynamometer and operated through an Urban Dynamometer Driving Schedule, found in 40 CFR part 86, Appendix I, until the vehicle is no longer able to maintain within 5 miles per hour of the speed requirements or within 2 seconds of the time requirements of the driving schedule. For hybrid electric vehicles, this determination shall be performed without the use of the auxiliary power unit.

(ii) *Determination of All-Electric Range—Urban.* At the end of the cold soak period, the vehicle shall be placed, either driven or pushed, onto a dynamometer and operated through a Highway Fuel Economy Driving Schedule, found in 40 CFR part 600, Appendix I, until the vehicle is no longer able to maintain within 5 miles per hour of the speed requirements or within 2 seconds of the time requirements of the driving schedule. For hybrid electric vehicles, this determination shall be performed without the use of the auxiliary power unit.

(3) *Recording requirements.* Once the vehicle is no longer able to maintain the speed and time requirements specified in paragraph (a)(2) of this section, or once the auxiliary power unit turns on, in the case of a hybrid electric vehicle, the accumulated mileage and energy usage of the vehicle from the point where electricity is introduced from the electrical outlet shall be recorded, and the vehicle shall be brought to an immediate stop, thereby concluding the All-Electric Range Test.

(4) *Regenerative braking.* Regenerative braking systems may be utilized during the range test. The braking level, if adjustable, shall be set according to the manufacturer's specifications prior to the commencement of the test. The driving schedule speed and time tolerances specified in paragraph (a)(2) of this section shall not be exceeded due to the operation of the regenerative braking system.

(b) [Reserved]

[62 FR 31242, June 6, 1997. Redesignated and amended at 63 FR 987, Jan. 7, 1998]

**§ 86.1771-99 Fuel specifications.**

(a) The provisions of § 86.113 apply to this subpart, with the following exceptions and additions.

(1) For light-duty vehicles and light-duty trucks, gasoline having the specifications listed below may be used in exhaust emission testing as an option to the specifications in § 86.113(a)(1). If a manufacturer elects to utilize this option, exhaust emission testing shall be conducted by the manufacturer with gasoline having the specifications listed in the table in this paragraph (a)(1), and the Administrator shall conduct exhaust emission testing with gasoline having the specifications listed in the table in this paragraph (a)(1). Specifications for non-gasoline fuels and all fuel property test methods are contained in Chapter 4 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996). These requirements are incorporated by reference (see § 86.1). The table follows:

Fuel property	Limit
Octane, (R+M)/2 (min) .....	91.
Sensitivity (min) .....	7.5.
Lead, g/gal (max) (No lead added) .....	0-0.01
Distillation Range, °F .....	
10 pct. point, .....	130-150.
50 pct. point, .....	200-210.
90 pct. point, .....	290-300.
EP, maximum .....	390.
Residue, vol % (max) .....	2.0.
Sulfur, ppm by wt. ....	30-40.
Phosphorous, g/gal (max) ....	0.005.
RVP, psi .....	6.7-7.0.
Olefins, vol % .....	4.0-6.0.
Total Aromatic Hydrocarbons (vol %) .....	22-25.
Benzene, vol % .....	0.8-1.0.
Multi-Substituted Alkyl Aromatic Hydrocarbons, vol % .....	12-14.
MTBE, vol % .....	10.8-11.2.

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Fuel property	Limit
Additives .....	See Chapter 4 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996). These procedures are incorporated by reference (see § 86.1).
Copper Corrosion .....	No. 1.
Gum, Washed, mg/100 ml (max).	3.0.
Oxidation Stability, minutes (min).	1,000.
Specific Gravity .....	No limit; report to purchaser required.
Heat of Combustion .....	No limit; report to purchaser required.
Carbon, wt % .....	No limit; report to purchaser required.
Hydrogen, wt % .....	No limit; report to purchaser required.

- (2) [Reserved]
- (b) [Reserved]

[62 FR 31242, June 6, 1997. Redesignated at 63 FR 987, Jan. 7, 1998]

**§ 86.1772-99 Road load power, test weight, and inertia weight class determination.**

(a) The provisions of § 86.129 apply to this subpart.

(b) The following requirements shall also apply to this subpart:

(1) For electric and hybrid electric vehicle lines where it is expected that more than 33 percent of a vehicle line will be equipped with air conditioning, per § 86.096-24(g)(2) or § 86.1832-01(a) as applicable, that derives power from the battery pack, the road load shall be increased by the incremental horsepower required to operate the air conditioning unit. The incremental increase shall be determined by recording the difference in energy required for a hybrid electric vehicle under all-electric power to complete the running loss test fuel tank temperature profile test sequence without air conditioning and the same vehicle tested over the running loss test fuel tank temperature profile test sequence with the air conditioning set to the "NORMAL" air conditioning mode and adjusted to the minimum discharge air temperature and high fan speed over the time period needed to perform the test sequence, and converting this value into units of horsepower. Vehicles equipped with automatic temperature controlled air conditioning systems shall be operated

in "AUTOMATIC" temperature and fan modes with the system set at 72 deg. F. The running loss test fuel tank temperature profile test sequence is found in § 86.129(d).

- (2) [Reserved]

[62 FR 31242, June 6, 1997. Redesignated at 63 FR 987, Jan. 7, 1998, as amended at 64 FR 23924, May 4, 1999]

**§ 86.1773-99 Test sequence; general requirements.**

(a) The provisions of § 86.130 apply to this subpart.

(b) The following additional requirements shall also apply to this subpart:

(1) For purposes of determining conformity with 50 °F test requirements, the procedures set forth in paragraph (c) of this section shall apply. For all hybrid electric vehicles and all 1995 and subsequent model-year vehicles certifying to running loss and useful life evaporative emission standards, the test sequence specified in subpart B of this part shall apply.

- (2) [Reserved]

(c)(1) Following a 12 to 36 hour cold soak at a nominal temperature of 50 °F, emissions of CO and NO<sub>x</sub> measured on the Federal Test Procedure (subpart B of this part), conducted at a nominal test temperature of 50 °F, shall not exceed the standards for vehicles of the same emission category and vehicle type subject to a cold soak and emission test at 68 to 86 °F. For all TLEVs, emissions of NMOG and formaldehyde at 50 °F shall not exceed the 50,000 mile certification standard multiplied by a factor of 2.0. For all LEVs, emissions of NMOG and formaldehyde at 50 °F shall not exceed the 50,000 mile certification standard multiplied by a factor of 2.0. For all ULEVs, emissions of NMOG and formaldehyde at 50 °F shall not exceed the 50,000 mile certification standard multiplied by a factor of 2.0. Emissions of NMOG shall be multiplied by a reactivity adjustment factor, if any, prior to comparing with the 50,000 certification standard multiplied by the specified factor. The test vehicles shall not be subject to a diurnal heat build prior to the cold start exhaust test or evaporative emission testing.

(i) For the 50 °F emission test, the nominal preconditioning, soak, and test temperatures shall be maintained