

State of California
AIR RESOURCES BOARD

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Resolution 80-53

Resources Agency of California

August 28, 1980

WHEREAS, Section 39601 of the Health and Safety Code authorizes the Air Resources Board to adopt standards, rules, and regulations necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law; and

WHEREAS, Section 43000(e) of the Health and Safety Code states that emission standards applied to new motor vehicles are standards with which all new motor vehicles shall comply; and

WHEREAS, Sections 43101 and 43104 of the Health and Safety Code authorize the Board to adopt vehicle emission standards and test procedures in order to control or eliminate air pollution caused by motor vehicles; and

WHEREAS, manufacturers of diesel-fueled passenger cars have petitioned the Board to consider amending the 100,000 mile 1.0 gram per mile oxides of nitrogen (NOx) standard for 1982 based upon their asserted lack of technological capability to meet the standard; and

WHEREAS, the Board finds that the strictest control of NOx emissions that is technologically feasible is necessary to protect public health and to achieve state and federal ambient air quality standards; and

WHEREAS, the Board finds that there are technological problems associated with diesel passenger cars meeting a NOx standard of 1.0 gram per mile in model year 1982, which problems are different for naturally aspirated and turbocharged diesel passenger cars; and

WHEREAS, the Board finds that in model year 1982, a NOx emission standard of 1.2 grams per mile for a useful vehicle life of 50,000 miles is technologically feasible for naturally aspirated diesel passenger cars, and a NOx standard of 1.5 grams per mile for a useful vehicle life of 100,000 miles is technologically feasible for turbocharged diesel passenger cars; and

WHEREAS, the Board confirms its previous finding that in model year 1983, a NOx emission standard of 1.0 gram per mile for a useful vehicle life of 100,000 miles is technologically feasible for all light-duty diesel vehicles; and

WHEREAS, the California Environmental Quality Act and Board regulations require that no project having adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available; and

WHEREAS, the Board finds that an available measure to mitigate the air quality impacts of adopting NOx standards listed above is to eliminate the current hydrocarbon correction factor found in 13 California Administrative Code Section 1960.1(a); and

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with the provisions of the Administrative Procedure Act dealing with the agency adoption of emergency regulations;

NOW, THEREFORE, BE IT RESOLVED, that the Board hereby amends Section 1960.1, Title 13, California Administrative Code, as set forth in Attachment A hereto.

BE IT FURTHER RESOLVED, that the Board hereby amends the "California Exhaust Emission Standards and Test Procedures for 1981 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles" as set forth in Attachment B hereto.

BE IT FURTHER RESOLVED, that the Board hereby determines that the exhaust emission standards and test procedures adopted herein are, considered together with other vehicle emissions standards and test procedures found in Title 13 and adopted by the Board in Resolution 80-56, in the aggregate, at least as protective of public health and welfare as applicable federal standards.

I certify that the above is a true and correct copy of Resolution 80-53 as adopted by the Air Resources Board.


Board Secretary

EXHAUST EMISSION STANDARDS
(grams per mile)

Model- Year	Vehicle Type (1)	Equivalent Inertia Weight (lbs.) (2)	Non-Methane Hydrocarbons (3)	Carbon Monoxide	Oxides of Nitrogen (NO ₂) (5)
1981	PC	A11	(0.41)	3.4	1.0
	PC(4)	A11	0.39 (0.41)	7.0	0.7
	LDT,MDV	0-3999	0.39 (0.41)	9.0	1.0
	LDT,MDV	4000-5999	0.50 (0.50)	9.0	1.5
	MDV	6000 & larger	0.60 (0.60)	9.0	2.0
1982	PC	A11	0.39 (0.41)	7.0	0.4
	PC(4)	A11	0.39 (0.41)	7.0	0.7
	PC(7)	A11	0.39 (0.41)	7.0	1.2
	LDT,MDV	0-3999	0.39 (0.41)	9.0	1.0
	LDT,MDV	4000-5999	0.50 (0.50)	9.0	1.5
	MDV	6000 & larger	0.60 (0.60)	9.0	2.0
1983 & Subsequent	PC	A11	0.39 (0.41)	7.0	0.4
	LDT,MDV	0-3999	0.39 (0.41)	9.0	0.4
	LDT,MDV	4000-5999	0.50 (0.50)	9.0	1.0
	MDV	6000 & larger	0.60 (0.60)	9.0	1.5

100,000 MILE EXHAUST EMISSION STANDARDS
(grams per mile)

Model- Year	Vehicle Type (1)	Equivalent Inertia Weight (lbs.) (2)	Non-Methane Hydrocarbons (3) (6)	Carbon Monoxide	Oxides of Nitrogen (NO ₂) (5)
1981	PC (Option 1)	A11	0.39 (6)	3.4	1.5
	PC (Option 2)	A11	0.46 (6)	4.0	1.5
	LDT,MDV (Option 1)	0-3999	0.39 (0.41) (6)	9.0	1.5
	LDT,MDV (Option 2)	0-3999	0.46 (6)	10.6	1.5
	LDT,MDV	4000-5999	0.50 (0.50) (6)	9.0	2.0
	MDV	6000 & larger	0.60 (0.60) (6)	9.0	2.3
	1982	PC (Option 1)	A11	(0.41)	7.0
PC (Option 2)		A11	0.46	8.3	1.0 (8)
LDT, MDV (Option 1)		0-3999	0.39 (0.41)	9.0	1.5
LDT, MDV (Option 2)		0-3999	0.46	10.6	1.5
LDT,MDV		4000-5999	0.50 (0.50)	9.0	2.0
MDV		6000 & larger	0.60 (0.60)	9.0	2.3
1983 & Subse- quent		PC	A11	0.39 (0.41)	7.0
	PC	A11	0.46	8.3	1.0
	LDT,MDV (Option 1)	0-3999	0.39 (0.41)	9.0	1.0
	LDT,MDV (Option 2)	0-3999	0.46	10.6	1.0
	LDT,MDV	4000-5999	0.50 (0.50)	9.0	1.5
	MDV	6000 & larger	0.60 (0.60)	9.0	2.0

- (1) "PC" means passenger cars.
"LDT" means light-duty trucks.
"MDV" means medium-duty vehicles.
- (2) Equivalent inertia weights are determined under subparagraph 40 CFR 86.129-79(a)
- (3) Hydrocarbon standards in parentheses apply to total hydrocarbons.
- (4) The second set of passenger car standards is optional. A manufacturer must select either the primary or optional sets of standards for its full product line for the entire two-year period.
- (5) The maximum projected emissions of oxides of nitrogen measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600, Subpart B) shall be not greater than 1.33 times the applicable passenger car standards and 2.00 times the applicable passenger car standards and 2.00 times the applicable light-duty truck and medium-duty vehicle standards shown in the table. Both the projected emissions and the HWFET standard shall be rounded to the nearest 0.1 gm/mi before being compared.
- (6) For vehicles from evaporative emissions families with projected 50,000 mile evaporative emissions values below 1.0 gm/test, an adjustment to the hydrocarbon exhaust emission standards may be granted by the Executive Officer. The adjusted standard will be calculated using the following formula:

$$HC_{ex} = .75 (.185 - [(Di+3.3 Hs) \div (29.4)]) + HC_o$$

Where:

HC_{ex} = adjusted exhaust hydrocarbon standard

HC_o = unadjusted exhaust hydrocarbon standard

Di = diurnal evaporative emissions

Hs = hot soak evaporative emissions.

- (7) Standards for diesels only
- (8) Oxides of nitrogen standard of 1.5 grams per mile for turbocharged diesels only.

(b) The test procedures for determining compliance with these standards are set forth in "California Exhaust Emission Standards and Test Procedures for 1981 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," adopted by the Air Resources Board on November 23, 1976, as last amended ~~May-24, -1978 and February-9, -1979, and May-22, -1979, August 28, 1980.~~

Attachment B

State of California
AIR RESOURCES BOARD

Note: These procedures are printed in a style to indicate the adopted changes. New text is underlined and deleted portions are noted.

CALIFORNIA EXHAUST EMISSION
STANDARDS AND TEST PROCEDURES
FOR 1981 AND SUBSEQUENT MODEL
PASSENGER CARS, LIGHT-DUTY
TRUCKS, AND MEDIUM-DUTY VEHICLES

Adopted: November 23, 1976
Adopted: December 14, 1976
Amended: May 26, 1977
Amended: June 8, 1977
Amended: June 22, 1977
Amended: September 20, 1977
Amended: January 15, 1978
Amended: March 1, 1978
Amended: April 10, 1978
Amended: May 24, 1978
Amended: February 9, 1979
Amended: May 22, 1979
Amended: March 5, 1980
Amended: March 26, 1980
Amended: August 27, 1980
Amended: August 28, 1980

CALIFORNIA EXHAUST EMISSION
STANDARDS AND TEST PROCEDURES
FOR 1981 AND SUBSEQUENT
MODEL PASSENGER CARS, LIGHT-DUTY TRUCKS
AND MEDIUM-DUTY VEHICLES

The provisions of Subparts A and B, Part 86, Title 40, Code of Federal Regulations, as they existed on April 15, 1978, are hereby adopted as the California Exhaust Emission Standards and Test Procedures for 1981 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles, with the following exceptions and additions:

1. Applicability

- a. These test procedures are applicable to 1981 and subsequent model passenger cars, light-duty trucks and medium-duty vehicles, except motorcycles. References to "light-duty trucks" in 40 CFR 86 shall apply both to "light-duty trucks" and "medium-duty vehicles" in these procedures.
- b. Any reference to vehicle sales throughout the United States shall mean vehicle sales in California.
- c. Regulations concerning EPA hearings, EPA inspections, specific language on the Certificate of Conformity, evaporative emissions, high-altitude vehicles and testing, and heavy-duty engines and vehicles shall not be applicable to these procedures, except where specifically noted.

2. Definitions

- a. "Administrator" means the Executive Officer of the Air Resources Board.
- b. "Certificate of Conformity" means Executive Order certifying vehicles for sale in California.
- c. "Certification" means certification as defined in Section 39018 of the Health and Safety Code.
- d. "Passenger car" means any motor vehicle designed primarily for transportation of persons and having a capacity of twelve persons or less.

- e. "Heavy-duty engine" means an engine which is used to propel a heavy-duty vehicle.
- f. "Heavy-duty vehicle" means any motor vehicle having a manufacturer's gross vehicle weight rating greater than 6,000 pounds, except passenger cars.
- g. "Light-duty truck" means any motor vehicle, rated at 6,000 pounds gross vehicle weight or less, which is designed primarily for purposes of transportation of property or is a derivative of such a vehicle, or is available with special features enabling off-street or off-highway operation and use.
- h. "Medium-duty vehicle" means any heavy-duty vehicle having a manufacturer's gross vehicle weight rating of 8500 pounds or less.

3. Test Procedures

- a. In order to demonstrate compliance with a non-methane hydrocarbon emission standard, hydrocarbon emissions shall be measured in accordance with the "California Non-Methane Hydrocarbon Test Procedures."
- b. Durability data submitted pursuant to subparagraph 86.078-23(f) may be from vehicles previously certified by EPA or ARB.
- c. The requirements in subparagraph 86.078-28(a)(4)(i)(B) (durability vehicles must meet emission standards) refer, for each pollutant, to the highest of either the federal or California emission standards.
- d. In paragraph 86.079-21 (Application for certification), amend subparagraph (b)(5) to read:

(5) A statement of maintenance and procedures consistent with the restrictions imposed under subparagraph 86.078-25(a)(1), necessary to assure that the vehicles (or engines) covered by a certificate of conformity in operation in normal use conform to the regulations, and a description of the program for training of personnel for such maintenance, and the equipment required.

e. In paragraph 86.078-25 (Maintenance):

1. Amend subparagraph (a)(1) to read as follows:

(1) Scheduled maintenance on the engine, emission control system and fuel system of durability vehicles shall, unless otherwise provided pursuant to paragraph (a) (5)(iii), be restricted as set forth in the following provisions.

(i)(A) for gasoline-fueled vehicles, maintenance shall be restricted to the inspection, replacement, cleaning, adjustment and/or service of the following items at intervals no more frequent than indicated:

- (1) Drive belts on engine accessories (tension adjustment only); (30,000 miles).
- (2) Valve lash (15,000 miles).
- (3) Spark plugs (30,000 miles).
- (4) Air filter (30,000 miles).
- (5) Exhaust gas sensor (30,000 miles): Provided that an audible and/or visible signal approved by the Executive Officer alerts the vehicle operator to the need for sensor maintenance at the mileage point.
- (6) Choke (cleaning or lubrication only); (30,000 miles).
- (7) In addition, adjustment of the engine idle speed (curb idle and fast idle), valve lash, and engine bolt torque may be performed once during the first 5,000 miles of scheduled driving, provided the manufacturer makes a satisfactory showing that the maintenance will be performed on vehicles in use.

(B) for diesel-powered vehicles, maintenance shall be restricted to the following items at intervals no more frequent than every 12,500 miles of scheduled driving, provided that no maintenance may be performed after 45,000 miles of scheduled driving:

- (1) Adjust low idle speed.
- (2) Adjust valve lash if required.
- (3) Adjust injector timing.
- (4) Adjust governor.
- (5) Clean and service injector tips.
- (6) Adjust drive belt tension on engine accessories.
- (7) Check engine bolt torque and tighten as required.

(ii) Change of engine and transmission oil, change or service of oil filter and, for diesel-powered vehicles only, change or service of fuel filter and air filter, will be allowed at the mileage intervals specified in the manufacturer's maintenance instructions.

(iii) Maintenance shall be conducted in a manner consistent with service instructions and specifications provided by the manufacturer for use by customer service personnel.

- (2) Delete subparagraph (a)(3) (Service of exhaust gas recirculation system).
- (3) Delete subparagraph (a)(4) (Service of catalytic converter).

f. In paragraph 86.078-38 (Maintenance instructions):

1. Amend subparagraph (a) to read:

(a) The manufacturer shall furnish or cause to be furnished to the purchaser of each new motor vehicle (or motor vehicle engine) subject to the standards prescribed in paragraphs 86.078-8 through 86.078-11 as applicable, written instructions for the maintenance and use of the vehicle (or engine) by the purchaser as may be reasonable and necessary to assure the proper functioning of emission control systems in normal use. Such instructions shall be consistent with and not require maintenance in excess of the restrictions imposed under subparagraph 86.078-25(a)(1), except that the instructions may, subject to approval by the Administrator, require additional maintenance for vehicles operated under extreme conditions. In addition, subject to approval by the Administrator, the instructions may require inspections necessary to insure safe operation of the vehicle in use.

In addition to any maintenance which may be required pursuant to the preceding paragraph, the instructions may also recommend such inspections, maintenance, and repair as may be reasonable and necessary for the proper functioning of the vehicle and its emission control systems. If the instructions recommend maintenance in addition to that which may be required pursuant to the preceding paragraph, they shall distinguish clearly between required and recommended maintenance.

2. Amend subparagraph (c)(1) to read:

(1) Such instructions shall specify the performance of all scheduled maintenance performed by the manufacturer under subparagraph 86.078-25(a)(1).

If the instructions specify recommended maintenance as well as required maintenance, they shall distinguish clearly between the two.

3. Amend subparagraph (d) by adding a new subparagraph (3) to read:

(3) Such instructions shall specify the performance of all scheduled maintenance performed by the manufacturer under subparagraph 86.078-25(a)(1).

If the instructions specify recommended maintenance as well as required maintenance, they shall distinguish clearly between the two.

- g. Amend subparagraph 86.078-39(a) (Submission of maintenance instructions) to read:

(a) The manufacturer shall provide to the Administrator, no later than the time of the submission required by paragraph 86.078-23 a copy of the maintenance instructions which the manufacturer proposes to supply to the ultimate purchaser in accordance with subparagraph 86.078-38(a). The Administrator will review such instructions to determine whether they are consistent with federal requirements, and to determine whether the instructions for required maintenance are consistent with the restrictions imposed under subparagraph 86.078-25(a)(1). The Administrator will notify the manufacturer of his determinations.

4. Standards

The following standards represent the maximum projected exhaust emissions for the useful life of the vehicle.

Model Year	Vehicle Type (a)	Equivalent Inertia Weight (lbs.)(b)	Exhaust Emission Standards (grams per vehicle mile)		
			Non-Methane Hydrocarbons(c)	Carbon Monoxide	Oxides of Nitrogen (NO ₂)(e)
1981	PC	All	(0.41)	3.4	1.0
	PC(d)	All	0.39 (0.41)	7.0	0.7
	PC(g)	All	0.39 (0.41)	7.0	1.5
	LDT, MDV	0-3999	0.39 (0.41)	9.0	1.0
	LDT, MDV(h)	0-3999	0.39 (0.41)	9.0	1.5
	LDT, MDV	4000-5999	0.50 (0.50)	9.0	1.5
	MDV	6000&larger	0.60 (0.60)	9.0	2.0
1982	PC	All	0.39 (0.41)	7.0	0.4
	PC(d)	All	0.39 (0.41)	7.0	0.7
	PC(i)	All	0.39 (0.41)	7.0	1.0
	Diesel PC	All	0.39 (0.41)	7.0	1.2
	LDT, MDV	0-3999	0.39 (0.41)	9.0	1.0
	LDT, MDV	4000-5999	0.50 (0.50)	9.0	1.5
	LDT, MDV(h)	0-3999	0.39 (0.41)	9.0	1.5
	MDV	6000&larger	0.60 (0.60)	9.0	2.0
1983 & Subsequent	PC	All	0.39 (0.41)	7.0	0.4
	LDT, MDV	0-3999	0.39 (0.41)	9.0	0.4
	LDT, MDV	4000-5999	0.50 (0.50)	9.0	1.0
	MDV	6000&larger	0.60 (0.60)	9.0	1.5
1983(i)	PC	All	0.39 (0.41)	7.0	0.7
	LDT, MDV	0-3999	0.39 (0.41)	9.0	1.0 (j)
1984(i)	PC	All	0.39 (0.41)	7.0	0.7
	LDT, MDV	0-3999	0.39 (0.41)	9.0	0.7
1985(i)	LDT, MDV	0-3999	0.39 (0.41)	9.0	0.7

Model Year	Vehicle Type (a)	Equivalent Inertia Weight (lbs.)(b)	100,000 Mile Exhaust Emission Standards (grams per vehicle mile)			
			Non-Methane Hydrocarbons(c){(f)}	Carbon Monoxide	Oxides of Nitrogen NO ₂ (e)	
1981	PC(Option 1)	All	0.39	(f)	3.4	1.5
	PC(Option 2)	All	0.46	(f)	4.0	1.5
	LDT, MDV (Option 1)	0-3999	0.39	(0.41) (f)	9.0	1.5
	LDT, MDV (Option 2)	0-3999	0.46	(f)	10.6	1.5
	LDT, MDV	4000-5999	0.50	(0.50) (f)	9.0	2.0
	MDV	6000+larger	0.60	(0.60) (f)	9.0	2.3
	1982	PC(Option 1)	All		(0.41)	7.0
PC(Option 2)		All	0.46		8.3	1.0 (k)
LDT, MDV (Option 1)		0-3999	0.39	(0.41)	9.0	1.5
LDT, MDV (Option 2)		0-3999	0.46		10.6	1.5
LDT, MDV		4000-5999	0.50	(0.50)	9.0	2.0
MDV		6000&larger	0.60	(0.60)	9.0	2.3
1983 & Subsequent		PC	All	0.39	(0.41)	7.0
	PC	All	0.46		8.3	1.0
	LDT, MDV (Option 1)	0-3999	0.39	(0.41)	9.0	1.0
	LDT, MDV (Option 2)	0-3999	0.46		10.6	1.0
	LDT, MDV	4000-5999	0.50	(0.50)	9.0	1.5
	MDV	6000&larger	0.60	(0.60)	9.0	2.0

(a) "PC" means passenger cars.
 "LDT" means light-duty trucks.
 "MDV" means medium-duty vehicles.

(b) Equivalent inertia weights are determined under subparagraph 86.129-79(a).

(c) Hydrocarbon standards in parentheses apply to total hydrocarbons.

- (d) The second set of passenger car standards is optional. A manufacturer must select either the primary or optional sets of standards for its full product line for the entire two-year period.
- (e) The maximum projected emissions of oxides of nitrogen measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600, Subparagraph B) shall be no greater than 1.33 times the applicable passenger car standards and 2.0 times the applicable light-duty truck and medium-duty vehicle standards shown in the table. Both the projected emissions and the HWFET standard shall be rounded to the nearest 0.1 gm/mi before being compared.
- (f) For vehicles from evaporative emissions families with projected 50,000 mile evaporative emissions values below 1.0 gm/test, an adjustment to the hydrocarbon exhaust emission standard may be granted by the Executive Officer. The adjusted standard will be calculated using the following formula:

$$HC_{ex} = .75 \left(.185 - \frac{Di+3.3 Hs}{29.4} \right) + HC_o$$

Where:

HC_{ex} = adjusted exhaust hydrocarbon standard

HC_o = unadjusted exhaust hydrocarbon standard

Di = diurnal evaporative emissions

Hs = hot soak evaporative emissions.

- (g) For vehicles certified to special standards authorized by Section 1960.2, Article 2, subchapter 1, Chapter 3, Title 13, California Administrative Code.
- (h) For vehicles certified to special standards authorized by Section 1960.3, Article 2, subchapter 1, Chapter 3, Title 13, California Administrative Code.
- (i) For vehicles certified to special standards authorized by Section 1960.4, Article 2, Subchapter 1, Chapter 3, Title 13, California Administrative Code. Special standards revert to "1983 and subsequent" standards for 1985 and subsequent passenger cars and 1986 and subsequent LDTs and MDVs.
- (j) The Executive Officer may grant limited relief from the 1983 special NOx standard to a manufacturer who exceeds the standard because of unforeseen technical problems.
- (k) Optionally, for turbocharged diesels, the NOx standard is 1.5 grams per mile.

5. Additional Requirement

- a. A statement must be supplied that the production vehicles shall be in all material respects the same as those for which certification is granted.
- b. If a gasoline-fueled vehicle manufacturer requires the use of unleaded fuel, a statement will be required that the engine and transmission combinations for which certification is requested are designed to operate satisfactorily on a gasoline having a research octane number not greater than 91.

- c. Labeling required pursuant to paragraph 86.079-35 and Section 1965, Chapter 3, Title 13 of the California Administrative Code shall conform with the requirements specified in the "California Motor Vehicle Tune-Up Label Specifications."
- d. For gasoline-powered vehicles evidence shall be supplied that the air/fuel metering system or secondary air injection system is capable of providing sufficient oxygen to theoretically allow enough oxidation to attain the CO emission standard at barometric pressures equivalent to those expected at altitudes ranging from sea level to 6,000 feet elevation.
- e. The mechanism for adjusting the idle air/fuel mixture, if any, shall be designed so that either:
 - (i) The mixture adjustment mechanism is not visible, even with the air cleaner removed, and special tools and/or procedures are required to make adjustments; or
 - (ii) in the alternative, the Executive Officer may, upon reasonable notice to the manufacturer, require that a certification test of a vehicle be conducted with the idle air/fuel mixture at any setting which the Executive Officer finds corresponds to settings likely to be encountered in actual use. The Executive Officer, in making this finding, shall consider the difficulty of making adjustments, damage to the carburetor in the event of any effort to make an improper adjustment, and the need to replace parts following the adjustment.

The manufacturer shall submit for approval by the Executive Officer his or her proposed method for compliance with this requirement in his or her preliminary application for certification.

- f. The exhaust emissions shall be measured from all exhaust emission data vehicles tested in accordance with the federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600 Subpart B). The oxides of nitrogen emissions measured during such tests shall be multiplied by the oxides of nitrogen deterioration factor computed in accordance with paragraph 86.078-28, and then rounded and compared with the standard as set forth in paragraph 4 above. All data obtained pursuant to this paragraph shall be reported in accordance with procedures applicable to other exhaust emissions data required pursuant to these procedures.

In the event that one or more of the manufacturer's emission data vehicles fail the HWFET standard listed in paragraph 4, the manufacturer may submit to the Executive Officer engineering data or other evidence showing that the system is capable of complying with the standard. If the Executive Officer finds, on the basis of an engineering evaluation, that the system can comply with the HWFET standard, he or she may accept the information supplied by the manufacturer in lieu of vehicle test data.

- g. The manufacturer shall submit to the Executive Officer a statement that those vehicles for which certification is requested have driveability and performance characteristics which satisfy that manufacturer's customary driveability and performance requirements for vehicles sold in the United States. This statement shall be based on driveability data and other evidence showing compliance with the manufacturer's performance criteria. This statement shall be supplied with the manufacturer's final application for certification, and with all running changes for which emission testing is required.

If the Executive Officer has evidence to show that in-use vehicles demonstrate poor performance that could result in wide-spread tampering with the emission control systems, he or she may request all driveability data and other evidence used by the manufacturer to justify the performance statement.

6. Optional 100,000 Mile Certification Procedure

The alternate emission standards shown in paragraph (4) above shall apply to any engine family which meets all of the following additional requirements:

- a. Each exhaust emission durability data vehicle shall be driven, with all emission control systems installed and operating, for 100,000 miles or such lesser distance as the Executive Officer may agree to as meeting the objectives of this procedure. Compliance with the emission standards shall be established as follows:
 - (i) The linear regression line for all pollutants shall be established by use of all required data from tests of the durability vehicle at every 5,000 mile intervals from 5,000 to 100,000 miles. The requirements in subparagraph 86.078-28(a)(4)(i)(B)(durability vehicles must meet emissions standards) refer, for each pollutant, to the highest of either the federal 50,000 mile or California 100,000 mile emission standards.

(ii) Compliance with the hydrocarbon and carbon monoxide standards shall be determined as follows:

(a) For Option 1:

- (A) the interpolated 4,000 and 50,000 mile points on the linear regression line in (i) shall not exceed the appropriate hydrocarbon and carbon monoxide standards, except as in (B) below.
- (B) the linear regression line in (i) may exceed the standard provided that no data point exceeds the standard.
- (C) the hydrocarbon and carbon monoxide data from the 4,000 mile test point of the emission data vehicle shall be multiplied by the deterioration factor computed by dividing the interpolated 50,000 mile point by the interpolated 4,000 mile point. These values shall not exceed the appropriate hydrocarbon and carbon monoxide standards.

(b) For Option 2:

- (A) the interpolated 4,000 and 100,000 mile points on the linear regression line in (i) shall not exceed the appropriate hydrocarbon and carbon monoxide standards, except as in (B) below.
- (B) the linear regression line in (i) may exceed the standard provided that no data point exceeds the standard.
- (C) the hydrocarbon and carbon monoxide data from the 4,000 mile test point of the emission data vehicle shall be multiplied by the deterioration factor computed by dividing the interpolated 100,000 mile point by the interpolated 4,000 mile point. These values shall not exceed the appropriate 100,000 mile hydrocarbon and carbon monoxide standards.

(iii) Compliance with the oxides of nitrogen standard for Options 1 and 2 shall be determined as follows:

- (a) the interpolated 4,000 and 100,000 mile points on the linear regression line in (i) shall not exceed the appropriate 100,000 mile oxides of nitrogen standard except as in (b) below.
- (b) the linear regression line in (i) may exceed the standard provided that no data point exceeds the standard.
- (c) the oxides of nitrogen data from the 4,000 mile test point of the emission data vehicle shall be multiplied by the deterioration factor computed by dividing the interpolated 100,000 mile point by the interpolated 4,000 mile point. These values shall not exceed the appropriate 100,000 mile oxides of nitrogen standard.

All references in these test procedures to "useful life," 5 years, and 50,000 miles shall mean "total life," 10 years, and 100,000 miles, respectively, except in subparagraph (ii).

b. Only the following scheduled maintenance shall be allowed under subparagraph 86.078.25(a)(1)(i).

25(a)(1)(i)(A) Option 1. For 1981 and later model gasoline or diesel-fueled vehicles, maintenance shall be restricted to the inspection, replacement, cleaning, adjustment, and/or service of the following items at intervals no more frequent than indicated.

- (1) Drive belt tension on engine accessories (30,000 miles).
- (2) Valve lash (15,000 miles).
- (3) Spark plugs (30,000 miles).
- (4) Air filter (30,000 miles).
- (5) Exhaust gas sensor (30,000 miles); Provided that an audible and/or visible signal approved by the Executive Officer alerts the vehicle operator to the need for sensor maintenance.
- (6) Choke, cleaning or lubrication only (30,000 miles).
- (7) Idle speed (30,000 miles).
- (8) Fuel Filter (30,000 miles).
- (9) Injection timing (30,000 miles).

25(a)(1)(i)(B) Option 2. For 1981 and later model gasoline or diesel-fueled vehicles, maintenance shall be restricted to the inspection, replacement, cleaning, adjustment, and/or service of the following items at intervals no more frequent than indicated:

- (1) Drive belt tension on engine accessories (30,000 miles).
- (2) Valve lash (15,000 miles).
- (3) Spark plugs (30,000 miles).
- (4) Air filter (30,000 miles).
- (5) Fuel filter (30,000 miles).
- (6) Idle speed (30,000 miles).
- (7) Injection timing (30,000 miles).

(iii) In addition, adjustment of the engine idle speed (curb idle and fast idle), valve lash, and engine bolt torque may be performed once during the first 5,000 miles of scheduled driving, provided the manufacturer makes a satisfactory showing that the maintenance will be performed on vehicles in use.

c. The manufacturer agrees to apply to vehicles certified under this paragraph the provisions of Section 43204 of the California Health and Safety Code for a period of ten year or 100,000 miles, whichever first occurs.

Memorandum

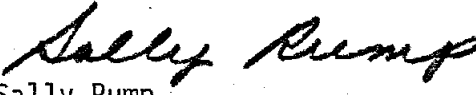
Huey D. Johnson
Secretary
Resources Agency


Date : October 3, 1980

Subject: Filing of Notice of
Decision of the Air
Resources Board

From : **Air Resources Board**

Pursuant to Title 17, Section 60007(b), and in compliance with Air Resources Board certification under section 21080.5 of the Public Resources Code, the Air Resources Board hereby forwards for posting the attached notice of decision and response to environmental comments raised during the comment period.


Sally Rump
BOARD SECRETARY

Attach: 
Resolution 80-54
Resolution 80-56

Final

FINDING OF EMERGENCY

The Air Resources Board finds that an emergency exists and that the adoption of the attached amendments to Board regulations is necessary for the immediate preservation of the general welfare. A statement of the facts concerning this emergency action follows:

1. A hearing to amend Section 1960.1 of Title 13, California Administrative Code and associated test procedures has been held commencing at 10:00 a.m., August 27, 1980, at the State Building, 107 So. Broadway, Los Angeles, California.
2. The amendments to the regulations are adopted under Health and Safety Code Sections 39600 and 39601 to implement Health and Safety Code Sections 43100 and 43101.
3. Under existing regulations, manufacturers of designated diesel vehicles are required to meet a 100,000 mile exhaust emission standard of 1.0 gram per mile for oxides of nitrogen (NOx) for the 1982 model year. As a result of a recent regulatory action by the federal Environmental Protection Agency, they must also meet an emission standard for particulate matter of 0.6 gram per mile. The action taken by the Board incorporates the 0.6 gram per mile particulate standard into Title 13, and relaxes the existing 1982 model year 1.0 gram per mile NOx standard for 100,000 miles to 1.2 grams per mile for 50,000 miles for naturally aspirated diesels and 1.5 grams per mile for 100,000 miles for turbocharged diesels.
4. Immediate action to amend Board regulations to relax the 1982 emission standard for NOx is needed to preserve the general welfare in that some manufacturers of light-duty diesel automobiles are unable to meet the existing California NOx standard of 1.0 gram per mile for a useful vehicle life of 100,000 miles for the 1982 model years. Vehicle certification for the 1982 model year must begin in the fall of 1980 for most manufacturers; it is therefore imperative that they know the exact NOx standards they must meet for the 1982 model year. The failure to consider the 1982 diesel standards, and in particular to modify the 1.0 gram per mile NOx standard, at this time would delay the manufacturer's certification schedules and delay or prevent introduction in California of several engine families of emissions durable diesel engines. Some manufacturers would be unable to market diesels in California in 1982 unless the NOx standard is changed immediately. This would cause substantial economic harm to affected manufacturers, their distributors and dealers in California, and the public in general. Immediate action is also needed to commit California to enforcement of the recently adopted federal standard for control of particulate emissions from diesel vehicles. Increased sales of diesels in California will cause increased emissions of potentially carcinogenic particulate matter. In order to protect public health, California must enforce the federal standard until it can take appropriate action to adopt a California emission standard for these pollutants.

State of California
AIR RESOURCES BOARD

Resolution 80-56

August 28, 1980

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Resources Agency of California

WHEREAS, Section 39601 of the Health and Safety Code authorizes the Air Resources Board to adopt standards, rules and regulations necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law; and

WHEREAS, Section 43000(e) of the Health and Safety Code states that emission standards applied to new motor vehicles are standards with which all new motor vehicles shall comply; and

WHEREAS, Sections 43101 and 43104 of the Health and Safety Code authorize the Board to adopt vehicle emission standards and test procedures in order to control or eliminate air pollution caused by motor vehicles; and

WHEREAS, the federal Environmental Protection Agency (EPA) has adopted particulate emission standards for 1982 and subsequent model year diesel-fueled light-duty vehicles and light-duty trucks, which standards are applicable to vehicles sold in California; and

WHEREAS, the Board finds that control of particulate emissions is necessary to protect the public health and achieve federal and state ambient air quality standards; and

WHEREAS, the Board finds that insufficient information is now available to enable it to establish an independent California emission standard for particulate matter; and

WHEREAS, the California Environmental Quality Act and Board regulations require that no project having adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available; and

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with the provisions of the Administrative Procedure Act dealing with the agency adoption of emergency regulations;

NOW, THEREFORE, BE IT RESOLVED, that the Board amends Section 1960.1, Title 13, California Administrative Code, as set forth in Attachment A hereto.

BE IT FURTHER RESOLVED, that the Board hereby amends the "California Exhaust Emission Standards and Test Procedures for 1981 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles" as set forth in Attachment B hereto.

Attachment B

State of California
AIR RESOURCES BOARD

Note: These procedures are printed in a style to indicate the adopted changes. New text is underlined and deleted portions are noted.

CALIFORNIA EXHAUST EMISSION
STANDARDS AND TEST PROCEDURES
FOR 1981 AND SUBSEQUENT MODEL
PASSENGER CARS, LIGHT-DUTY
TRUCKS, AND MEDIUM-DUTY VEHICLES

Adopted: November 23, 1976
Adopted: December 14, 1976
Amended: May 26, 1977
Amended: June 8, 1977
Amended: June 22, 1977
Amended: September 20, 1977
Amended: January 15, 1978
Amended: March 1, 1978
Amended: April 10, 1978
Amended: May 24, 1978
Amended: February 9, 1979
Amended: May 22, 1979
Amended: March 5, 1980
Amended: March 26, 1980
Amended: August 27, 1980
Amended: August 28, 1980

CALIFORNIA EXHAUST EMISSION
STANDARDS AND TEST PROCEDURES
FOR 1981 AND SUBSEQUENT
MODEL PASSENGER CARS, LIGHT-DUTY TRUCKS
AND MEDIUM-DUTY VEHICLES

The provisions of Subparts A and B, Part 86, Title 40, Code of Federal Regulations, as they existed on April 15, 1978, are hereby adopted as the California Exhaust Emission Standards and Test Procedures for 1981 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles, with the following exceptions and additions:

1. Applicability

- a. These test procedures are applicable to 1981 and subsequent model passenger cars, light-duty trucks and medium-duty vehicles, except motorcycles. References to "light-duty trucks" in 40 CFR 86 shall apply both to "light-duty trucks" and "medium-duty vehicles" in these procedures.
- b. Any reference to vehicle sales throughout the United States shall mean vehicle sales in California.
- c. Regulations concerning EPA hearings, EPA inspections, specific language on the Certificate of Conformity, evaporative emissions, high-altitude vehicles and testing, and heavy-duty engines and vehicles shall not be applicable to these procedures, except where specifically noted.

2. Definitions

- a. "Administrator" means the Executive Officer of the Air Resources Board.
- b. "Certificate of Conformity" means Executive Order certifying vehicles for sale in California.
- c. "Certification" means certification as defined in Section 39018 of the Health and Safety Code.
- d. "Passenger car" means any motor vehicle designed primarily for transportation of persons and having a capacity of twelve persons or less.

- e. "Heavy-duty engine" means an engine which is used to propel a heavy-duty vehicle.
- f. "Heavy-duty vehicle" means any motor vehicle having a manufacturer's gross vehicle weight rating greater than 6,000 pounds, except passenger cars.
- g. "Light-duty truck" means any motor vehicle, rated at 6,000 pounds gross vehicle weight or less, which is designed primarily for purposes of transportation of property or is a derivative of such a vehicle, or is available with special features enabling off-street or off-highway operation and use.
- h. "Medium-duty vehicle" means any heavy-duty vehicle having a manufacturer's gross vehicle weight rating of 8500 pounds or less.

3. Test Procedures

- a. In order to demonstrate compliance with a non-methane hydrocarbon emission standard, hydrocarbon emissions shall be measured in accordance with the "California Non-Methane Hydrocarbon Test Procedures."
- b. Durability data submitted pursuant to subparagraph 86.078-23(f) may be from vehicles previously certified by EPA or ARB.
- c. The requirements in subparagraph 86.078-28(a)(4)(i)(B) (durability vehicles must meet emission standards) refer, for each pollutant, to the highest of either the federal or California emission standards.
- d. In paragraph 86.079-21 (Application for certification), amend subparagraph (b)(5) to read:

(5) A statement of maintenance and procedures consistent with the restrictions imposed under subparagraph 86.078-25(a)(1), necessary to assure that the vehicles (or engines) covered by a certificate of conformity in operation in normal use conform to the regulations, and a description of the program for training of personnel for such maintenance, and the equipment required.

e. In paragraph 86.078-25 (Maintenance):

1. Amend subparagraph (a)(1) to read as follows:

(1) Scheduled maintenance on the engine, emission control system and fuel system of durability vehicles shall, unless otherwise provided pursuant to paragraph (a) (5)(iii), be restricted as set forth in the following provisions.

(i)(A) for gasoline-fueled vehicles, maintenance shall be restricted to the inspection, replacement, cleaning, adjustment and/or service of the following items at intervals no more frequent than indicated:

- (1) Drive belts on engine accessories (tension adjustment only); (30,000 miles).
- (2) Valve lash (15,000 miles).
- (3) Spark plugs (30,000 miles).
- (4) Air filter (30,000 miles).
- (5) Exhaust gas sensor (30,000 miles): Provided that an audible and/or visible signal approved by the Executive Officer alerts the vehicle operator to the need for sensor maintenance at the mileage point.
- (6) Choke (cleaning or lubrication only); (30,000 miles).
- (7) In addition, adjustment of the engine idle speed (curb idle and fast idle), valve lash, and engine bolt torque may be performed once during the first 5,000 miles of scheduled driving, provided the manufacturer makes a satisfactory showing that the maintenance will be performed on vehicles in use.

(B) for diesel-powered vehicles, maintenance shall be restricted to the following items at intervals no more frequent than every 12,500 miles of scheduled driving, provided that no maintenance may be performed after 45,000 miles of scheduled driving:

- (1) Adjust low idle speed.
- (2) Adjust valve lash if required.
- (3) Adjust injector timing.
- (4) Adjust governor.
- (5) Clean and service injector tips.
- (6) Adjust drive belt tension on engine accessories.
- (7) Check engine bolt torque and tighten as required.

(ii) Change of engine and transmission oil, change or service of oil filter and, for diesel-powered vehicles only, change or service of fuel filter and air filter, will be allowed at the mileage intervals specified in the manufacturer's maintenance instructions.

(iii) Maintenance shall be conducted in a manner consistent with service instructions and specifications provided by the manufacturer for use by customer service personnel.

- (2) Delete subparagraph (a)(3) (Service of exhaust gas recirculation system).
- (3) Delete subparagraph (a)(4) (Service of catalytic converter).

f. In paragraph 86.078-38 (Maintenance instructions):

1. Amend subparagraph (a) to read:

(a) The manufacturer shall furnish or cause to be furnished to the purchaser of each new motor vehicle (or motor vehicle engine) subject to the standards prescribed in paragraphs 86.078-8 through 86.078-11 as applicable, written instructions for the maintenance and use of the vehicle (or engine) by the purchaser as may be reasonable and necessary to assure the proper functioning of emission control systems in normal use. Such instructions shall be consistent with and not require maintenance in excess of the restrictions imposed under subparagraph 86.078-25(a)(1), except that the instructions may, subject to approval by the Administrator, require additional maintenance for vehicles operated under extreme conditions. In addition, subject to approval by the Administrator, the instructions may require inspections necessary to insure safe operation of the vehicle in use.

In addition to any maintenance which may be required pursuant to the preceding paragraph, the instructions may also recommend such inspections, maintenance, and repair as may be reasonable and necessary for the proper functioning of the vehicle and its emission control systems. If the instructions recommend maintenance in addition to that which may be required pursuant to the preceding paragraph, they shall distinguish clearly between required and recommended maintenance.

2. Amend subparagraph (c)(1) to read:

(1) Such instructions shall specify the performance of all scheduled maintenance performed by the manufacturer under subparagraph 86.078-25(a)(1).

If the instructions specify recommended maintenance as well as required maintenance, they shall distinguish clearly between the two.

3. Amend subparagraph (d) by adding a new subparagraph (3) to read:

(3) Such instructions shall specify the performance of all scheduled maintenance performed by the manufacturer under subparagraph 86.078-25(a)(1).

If the instructions specify recommended maintenance as well as required maintenance, they shall distinguish clearly between the two.

- g. Amend subparagraph 86.078-39(a) (Submission of maintenance instructions) to read:

(a) The manufacturer shall provide to the Administrator, no later than the time of the submission required by paragraph 86.078-23 a copy of the maintenance instructions which the manufacturer proposes to supply to the ultimate purchaser in accordance with subparagraph 86.078-38(a). The Administrator will review such instructions to determine whether they are consistent with federal requirements, and to determine whether the instructions for required maintenance are consistent with the restrictions imposed under subparagraph 86.078-25(a)(1). The Administrator will notify the manufacturer of his determinations.

4. Standards

The following standards represent the maximum projected exhaust emissions for the useful life of the vehicle.

Model Year	Vehicle Type (a)	Equivalent Inertia		Exhaust Emission Standards (grams per vehicle mile)	
		Weight (lbs.)(b)	Non-Methane Hydrocarbons(c)	Carbon Monoxide	Oxides of Nitrogen (NO ₂)(e)
1981	PC	A11	(0.41)	3.4	1.0
	PC(d)	A11	0.39 (0.41)	7.0	0.7
	PC(g)	A11	0.39 (0.41)	7.0	1.5
	LDT, MDV	0-3999	0.39 (0.41)	9.0	1.0
	LDT,MDV(h)	0-3999	0.39 (0.41)	9.0	1.5
	LDT, MDV	4000-5999	0.50 (0.50)	9.0	1.5
	MDV	6000&larger	0.60 (0.60)	9.0	2.0
1982	PC	A11	0.39 (0.41)	7.0	0.4
	PC(d)	A11	0.39 (0.41)	7.0	0.7
	PC(i)	A11	0.39 (0.41)	7.0	1.0
	Diesel PC	A11	0.39 (0.41)	7.0	1.2
	LDT, MDV	0-3999	0.39 (0.41)	9.0	1.0
	LDT, MDV	4000-5999	0.50 (0.50)	9.0	1.5
	LDT,MDV(h)	0-3999	0.39 (0.41)	9.0	1.5
	MDV	6000&larger	0.60 (0.60)	9.0	2.0
1983 & Subsequent	PC	A11	0.39 (0.41)	7.0	0.4
	LDT, MDV	0-3999	0.39 (0.41)	9.0	0.4
	LDT, MDV	4000-5999	0.50 (0.50)	9.0	1.0
	MDV	6000&larger	0.60 (0.60)	9.0	1.5
1983(i)	PC	A11	0.39 (0.41)	7.0	0.7
	LDT, MDV	0-3999	0.39 (0.41)	9.0	1.0 (j)
1984(i)	PC	A11	0.39 (0.41)	7.0	0.7
	LDT, MDV	0-3999	0.39 (0.41)	9.0	0.7
1985(i)	LDT, MDV	0-3999	0.39 (0.41)	9.0	0.7

Model Year	Vehicle Type (a)	Equivalent Inertia Weight (lbs.)(b)	100,000 Mile Exhaust Emission Standards (grams per vehicle mile)			
			Non-Methane Hydrocarbons(c)	Carbon Monoxide	Oxides of Nitrogen NO ₂ (e)	
1981	PC(Option 1)	All	0.39	(f)	3.4	1.5
	PC(Option 2)	All	0.46	(f)	4.0	1.5
	LDT, MDV (Option 1)	0-3999	0.39	(0.41) (f)	9.0	1.5
	LDT, MDV (Option 2)	0-3999	0.46	(f)	10.6	1.5
	LDT, MDV	4000-5999	0.50	(0.50) (f)	9.0	2.0
	MDV	6000+larger	0.60	(0.60) (f)	9.0	2.3
1982	PC(Option 1)	All		(0.41)	7.0	1.0 (k)
	PC(Option 2)	All	0.46		8.3	1.0 (k)
	LDT, MDV (Option 1)	0-3999	0.39	(0.41)	9.0	1.5
	LDT, MDV (Option 2)	0-3999	0.46		10.6	1.5
	LDT, MDV	4000-5999	0.50	(0.50)	9.0	2.0
	MDV	6000&larger	0.60	(0.60)	9.0	2.3
1983 & Subsequent	PC	All	0.39	(0.41)	7.0	1.0
	PC	All	0.46		8.3	1.0
	LDT, MDV (Option 1)	0-3999	0.39	(0.41)	9.0	1.0
	LDT, MDV (Option 2)	0-3999	0.46		10.6	1.0
	LDT, MDV	4000-5999	0.50	(0.50)	9.0	1.5
	MDV	6000&larger	0.60	(0.60)	9.0	2.0

(a) "PC" means passenger cars.
 "LDT" means light-duty trucks.
 "MDV" means medium-duty vehicles.

(b) Equivalent inertia weights are determined under subparagraph 86.129-79(a).

(c) Hydrocarbon standards in parentheses apply to total hydrocarbons.

- (d) The second set of passenger car standards is optional. A manufacturer must select either the primary or optional sets of standards for its full product line for the entire two-year period.
- (e) The maximum projected emissions of oxides of nitrogen measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600, Subparagraph B) shall be no greater than 1.33 times the applicable passenger car standards and 2.0 times the applicable light-duty truck and medium-duty vehicle standards shown in the table. Both the projected emissions and the HWFET standard shall be rounded to the nearest 0.1 gm/mi before being compared.
- (f) For vehicles from evaporative emissions families with projected 50,000 mile evaporative emissions values below 1.0 gm/test, an adjustment to the hydrocarbon exhaust emission standard may be granted by the Executive Officer. The adjusted standard will be calculated using the following formula:

$$HC_{ex} = .75 \left(.185 - \frac{Di+3.3 Hs}{29.4} \right) + HC_o$$

Where:

HC_{ex} = adjusted exhaust hydrocarbon standard

HC_o = unadjusted exhaust hydrocarbon standard

Di = diurnal evaporative emissions

Hs = hot soak evaporative emissions.

- (g) For vehicles certified to special standards authorized by Section 1960.2, Article 2, subchapter 1, Chapter 3, Title 13, California Administrative Code.
- (h) For vehicles certified to special standards authorized by Section 1960.3, Article 2, subchapter 1, Chapter 3, Title 13, California Administrative Code.
- (i) For vehicles certified to special standards authorized by Section 1960.4, Article 2, Subchapter 1, Chapter 3, Title 13, California Administrative Code. Special standards revert to "1983 and subsequent" standards for 1985 and subsequent passenger cars and 1986 and subsequent LDTs and MDVs.
- (j) The Executive Officer may grant limited relief from the 1983 special NOx standard to a manufacturer who exceeds the standard because of unforeseen technical problems.
- (k) Optionally, for turbocharged diesels, the NOx standard is 1.5 grams per mile.

5. Additional Requirement

- a. A statement must be supplied that the production vehicles shall be in all material respects the same as those for which certification is granted.
- b. If a gasoline-fueled vehicle manufacturer requires the use of unleaded fuel, a statement will be required that the engine and transmission combinations for which certification is requested are designed to operate satisfactorily on a gasoline having a research octane number not greater than 91.

- c. Labeling required pursuant to paragraph 86.079-35 and Section 1965, Chapter 3, Title 13 of the California Administrative Code shall conform with the requirements specified in the "California Motor Vehicle Tune-Up Label Specifications."
- d. For gasoline-powered vehicles evidence shall be supplied that the air/fuel metering system or secondary air injection system is capable of providing sufficient oxygen to theoretically allow enough oxidation to attain the CO emission standard at barometric pressures equivalent to those expected at altitudes ranging from sea level to 6,000 feet elevation.
- e. The mechanism for adjusting the idle air/fuel mixture, if any, shall be designed so that either:
 - (i) The mixture adjustment mechanism is not visible, even with the air cleaner removed, and special tools and/or procedures are required to make adjustments; or
 - (ii) in the alternative, the Executive Officer may, upon reasonable notice to the manufacturer, require that a certification test of a vehicle be conducted with the idle air/fuel mixture at any setting which the Executive Officer finds corresponds to settings likely to be encountered in actual use. The Executive Officer, in making this finding, shall consider the difficulty of making adjustments, damage to the carburetor in the event of any effort to make an improper adjustment, and the need to replace parts following the adjustment.

The manufacturer shall submit for approval by the Executive Officer his or her proposed method for compliance with this requirement in his or her preliminary application for certification.

- f. The exhaust emissions shall be measured from all exhaust emission data vehicles tested in accordance with the federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600 Subpart B). The oxides of nitrogen emissions measured during such tests shall be multiplied by the oxides of nitrogen deterioration factor computed in accordance with paragraph 86.078-28, and then rounded and compared with the standard as set forth in paragraph 4 above. All data obtained pursuant to this paragraph shall be reported in accordance with procedures applicable to other exhaust emissions data required pursuant to these procedures.

In the event that one or more of the manufacturer's emission data vehicles fail the HWFET standard listed in paragraph 4, the manufacturer may submit to the Executive Officer engineering data or other evidence showing that the system is capable of complying with the standard. If the Executive Officer finds, on the basis of an engineering evaluation, that the system can comply with the HWFET standard, he or she may accept the information supplied by the manufacturer in lieu of vehicle test data.

- g. The manufacturer shall submit to the Executive Officer a statement that those vehicles for which certification is requested have driveability and performance characteristics which satisfy that manufacturer's customary driveability and performance requirements for vehicles sold in the United States. This statement shall be based on driveability data and other evidence showing compliance with the manufacturer's performance criteria. This statement shall be supplied with the manufacturer's final application for certification, and with all running changes for which emission testing is required.

If the Executive Officer has evidence to show that in-use vehicles demonstrate poor performance that could result in wide-spread tampering with the emission control systems, he or she may request all driveability data and other evidence used by the manufacturer to justify the performance statement.

6. Optional 100,000 Mile Certification Procedure

The alternate emission standards shown in paragraph (4) above shall apply to any engine family which meets all of the following additional requirements:

- a. Each exhaust emission durability data vehicle shall be driven, with all emission control systems installed and operating, for 100,000 miles or such lesser distance as the Executive Officer may agree to as meeting the objectives of this procedure. Compliance with the emission standards shall be established as follows:
 - (i) The linear regression line for all pollutants shall be established by use of all required data from tests of the durability vehicle at every 5,000 mile intervals from 5,000 to 100,000 miles. The requirements in subparagraph 86.078-28(a)(4)(i)(B)(durability vehicles must meet emissions standards) refer, for each pollutant, to the highest of either the federal 50,000 mile or California 100,000 mile emission standards.

(ii) Compliance with the hydrocarbon and carbon monoxide standards shall be determined as follows:

(a) For Option 1:

- (A) the interpolated 4,000 and 50,000 mile points on the linear regression line in (i) shall not exceed the appropriate hydrocarbon and carbon monoxide standards, except as in (B) below.
- (B) the linear regression line in (i) may exceed the standard provided that no data point exceeds the standard.
- (C) the hydrocarbon and carbon monoxide data from the 4,000 mile test point of the emission data vehicle shall be multiplied by the deterioration factor computed by dividing the interpolated 50,000 mile point by the interpolated 4,000 mile point. These values shall not exceed the appropriate hydrocarbon and carbon monoxide standards.

(b) For Option 2:

- (A) the interpolated 4,000 and 100,000 mile points on the linear regression line in (i) shall not exceed the appropriate hydrocarbon and carbon monoxide standards, except as in (B) below.
- (B) the linear regression line in (i) may exceed the standard provided that no data point exceeds the standard.
- (C) the hydrocarbon and carbon monoxide data from the 4,000 mile test point of the emission data vehicle shall be multiplied by the deterioration factor computed by dividing the interpolated 100,000 mile point by the interpolated 4,000 mile point. These values shall not exceed the appropriate 100,000 mile hydrocarbon and carbon monoxide standards.

(iii) Compliance with the oxides of nitrogen standard for Options 1 and 2 shall be determined as follows:

- (a) the interpolated 4,000 and 100,000 mile points on the linear regression line in (i) shall not exceed the appropriate 100,000 mile oxides of nitrogen standard except as in (b) below.
- (b) the linear regression line in (i) may exceed the standard provided that no data point exceeds the standard.
- (c) the oxides of nitrogen data from the 4,000 mile test point of the emission data vehicle shall be multiplied by the deterioration factor computed by dividing the interpolated 100,000 mile point by the interpolated 4,000 mile point. These values shall not exceed the appropriate 100,000 mile oxides of nitrogen standard.

All references in these test procedures to "useful life," 5 years, and 50,000 miles shall mean "total life," 10 years, and 100,000 miles, respectively, except in subparagraph (ii).

b. Only the following scheduled maintenance shall be allowed under subparagraph 86.078.25(a)(1)(i).

25(a)(1)(i)(A) Option 1. For 1981 and later model gasoline or diesel-fueled vehicles, maintenance shall be restricted to the inspection, replacement, cleaning, adjustment, and/or service of the following items at intervals no more frequent than indicated.

- (1) Drive belt tension on engine accessories (30,000 miles).
- (2) Valve lash (15,000 miles).
- (3) Spark plugs (30,000 miles).
- (4) Air filter (30,000 miles).
- (5) Exhaust gas sensor (30,000 miles); Provided that an audible and/or visible signal approved by the Executive Officer alerts the vehicle operator to the need for sensor maintenance.
- (6) Choke, cleaning or lubrication only (30,000 miles).
- (7) Idle speed (30,000 miles).
- (8) Fuel Filter (30,000 miles).
- (9) Injection timing (30,000 miles).

25(a)(1)(i)(B) Option 2. For 1981 and later model gasoline or diesel-fueled vehicles, maintenance shall be restricted to the inspection, replacement, cleaning, adjustment, and/or service of the following items at intervals no more frequent than indicated:

- (1) Drive belt tension on engine accessories (30,000 miles).
- (2) Valve lash (15,000 miles).
- (3) Spark plugs (30,000 miles).
- (4) Air filter (30,000 miles).
- (5) Fuel filter (30,000 miles).
- (6) Idle speed (30,000 miles).
- (7) Injection timing (30,000 miles).

(iii) In addition, adjustment of the engine idle speed (curb idle and fast idle), valve lash, and engine bolt torque may be performed once during the first 5,000 miles of scheduled driving, provided the manufacturer makes a satisfactory showing that the maintenance will be performed on vehicles in use.

c. The manufacturer agrees to apply to vehicles certified under this paragraph the provisions of Section 43204 of the California Health and Safety Code for a period of ten year or 100,000 miles, whichever first occurs.

8. For all emission standards options, any vehicle which is subject to a standard set by federal law or regulation controlling emissions of particulate matter must conform to such standard.

Memorandum

Huey D. Johnson
Secretary
Resources Agency


Date : October 3, 1980

Subject: Filing of Notice of
Decision of the Air
Resources Board

From : Air Resources Board

Pursuant to Title 17, Section 60007(b), and in compliance with Air Resources Board certification under section 21080.5 of the Public Resources Code, the Air Resources Board hereby forwards for posting the attached notice of decision and response to environmental comments raised during the comment period.

Sally Rump
Sally Rump
BOARD SECRETARY

Attach: Resolution 80-53
Resolution 80-54


*Emergency hearing
w/ E/S necessary*

State of California
AIR RESOURCES BOARD

FINDING OF EMERGENCY

The Air Resources Board finds that an emergency exists and that the adoption of the attached amendments to Board regulations is necessary for the immediate preservation of the health and safety and general welfare. A statement of the facts concerning this emergency action follows:

1. A hearing to consider amendments to Title 13, California Administrative Code, regarding exhaust emission standards for oxides of nitrogen (NOx) from vehicles produced by small-volume manufacturers has been held commencing at 10:00 a.m., August 27, 1980, at the State Building, 107 So. Broadway, Los Angeles, California.
2. The amendments to the regulations are adopted under Health and Safety Code Sections 39600 and 39601 to implement Health and Safety Code Sections 43100 and 43101.
3. Under existing regulations, small-volume vehicle manufacturers are required, subject to limited exceptions required by federal law, to meet the same NOx emission standards as other manufacturers. The regulations adopted by the Board contain NOx certification standards which apply only to small-volume manufacturers.
4. Immediate action to amend Board regulations is needed to preserve the health and safety and general welfare in that small-volume manufacturers vehicle certification program for the 1982 model year must commence imminently if certification is to be completed in time for the introduction of 1982 model year vehicles. Small-volume manufacturers have demonstrated an inability to comply with the existing NOx emission standards for 1982 model years; hence amendment to those standards is required. These amendments must be adopted at this time to provide small-volume manufacturers enough time to take all the steps necessary to ensure timely compliance with the NOx emission standards for the 1982 model year. The failure to adopt NOx standards and assembly-line levels for small-volume manufacturers at this time would delay manufacturer's certification schedules for the 1982 model year and disrupt planning for subsequent years and would cause substantial economic harm to affected manufacturers, their distributors and dealers in California, and the public in general. Furthermore, the federal Environmental Protection Agency (EPA) is presently considering amending or vacating previously granted waivers of California's NOx emissions standards based on the inability of small-volume manufacturers to comply with the standards. Since the amendments adopted by the Board impose stricter NOx control requirements than would be in effect if these waivers were vacated, vacation of the waivers would result in an increase in levels of NOx and ozone and constitute a danger to the public health and safety.

State of California
AIR RESOURCES BOARD

Resolution 80-59

December 2, 1980

Agenda Item No. 80-25-2

WHEREAS, Section 39601 of the Health and Safety Code authorizes the Air Resources Board to adopt standards, rules, and regulations necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law; and

WHEREAS, Section 43000(e) of the Health and Safety Code states that emission standards applied to new motor vehicles are standards with which all new motor vehicles shall comply; and

WHEREAS, Sections 43101 and 43104 of the Health and Safety Code authorize the Board to adopt vehicle emission standards and test procedures in order to control or eliminate air pollution caused by motor vehicles; and

WHEREAS, manufacturers of diesel-fueled passenger cars have petitioned the Board to consider amending the 100,000 mile 1.0 gram per mile oxides of nitrogen (NOx) standard for 1982 based upon their asserted lack of technological capability to meet the standard; and

WHEREAS, the Board finds that manufacturers are making and have made a good faith effort to meet the 1.2 gpm NOx standard; and

WHEREAS, the Board finds that there are technological problems associated with diesel passenger cars meeting a NOx standard of 1.0 gram per mile in model year 1982; and

WHEREAS, the Board finds that in model year 1982, a NOx emission standard of 1.5 grams per mile for a useful vehicle life of 100,000 miles is technologically feasible for diesel passenger cars; and

WHEREAS, the Board confirms its previous finding that in model year 1983, a NOx emission standard of 1.0 gram per mile for a useful vehicle life of 100,000 miles is technologically feasible for all light-duty diesel vehicles; and

WHEREAS, the California Environmental Quality Act and Board regulations require that no project having adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available; and

WHEREAS, the Board finds that an available measure to mitigate the air quality impacts of adopting NOx standards listed above is to eliminate the current hydrocarbon correction factor found in 13 California Administrative Code Section 1960.1(a); and

WHEREAS, an emergency public hearing has been held in accordance with the provisions of the Administrative Procedure Act (Government Code, Title 2, Division 3, Part 1, Chapter 4.5); and

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with the provisions of the Administrative Procedure Act;

NOW, THEREFORE, BE IT RESOLVED, that the Board hereby amends Section 1960.1, Title 13, California Administrative Code, as set forth in Attachment A hereto.

BE IT FURTHER RESOLVED, that the Board hereby amends the "California Exhaust Emission Standards and Test Procedures for 1981 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles" as set forth in Attachment B hereto.

BE IT FURTHER RESOLVED, that the Board hereby determines that the exhaust emission standards and test procedures adopted herein are, considered together with other vehicle emissions standards and test procedures found in Title 13 and adopted by the Board in Resolution 80-56, in the aggregate, at least as protective of public health and welfare as applicable federal standards.

I certify that the above is a true and correct copy of Resolution 80-59, as adopted by the Air Resources Board.



Sally Rump, Board Secretary

EXHAUST EMISSION STANDARDS
(grams per mile)

<u>Model- Year</u>	<u>Vehicle Type (1)</u>	<u>Equivalent Inertia Weight (lbs.) (2)</u>	<u>Non-Methane Hydrocarbons (3)</u>	<u>Carbon Monoxide</u>	<u>Oxides of Nitrogen (NO₂) (5)</u>
1981	PC	All	(0.41)	3.4	1.0
	PC(4)	All	0.39 (0.41)	7.0	0.7
	LDT,MDV	0-3999	0.39 (0.41)	9.0	1.0
	LDT,MDV	4000-5999	0.50 (0.50)	9.0	1.5
	MDV	6000 & larger	0.60 (0.60)	9.0	2.0
1982	PC	All	0.39 (0.41)	7.0	0.4
	PC(4)	All	0.39 (0.41)	7.0	0.7
	LDT,MDV	0-3999	0.39 (0.41)	9.0	1.0
	LDT,MDV	4000-5999	0.50 (0.50)	9.0	1.5
	MDV	6000 & larger	0.60 (0.60)	9.0	2.0
1983 & Subsequent	PC	All	0.39 (0.41)	7.0	0.4
	LDT,MDV	0-3999	0.39 (0.41)	9.0	0.4
	LDT,MDV	4000-5999	0.50 (0.50)	9.0	1.0
	MDV	6000 & larger	0.60 (0.60)	9.0	1.5

100,000 MILE EXHAUST EMISSION STANDARDS
(grams per mile)

<u>Model- Year</u>	<u>Vehicle Type (1)</u>	<u>Equivalent Inertia Weight (lbs.) (2)</u>	<u>Non-Methane Hydrocarbons (3)</u>	<u>Carbon Monoxide</u>	<u>Oxides of Nitrogen (NO₂) (5)</u>
1981	PC (Option 1)	All	0.39 (6)	3.4	1.5
	PC (Option 2)	All	0.46 (6)	4.0	1.5
	LDT,MDV (Option 1)	0-3999	0.39 (0.41) (6)	9.0	1.5
	LDT,MDV (Option 2)	0-3999	0.46 (6)	10.6	1.5
	LDT,MDV	4000-5999	0.50 (0.50) (6)	9.0	2.0
	MDV	6000 & larger	0.60 (0.60) (6)	9.0	2.3
	1982	PC (Option 1)	All	(0.41)	7.0
PC (Option 2)		All	0.46	8.3	1.5
LDT, MDV (Option 1)		0-3999	0.39 (0.41)	9.0	1.5
LDT, MDV (Option 2)		0-3999	0.46	10.6	1.5
LDT,MDV		4000-5999	0.50 (0.50)	9.0	2.0
MDV		6000 & larger	0.60 (0.60)	9.0	2.3
1983 & Subse- quent		PC	All	0.39 (0.41)	7.0
	PC	All	0.46	8.3	1.0
	LDT,MDV (Option 1)	0-3999	0.39 (0.41)	9.0	1.0
	LDT,MDV (Option 2)	0-3999	0.46	10.6	1.0
	LDT,MDV	4000-5999	0.50 (0.50)	9.0	1.5
	MDV	6000 & larger	0.60 (0.60)	9.0	2.0

- (1) "PC" means passenger cars.
"LDT" means light-duty trucks.
"MDV" means medium-duty vehicles.
- (2) Equivalent inertia weights are determined under subparagraph 40 CFR 86.129-79(a).
- (3) Hydrocarbon standards in parentheses apply to total hydrocarbons.
- (4) The second set of passenger car standards is optional. A manufacturer must select either the primary or optional sets of standards for its full product line for the entire two-year period.
- (5) The maximum projected emissions of oxides of nitrogen measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600, Subpart B) shall be not greater than 1.33 times the applicable passenger car standards and 2.00 times the applicable passenger car standards and 2.00 times the applicable light-duty truck and medium-duty vehicle standards shown in the table. Both the projected emissions and the HWFET standard shall be rounded to the nearest 0.1 gm/mi before being compared.
- (6) For vehicles from evaporative emissions families with projected 50,000 mile evaporative emissions values below 1.0 gm/test, an adjustment to the hydrocarbon exhaust emission standards may be granted by the Executive Officer. The adjusted standard will be calculated using the following formula:

$$HC_{ex} = .75 (.185 - [(Di+3.3 Hs) \div (29.4)]) + HC_0$$

Where:

HC_{ex} = adjusted exhaust hydrocarbon standard

HC_0 = unadjusted exhaust hydrocarbon standard

Di = diurnal evaporative emissions

Hs = hot soak evaporative emissions.

(b) The test procedures for determining compliance with these standards are set forth in "California Exhaust Emission Standards and Test Procedures for 1981 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" adopted by the Air Resources Board on November 23, 1976, and as last amended August-28, 1980, December 2, 1980.

Attachment B

State of California
AIR RESOURCES BOARD

Note: These procedures are printed in a style to indicate the adopted changes. New text is underlined and deleted portions are noted.

CALIFORNIA EXHAUST EMISSION
STANDARDS AND TEST PROCEDURES
FOR 1981 AND SUBSEQUENT MODEL
PASSENGER CARS, LIGHT-DUTY
TRUCKS, AND MEDIUM-DUTY VEHICLES

Adopted: November 23, 1976
Adopted: December 14, 1976
Amended: May 26, 1977
Amended: June 8, 1977
Amended: June 22, 1977
Amended: September 20, 1977
Amended: January 15, 1978
Amended: March 1, 1978
Amended: April 10, 1978
Amended: May 24, 1978
Amended: February 9, 1979
Amended: May 22, 1979
Amended: March 5, 1980
Amended: March 26, 1980
Amended: August 27, 1980
Amended: August 28, 1980
Amended: December 2, 1980

CALIFORNIA EXHAUST EMISSION
STANDARDS AND TEST PROCEDURES
FOR 1981 AND SUBSEQUENT
MODEL PASSENGER CARS, LIGHT-DUTY TRUCKS
AND MEDIUM-DUTY VEHICLES

The provisions of Subparts A and B, Part 86, Title 40, Code of Federal Regulations, as they existed on April 15, 1978, are hereby adopted as the California Exhaust Emission Standards and Test Procedures for 1981 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles, with the following exceptions and additions:

1. Applicability

- a. These test procedures are applicable to 1981 and subsequent model passenger cars, light-duty trucks and medium-duty vehicles, except motorcycles. References to "light-duty trucks" in 40 CFR 86 shall apply both to "light-duty trucks" and "medium-duty vehicles" in these procedures.
- b. Any reference to vehicle sales throughout the United States shall mean vehicle sales in California.
- c. Regulations concerning EPA hearings, EPA inspections, specific language on the Certificate of Conformity, evaporative emissions, high-altitude vehicles and testing, and heavy-duty engines and vehicles shall not be applicable to these procedures, except where specifically noted.

2. Definitions

- a. "Administrator" means the Executive Officer of the Air Resources Board.
- b. "Certificate of Conformity" means Executive Order certifying vehicles for sale in California.
- c. "Certification" means certification as defined in Section 39018 of the Health and Safety Code.
- d. "Passenger car" means any motor vehicle designed primarily for transportation of persons and having a capacity of twelve persons or less.

- e. "Heavy-duty engine" means an engine which is used to propel a heavy-duty vehicle.
- f. "Heavy-duty vehicle" means any motor vehicle having a manufacturer's gross vehicle weight rating greater than 6,000 pounds, except passenger cars.
- g. "Light-duty truck" means any motor vehicle, rated at 6,000 pounds gross vehicle weight or less, which is designed primarily for purposes of transportation of property or is a derivative of such a vehicle, or is available with special features enabling off-street or off-highway operation and use.
- h. "Medium-duty vehicle" means any heavy-duty vehicle having a manufacturer's gross vehicle weight rating of 8500 pounds or less.

3. Test Procedures

- a. In order to demonstrate compliance with a non-methane hydrocarbon emission standard, hydrocarbon emissions shall be measured in accordance with the "California Non-Methane Hydrocarbon Test Procedures."
- b. Durability data submitted pursuant to subparagraph 86.078-23(f) may be from vehicles previously certified by EPA or ARB.
- c. The requirements in subparagraph 86.078-28(a)(4)(i)(B) (durability vehicles must meet emission standards) refer, for each pollutant, to the highest of either the federal or California emission standards.
- d. In paragraph 86.079-21 (Application for certification), amend subparagraph (b)(5) to read:

(5) A statement of maintenance and procedures consistent with the restrictions imposed under subparagraph 86.078-25(a)(1), necessary to assure that the vehicles (or engines) covered by a certificate of conformity in operation in normal use conform to the regulations, and a description of the program for training of personnel for such maintenance, and the equipment required.

e. In paragraph 86.078-25 (Maintenance):

1. Amend subparagraph (a)(1) to read as follows:

(1) Scheduled maintenance on the engine, emission control system and fuel system of durability vehicles shall, unless otherwise provided pursuant to paragraph (a) (5)(iii), be restricted as set forth in the following provisions.

(i)(A) for gasoline-fueled vehicles, maintenance shall be restricted to the inspection, replacement, cleaning, adjustment and/or service of the following items at intervals no more frequent than indicated:

- (1) Drive belts on engine accessories (tension adjustment only); (30,000 miles).
- (2) Valve lash (15,000 miles).
- (3) Spark plugs (30,000 miles).
- (4) Air filter (30,000 miles).
- (5) Exhaust gas sensor (30,000 miles): Provided that an audible and/or visible signal approved by the Executive Officer alerts the vehicle operator to the need for sensor maintenance at the mileage point.
- (6) Choke (cleaning or lubrication only); (30,000 miles).
- (7) In addition, adjustment of the engine idle speed (curb idle and fast idle), valve lash, and engine bolt torque may be performed once during the first 5,000 miles of scheduled driving, provided the manufacturer makes a satisfactory showing that the maintenance will be performed on vehicles in use.

(B) for diesel-powered vehicles, maintenance shall be restricted to the following items at intervals no more frequent than every 12,500 miles of scheduled driving, provided that no maintenance may be performed after 45,000 miles of scheduled driving:

- (1) Adjust low idle speed.
- (2) Adjust valve lash if required.
- (3) Adjust injector timing.
- (4) Adjust governor.
- (5) Clean and service injector tips.
- (6) Adjust drive belt tension on engine accessories.
- (7) Check engine bolt torque and tighten as required.

(ii) Change of engine and transmission oil, change or service of oil filter and, for diesel-powered vehicles only, change or service of fuel filter and air filter, will be allowed at the mileage intervals specified in the manufacturer's maintenance instructions.

(iii) Maintenance shall be conducted in a manner consistent with service instructions and specifications provided by the manufacturer for use by customer service personnel.

- (2) Delete subparagraph (a)(3) (Service of exhaust gas recirculation system).
- (3) Delete subparagraph (a)(4) (Service of catalytic converter).

f. In paragraph 86.078-38 (Maintenance instructions):

1. Amend subparagraph (a) to read:

(a) The manufacturer shall furnish or cause to be furnished to the purchaser of each new motor vehicle (or motor vehicle engine) subject to the standards prescribed in paragraphs 86.078-8 through 86.078-11 as applicable, written instructions for the maintenance and use of the vehicle (or engine) by the purchaser as may be reasonable and necessary to assure the proper functioning of emission control systems in normal use. Such instructions shall be consistent with and not require maintenance in excess of the restrictions imposed under subparagraph 86.078-25(a)(1), except that the instructions may, subject to approval by the Administrator, require additional maintenance for vehicles operated under extreme conditions. In addition, subject to approval by the Administrator, the instructions may require inspections necessary to insure safe operation of the vehicle in use.

In addition to any maintenance which may be required pursuant to the preceding paragraph, the instructions may also recommend such inspections, maintenance, and repair as may be reasonable and necessary for the proper functioning of the vehicle and its emission control systems. If the instructions recommend maintenance in addition to that which may be required pursuant to the preceding paragraph, they shall distinguish clearly between required and recommended maintenance.

2. Amend subparagraph (c)(1) to read:

(1) Such instructions shall specify the performance of all scheduled maintenance performed by the manufacturer under subparagraph 86.078-25(a)(1).

If the instructions specify recommended maintenance as well as required maintenance, they shall distinguish clearly between the two.

3. Amend subparagraph (d) by adding a new subparagraph (3) to read:

(3) Such instructions shall specify the performance of all scheduled maintenance performed by the manufacturer under subparagraph 86.078-25(a)(1).

If the instructions specify recommended maintenance as well as required maintenance, they shall distinguish clearly between the two.

- g. Amend subparagraph 86.078-39(a) (Submission of maintenance instructions) to read:

(a) The manufacturer shall provide to the Administrator, no later than the time of the submission required by paragraph 86.078-23 a copy of the maintenance instructions which the manufacturer proposes to supply to the ultimate purchaser in accordance with subparagraph 86.078-38(a). The Administrator will review such instructions to determine whether they are consistent with federal requirements, and to determine whether the instructions for required maintenance are consistent with the restrictions imposed under subparagraph 86.078-25(a)(1). The Administrator will notify the manufacturer of his determinations.

4. Standards

The following standards represent the maximum projected exhaust emissions for the useful life of the vehicle.

Model Year	Vehicle Type (a)	Equivalent Inertia		Exhaust Emission Standards (grams per vehicle mile)	
		Weight (lbs.)(b)	Non-Methane Hydrocarbons(c)	Carbon Monoxide	Oxides of Nitrogen (NO ₂)(e)
1981	PC	A11	(0.41)	3.4	1.0
	PC(d)	A11	0.39 (0.41)	7.0	0.7
	PC(g)	A11	0.39 (0.41)	7.0	1.5
	LDT, MDV	0-3999	0.39 (0.41)	9.0	1.0
	LDT, MDV(h)	0-3999	0.39 (0.41)	9.0	1.5
	LDT, MDV	4000-5999	0.50 (0.50)	9.0	1.5
	MDV	6000&larger	0.60 (0.60)	9.0	2.0
1982	PC	A11	0.39 (0.41)	7.0	0.4
	PC(d)	A11	0.39 (0.41)	7.0	0.7
	PC(i)	A11	0.39 (0.41)	7.0	1.0
	Diesel-PC	A11	0.39 (0.41)	7.0	1.2
	LDT, MDV	0-3999	0.39 (0.41)	9.0	1.0
	LDT, MDV	4000-5999	0.50 (0.50)	9.0	1.5
	LDT, MDV(h)	0-3999	0.39 (0.41)	9.0	1.5
	MDV	6000&larger	0.60 (0.60)	9.0	2.0
1983 & Sub-sequent	PC	A11	0.39 (0.41)	7.0	0.4
	LDT, MDV	0-3999	0.39 (0.41)	9.0	0.4
	LDT, MDV	4000-5999	0.50 (0.50)	9.0	1.0
	MDV	6000&larger	0.60 (0.60)	9.0	1.5
1983(i)	PC	A11	0.39 (0.41)	7.0	0.7
	LDT, MDV	0-3999	0.39 (0.41)	9.0	1.0 (j)
1984(i)	PC	A11	0.39 (0.41)	7.0	0.7
	LDT, MDV	0-3999	0.39 (0.41)	9.0	0.7(j)
1985(i)	LDT, MDV	0-3999	0.39 (0.41)	9.0	0.7

Model Year	Vehicle Type (a)	Equivalent Inertia Weight (lbs.)(b)	100,000 Mile Exhaust Emission Standards (grams per vehicle mile)			
			Non-Methane Hydrocarbons(c)	Carbon Monoxide	Oxides of Nitrogen NO ₂ (e)	
1981	PC(Option 1)	All	0.39	(f)	3.4	1.5
	PC(Option 2)	All	0.46	(f)	4.0	1.5
	LDT, MDV (Option 1)	0-3999	0.39	(0.41) (f)	9.0	1.5
	LDT, MDV (Option 2)	0-3999	0.46	(f)	10.6	1.5
	LDT, MDV	4000-5999	0.50	(0.50) (f)	9.0	2.0
	MDV	6000+larger	0.60	(0.60) (f)	9.0	2.3
	1982	PC(Option 1)	All		(0.41)	7.0
PC(Option 2)		All	0.46		8.3	1.0 <u>1.5</u>
LDT, MDV (Option 1)		0-3999	0.39	(0.41)	9.0	1.5
LDT, MDV (Option 2)		0-3999	0.46		10.6	1.5
LDT, MDV		4000-5999	0.50	(0.50)	9.0	2.0
MDV		6000&larger	0.60	(0.60)	9.0	2.3
1983 & Subsequent		PC	All	0.39	(0.41)	7.0
	PC	All	0.46		8.3	1.0
	LDT, MDV (Option 1)	0-3999	0.39	(0.41)	9.0	1.0
	LDT, MDV (Option 2)	0-3999	0.46		10.6	1.0
	LDT, MDV	4000-5999	0.50	(0.50)	9.0	1.5
	MDV	6000&larger	0.60	(0.60)	9.0	2.0

(a) "PC" means passenger cars.
 "LDT" means light-duty trucks.
 "MDV" means medium-duty vehicles.

(b) Equivalent inertia weights are determined under subparagraph 86.129-79(a).

(c) Hydrocarbon standards in parentheses apply to total hydrocarbons.

- (d) The second set of passenger car standards is optional. A manufacturer must select either the primary or optional sets of standards for its full product line for the entire two-year period.
- (e) The maximum projected emissions of oxides of nitrogen measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600, Subparagraph B) shall be no greater than 1.33 times the applicable passenger car standards and 2.0 times the applicable light-duty truck and medium-duty vehicle standards shown in the table. Both the projected emissions and the HWFET standard shall be rounded to the nearest 0.1 gm/mi before being compared.
- (f) For vehicles from evaporative emissions families with projected 50,000 mile evaporative emissions values below 1.0 gm/test, an adjustment to the hydrocarbon exhaust emission standard may be granted by the Executive Officer. The adjusted standard will be calculated using the following formula:

$$HC_{ex} = .75 \left(.185 - \frac{Di + 3.3 Hs}{29.4} \right) + HC_o$$

Where:

HC_{ex} = adjusted exhaust hydrocarbon standard

HC_o = unadjusted exhaust hydrocarbon standard

Di = diurnal evaporative emissions

Hs = hot soak evaporative emissions.

- (g) For vehicles certified to special standards authorized by Section 1960.2, Article 2, subchapter 1, Chapter 3, Title 13, California Administrative Code.
- (h) For vehicles certified to special standards authorized by Section 1960.3, Article 2, subchapter 1, Chapter 3, Title 13, California Administrative Code.
- (i) For vehicles certified to special standards authorized by Section 1960.4, Article 2, Subchapter 1, Chapter 3, Title 13, California Administrative Code. Special standards revert to "1983 and subsequent" standards for 1985 and subsequent passenger cars and 1986 and subsequent LDTs and MDVs.
- (j) The Executive Officer may grant limited relief from the 1983 passenger car and 1984 LDT and MDV special NOx standard to a manufacturer who exceeds the standard because of unforeseen technical problems.
- (k) ~~Optionally, for turbocharged diesels, the NOx standard is 1.5 grams per mile.~~

5. Additional Requirement

- a. A statement must be supplied that the production vehicles shall be in all material respects the same as those for which certification is granted.
- b. If a gasoline-fueled vehicle manufacturer requires the use of unleaded fuel, a statement will be required that the engine and transmission combinations for which certification is requested are designed to operate satisfactorily on a gasoline having a research octane number not greater than 91.

- c. Labeling required pursuant to paragraph 86.079-35 and Section 1965, Chapter 3, Title 13 of the California Administrative Code shall conform with the requirements specified in the "California Motor Vehicle Tune-Up Label Specifications."
- d. For gasoline-powered vehicles evidence shall be supplied that the air/fuel metering system or secondary air injection system is capable of providing sufficient oxygen to theoretically allow enough oxidation to attain the CO emission standard at barometric pressures equivalent to those expected at altitudes ranging from sea level to 6,000 feet elevation.
- e. The mechanism for adjusting the idle air/fuel mixture, if any, shall be designed so that either:
 - (i) The mixture adjustment mechanism is not visible, even with the air cleaner removed, and special tools and/or procedures are required to make adjustments; or
 - (ii) in the alternative, the Executive Officer may, upon reasonable notice to the manufacturer, require that a certification test of a vehicle be conducted with the idle air/fuel mixture at any setting which the Executive Officer finds corresponds to settings likely to be encountered in actual use. The Executive Officer, in making this finding, shall consider the difficulty of making adjustments, damage to the carburetor in the event of any effort to make an improper adjustment, and the need to replace parts following the adjustment.

The manufacturer shall submit for approval by the Executive Officer his or her proposed method for compliance with this requirement in his or her preliminary application for certification.

- f. The exhaust emissions shall be measured from all exhaust emission data vehicles tested in accordance with the federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600 Subpart B). The oxides of nitrogen emissions measured during such tests shall be multiplied by the oxides of nitrogen deterioration factor computed in accordance with paragraph 86.078-28, and then rounded and compared with the standard as set forth in paragraph 4 above. All data obtained pursuant to this paragraph shall be reported in accordance with procedures applicable to other exhaust emissions data required pursuant to these procedures.

In the event that one or more of the manufacturer's emission data vehicles fail the HWFET standard listed in paragraph 4, the manufacturer may submit to the Executive Officer engineering data or other evidence showing that the system is capable of complying with the standard. If the Executive Officer finds, on the basis of an engineering evaluation, that the system can comply with the HWFET standard, he or she may accept the information supplied by the manufacturer in lieu of vehicle test data.

- g. The manufacturer shall submit to the Executive Officer a statement that those vehicles for which certification is requested have driveability and performance characteristics which satisfy that manufacturer's customary driveability and performance requirements for vehicles sold in the United States. This statement shall be based on driveability data and other evidence showing compliance with the manufacturer's performance criteria. This statement shall be supplied with the manufacturer's final application for certification, and with all running changes for which emission testing is required.

If the Executive Officer has evidence to show that in-use vehicles demonstrate poor performance that could result in wide-spread tampering with the emission control systems, he or she may request all driveability data and other evidence used by the manufacturer to justify the performance statement.

6. Optional 100,000 Mile Certification Procedure

The alternate emission standards shown in paragraph (4) above shall apply to any engine family which meets all of the following additional requirements:

- a. Each exhaust emission durability data vehicle shall be driven, with all emission control systems installed and operating, for 100,000 miles or such lesser distance as the Executive Officer may agree to as meeting the objectives of this procedure. Compliance with the emission standards shall be established as follows:
 - (i) The linear regression line for all pollutants shall be established by use of all required data from tests of the durability vehicle at every 5,000 mile intervals from 5,000 to 100,000 miles. The requirements in subparagraph 86.078-28(a)(4)(i)(B)(durability vehicles must meet emissions standards) refer, for each pollutant, to the highest of either the federal 50,000 mile or California 100,000 mile emission standards.

(ii) Compliance with the hydrocarbon and carbon monoxide standards shall be determined as follows:

(a) For Option 1:

- (A) the interpolated 4,000 and 50,000 mile points on the linear regression line in (i) shall not exceed the appropriate hydrocarbon and carbon monoxide standards, except as in (B) below.
- (B) the linear regression line in (i) may exceed the standard provided that no data point exceeds the standard.
- (C) the hydrocarbon and carbon monoxide data from the 4,000 mile test point of the emission data vehicle shall be multiplied by the deterioration factor computed by dividing the interpolated 50,000 mile point by the interpolated 4,000 mile point. These values shall not exceed the appropriate hydrocarbon and carbon monoxide standards.

(b) For Option 2:

- (A) the interpolated 4,000 and 100,000 mile points on the linear regression line in (i) shall not exceed the appropriate hydrocarbon and carbon monoxide standards, except as in (B) below.
- (B) the linear regression line in (i) may exceed the standard provided that no data point exceeds the standard.
- (C) the hydrocarbon and carbon monoxide data from the 4,000 mile test point of the emission data vehicle shall be multiplied by the deterioration factor computed by dividing the interpolated 100,000 mile point by the interpolated 4,000 mile point. These values shall not exceed the appropriate 100,000 mile hydrocarbon and carbon monoxide standards.

(iii) Compliance with the oxides of nitrogen standard for Options 1 and 2 shall be determined as follows:

- (a) the interpolated 4,000 and 100,000 mile points on the linear regression line in (i) shall not exceed the appropriate 100,000 mile oxides of nitrogen standard except as in (b) below.
- (b) the linear regression line in (i) may exceed the standard provided that no data point exceeds the standard.
- (c) the oxides of nitrogen data from the 4,000 mile test point of the emission data vehicle shall be multiplied by the deterioration factor computed by dividing the interpolated 100,000 mile point by the interpolated 4,000 mile point. These values shall not exceed the appropriate 100,000 mile oxides of nitrogen standard.

All references in these test procedures to "useful life," 5 years, and 50,000 miles shall mean "total life," 10 years, and 100,000 miles, respectively, except in subparagraph (ii).

b. Only the following scheduled maintenance shall be allowed under subparagraph 86.078.25(a)(1)(i).

25(a)(1)(i)(A) Option 1. For 1981 and later model gasoline or diesel-fueled vehicles, maintenance shall be restricted to the inspection, replacement, cleaning, adjustment, and/or service of the following items at intervals no more frequent than indicated.

- (1) Drive belt tension on engine accessories (30,000 miles).
- (2) Valve lash (15,000 miles).
- (3) Spark plugs (30,000 miles).
- (4) Air filter (30,000 miles).
- (5) Exhaust gas sensor (30,000 miles); Provided that an audible and/or visible signal approved by the Executive Officer alerts the vehicle operator to the need for sensor maintenance.
- (6) Choke, cleaning or lubrication only (30,000 miles).
- (7) Idle speed (30,000 miles).
- (8) Fuel Filter (30,000 miles).
- (9) Injection timing (30,000 miles).

25(a)(1)(i)(B) Option 2. For 1981 and later model gasoline or diesel-fueled vehicles, maintenance shall be restricted to the inspection, replacement, cleaning, adjustment, and/or service of the following items at intervals no more frequent than indicated:

- (1) Drive belt tension on engine accessories (30,000 miles).
- (2) Valve lash (15,000 miles).
- (3) Spark plugs (30,000 miles).
- (4) Air filter (30,000 miles).
- (5) Fuel filter (30,000 miles).
- (6) Idle speed (30,000 miles).
- (7) Injection timing (30,000 miles).

(iii) In addition, adjustment of the engine idle speed (curb idle and fast idle), valve lash, and engine bolt torque may be performed once during the first 5,000 miles of scheduled driving, provided the manufacturer makes a satisfactory showing that the maintenance will be performed on vehicles in use.

c. The manufacturer agrees to apply to vehicles certified under this paragraph the provisions of Section 43204 of the California Health and Safety Code for a period of ten year or 100,000 miles, whichever first occurs.

8. For all emission standards options, any vehicle which is subject to a standard set by federal law or regulation controlling emissions of particulate matter must conform to such standard.

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: PUBLIC HEARING TO CONSIDER CONFIRMATION OF AMENDMENTS TO TITLE 13, CALIFORNIA ADMINISTRATIVE CODE, REGARDING THE 1982 AND SUBSEQUENT MODEL YEAR EXHAUST EMISSION STANDARDS.

Agenda Item No: 80-25-2 (Resolution No. 59)

Public Hearing Date: December 2, 1980

Response Date: December 2, 1980

Issuing Authority: Air Resources Board

Comment: The South Coast Air Quality Management District stated that the increase in NOx was unacceptable and that mitigating action should be taken.

Response: Elimination of the HC evaporative allowance should mitigate the added NOx emissions. Further mitigating strategies will be discussed at a Public Hearing in the spring of 1981.

CERTIFIED:

Sally Rump
Board Secretary

Date:

12/29/80

RECEIVED BY
Office of the Secretary

DEC 30 1980

Resources Agency of California

Memorandum


To : Huey D. Johnson
Secretary
Resources Agency
1416 - 9th Street
Sacramento, CA 95814

Date : December 29, 1980
Subject : Filing of Notice
of Decision of the
Air Resources Board

From : **Air Resources Board**

Pursuant to Title 17, Section 60007(b), and in compliance with Air Resources Board certification under section 21080.5 of the Public Resources Code, the Air Resources Board hereby forwards for posting the attached notice of decision and response to environmental comments raised during the comment period.


Sally Rump
BOARD SECRETARY

att: Resolution 80-58

Resolution 80-60

RECEIVED BY
Office of the Secretary

DEC 30 1980

Resources Agency of California

State of California
AIR RESOURCES BOARD

Resolution 80-59

December 2, 1980

Agenda Item No. 80-25-2

WHEREAS, Section 39601 of the Health and Safety Code authorizes the Air Resources Board to adopt standards, rules, and regulations necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law; and

WHEREAS, Section 43000(e) of the Health and Safety Code states that emission standards applied to new motor vehicles are standards with which all new motor vehicles shall comply; and

WHEREAS, Sections 43101 and 43104 of the Health and Safety Code authorize the Board to adopt vehicle emission standards and test procedures in order to control or eliminate air pollution caused by motor vehicles; and

WHEREAS, manufacturers of diesel-fueled passenger cars have petitioned the Board to consider amending the 100,000 mile 1.0 gram per mile oxides of nitrogen (NOx) standard for 1982 based upon their asserted lack of technological capability to meet the standard; and

WHEREAS, the Board finds that manufacturers are making and have made a good faith effort to meet the 1.2 gpm NOx standard; and

WHEREAS, the Board finds that there are technological problems associated with diesel passenger cars meeting a NOx standard of 1.0 gram per mile in model year 1982; and

WHEREAS, the Board finds that in model year 1982, a NOx emission standard of 1.5 grams per mile for a useful vehicle life of 100,000 miles is technologically feasible for diesel passenger cars; and

WHEREAS, the Board confirms its previous finding that in model year 1983, a NOx emission standard of 1.0 gram per mile for a useful vehicle life of 100,000 miles is technologically feasible for all light-duty diesel vehicles; and

WHEREAS, the California Environmental Quality Act and Board regulations require that no project having adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available; and

RECEIVED BY
Office of the Secretary

DEC 30 1980

Resources Agency of California

State of California
AIR RESOURCES BOARD

Resolution 80-60

December 2, 1980

Agenda Item No. 80-25-2

WHEREAS, Section 39601 of the Health and Safety Code authorizes the Air Resources Board to adopt standards, rules and regulations necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law; and

WHEREAS, Section 43000(e) of the Health and Safety Code states that emission standards applied to new motor vehicles are standards with which all new motor vehicles shall comply; and

WHEREAS, Sections 43101 and 43104 of the Health and Safety Code authorize the Board to adopt vehicle emission standards and test procedures in order to control or eliminate air pollution caused by motor vehicles; and

WHEREAS, the federal Environmental Protection Agency (EPA) has adopted particulate emission standards for 1982 and subsequent model year diesel-fueled light-duty vehicles and light-duty trucks, which standards are applicable to vehicles sold in California; and

WHEREAS, the Board finds that control of particulate emissions is necessary to protect the public health and achieve federal and state ambient air quality standards; and

WHEREAS, the Board finds that insufficient information is now available to enable it to establish an independent California emission standard for particulate matter; and

WHEREAS, the California Environmental Quality Act and Board regulations require that no project having adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available; and

WHEREAS, an emergency public hearing has been held in accordance with the provisions of the Administrative Procedure Act (Government Code, Title 2, Division 3, Part 1, Chapter 4.5); and

WHEREAS, a confirmatory public hearing and other administrative proceedings have been held in accordance with the provisions of the Administrative Procedure Act;

NOW, THEREFORE, BE IT RESOLVED, that the Board hereby confirms its adoption of amendments to Section 1960.1, Title 13, California Administrative Code, as set forth in Attachment A hereto.

BE IT FURTHER RESOLVED, that the Board hereby confirms amendments made to the "California Exhaust Emission Standards and Test Procedures for 1981 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles" as set forth in Attachment B hereto.

BE IT FURTHER RESOLVED, that the Board hereby determines that the regulations and test procedures adopted herein are, in the aggregate, at least as protective of public health and welfare as applicable federal standards.

I certify that the above is a true and correct copy of Resolution 80-60, as adopted by the Air Resources Board.



Sally Rump, Board Secretary

Attachment B

State of California
AIR RESOURCES BOARD

Note: These procedures are printed in a style to indicate the confirmed changes. New text is underlined and deleted portions are noted.

CALIFORNIA EXHAUST EMISSION
STANDARDS AND TEST PROCEDURES
FOR 1981 AND SUBSEQUENT MODEL
PASSENGER CARS, LIGHT-DUTY
TRUCKS, AND MEDIUM-DUTY VEHICLES

Adopted: November 23, 1976
Adopted: December 14, 1976
Amended: May 26, 1977
Amended: June 8, 1977
Amended: June 22, 1977
Amended: September 20, 1977
Amended: January 15, 1978
Amended: March 1, 1978
Amended: April 10, 1978
Amended: May 24, 1978
Amended: February 9, 1979
Amended: May 22, 1979
Amended: March 5, 1980
Amended: March 26, 1980
Amended: August 27, 1980
Amended: August 28, 1980
Amended: December 2, 1980

CALIFORNIA EXHAUST EMISSION
STANDARDS AND TEST PROCEDURES
FOR 1981 AND SUBSEQUENT
MODEL PASSENGER CARS, LIGHT-DUTY TRUCKS
AND MEDIUM-DUTY VEHICLES

The provisions of Subparts A and B, Part 86, Title 40, Code of Federal Regulations, as they existed on April 15, 1978, are hereby adopted as the California Exhaust Emission Standards and Test Procedures for 1981 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles, with the following exceptions and additions:

1. Applicability

- a. These test procedures are applicable to 1981 and subsequent model passenger cars, light-duty trucks and medium-duty vehicles, except motorcycles. References to "light-duty trucks" in 40 CFR 86 shall apply both to "light-duty trucks" and "medium-duty vehicles" in these procedures.
- b. Any reference to vehicle sales throughout the United States shall mean vehicle sales in California.
- c. Regulations concerning EPA hearings, EPA inspections, specific language on the Certificate of Conformity, evaporative emissions, high-altitude vehicles and testing, and heavy-duty engines and vehicles shall not be applicable to these procedures, except where specifically noted.

2. Definitions

- a. "Administrator" means the Executive Officer of the Air Resources Board.
- b. "Certificate of Conformity" means Executive Order certifying vehicles for sale in California.
- c. "Certification" means certification as defined in Section 39018 of the Health and Safety Code.
- d. "Passenger car" means any motor vehicle designed primarily for transportation of persons and having a capacity of twelve persons or less.

- e. "Heavy-duty engine" means an engine which is used to propel a heavy-duty vehicle.
- f. "Heavy-duty vehicle" means any motor vehicle having a manufacturer's gross vehicle weight rating greater than 6,000 pounds, except passenger cars.
- g. "Light-duty truck" means any motor vehicle, rated at 6,000 pounds gross vehicle weight or less, which is designed primarily for purposes of transportation of property or is a derivative of such a vehicle, or is available with special features enabling off-street or off-highway operation and use.
- h. "Medium-duty vehicle" means any heavy-duty vehicle having a manufacturer's gross vehicle weight rating of 8500 pounds or less.

3. Test Procedures

- a. In order to demonstrate compliance with a non-methane hydrocarbon emission standard, hydrocarbon emissions shall be measured in accordance with the "California Non-Methane Hydrocarbon Test Procedures."
- b. Durability data submitted pursuant to subparagraph 86.078-23(f) may be from vehicles previously certified by EPA or ARB.
- c. The requirements in subparagraph 86.078-28(a)(4)(i)(B) (durability vehicles must meet emission standards) refer, for each pollutant, to the highest of either the federal or California emission standards.
- d. In paragraph 86.079-21 (Application for certification), amend subparagraph (b)(5) to read:
 - (5) A statement of maintenance and procedures consistent with the restrictions imposed under subparagraph 86.078-25(a)(1), necessary to assure that the vehicles (or engines) covered by a certificate of conformity in operation in normal use conform to the regulations, and a description of the program for training of personnel for such maintenance, and the equipment required.

e. In paragraph 86.078-25 (Maintenance):

1. Amend subparagraph (a)(1) to read as follows:

(1) Scheduled maintenance on the engine, emission control system and fuel system of durability vehicles shall, unless otherwise provided pursuant to paragraph (a)(5)(iii), be restricted as set forth in the following provisions.

(i)(A) for gasoline-fueled vehicles, maintenance shall be restricted to the inspection, replacement, cleaning, adjustment and/or service of the following items at intervals no more frequent than indicated:

(1) Drive belts on engine accessories (tension adjustment only); (30,000 miles).

(2) Valve lash (15,000 miles).

(3) Spark plugs (30,000 miles).

(4) Air filter (30,000 miles).

(5) Exhaust gas sensor (30,000 miles): Provided that an audible and/or visible signal approved by the Executive Officer alerts the vehicle operator to the need for sensor maintenance at the mileage point.

(6) Choke (cleaning or lubrication only); (30,000 miles).

(7) In addition, adjustment of the engine idle speed (curb idle and fast idle), valve lash, and engine bolt torque may be performed once during the first 5,000 miles of scheduled driving, provided the manufacturer makes a satisfactory showing that the maintenance will be performed on vehicles in use.

(B) for diesel-powered vehicles, maintenance shall be restricted to the following items at intervals no more frequent than every 12,500 miles of scheduled driving, provided that no maintenance may be performed after 45,000 miles of scheduled driving:

- (1) Adjust low idle speed.
- (2) Adjust valve lash if required.
- (3) Adjust injector timing.
- (4) Adjust governor.
- (5) Clean and service injector tips.
- (6) Adjust drive belt tension on engine accessories.
- (7) Check engine bolt torque and tighten as required.

(ii) Change of engine and transmission oil, change or service of oil filter and, for diesel-powered vehicles only, change or service of fuel filter and air filter, will be allowed at the mileage intervals specified in the manufacturer's maintenance instructions.

(iii) Maintenance shall be conducted in a manner consistent with service instructions and specifications provided by the manufacturer for use by customer service personnel.

- (2) Delete subparagraph (a)(3) (Service of exhaust gas recirculation system).
- (3) Delete subparagraph (a)(4) (Service of catalytic converter).

f. In paragraph 86.078-38 (Maintenance instructions):

1. Amend subparagraph (a) to read:

(a) The manufacturer shall furnish or cause to be furnished to the purchaser of each new motor vehicle (or motor vehicle engine) subject to the standards prescribed in paragraphs 86.078-8 through 86.078-11 as applicable, written instructions for the maintenance and use of the vehicle (or engine) by the purchaser as may be reasonable and necessary to assure the proper functioning of emission control systems in normal use. Such instructions shall be consistent with and not require maintenance in excess of the restrictions imposed under subparagraph 86.078-25(a)(1), except that the instructions may, subject to approval by the Administrator, require additional maintenance for vehicles operated under extreme conditions. In addition, subject to approval by the Administrator, the instructions may require inspections necessary to insure safe operation of the vehicle in use.

In addition to any maintenance which may be required pursuant to the preceding paragraph, the instructions may also recommend such inspections, maintenance, and repair as may be reasonable and necessary for the proper functioning of the vehicle and its emission control systems. If the instructions recommend maintenance in addition to that which may be required pursuant to the preceding paragraph, they shall distinguish clearly between required and recommended maintenance.

2. Amend subparagraph (c)(1) to read:

(1) Such instructions shall specify the performance of all scheduled maintenance performed by the manufacturer under subparagraph 86.078-25(a)(1).

If the instructions specify recommended maintenance as well as required maintenance, they shall distinguish clearly between the two.

3. Amend subparagraph (d) by adding a new subparagraph (3) to read:

(3) Such instructions shall specify the performance of all scheduled maintenance performed by the manufacturer under subparagraph 86.078-25(a)(1).

If the instructions specify recommended maintenance as well as required maintenance, they shall distinguish clearly between the two.

- g. Amend subparagraph 86.078-39(a) (Submission of maintenance instructions) to read:

(a) The manufacturer shall provide to the Administrator, no later than the time of the submission required by paragraph 86.078-23 a copy of the maintenance instructions which the manufacturer proposes to supply to the ultimate purchaser in accordance with subparagraph 86.078-38(a). The Administrator will review such instructions to determine whether they are consistent with federal requirements, and to determine whether the instructions for required maintenance are consistent with the restrictions imposed under subparagraph 86.078-25(a)(1). The Administrator will notify the manufacturer of his determinations.

4. Standards

The following standards represent the maximum projected exhaust emissions for the useful life of the vehicle.

Model Year	Vehicle Type (a)	Equivalent Inertia		Exhaust Emission Standards (grams per vehicle mile)	
		Weight (lbs.)(b)	Non-Methane Hydrocarbons(c)	Carbon Monoxide	Oxides of Nitrogen (NO ₂)(e)
1981	PC	All	(0.41)	3.4	1.0
	PC(d)	All	0.39 (0.41)	7.0	0.7
	PC(g)	All	0.39 (0.41)	7.0	1.5
	LDT, MDV	0-3999	0.39 (0.41)	9.0	1.0
	LDT,MDV(h)	0-3999	0.39 (0.41)	9.0	1.5
	LDT, MDV	4000-5999	0.50 (0.50)	9.0	1.5
	MDV	6000&larger	0.60 (0.60)	9.0	2.0
1982	PC	All	0.39 (0.41)	7.0	0.4
	PC(d)	All	0.39 (0.41)	7.0	0.7
	PC(i)	All	0.39 (0.41)	7.0	1.0
	LDT, MDV	0-3999	0.39 (0.41)	9.0	1.0
	LDT, MDV	4000-5999	0.50 (0.50)	9.0	1.5
	LDT,MDV(h)	0-3999	0.39 (0.41)	9.0	1.5
	MDV	6000&larger	0.60 (0.60)	9.0	2.0
1983 & Subsequent	PC	All	0.39 (0.41)	7.0	0.4
	LDT, MDV	0-3999	0.39 (0.41)	9.0	0.4
	LDT, MDV	4000-5999	0.50 (0.50)	9.0	1.0
	MDV	6000&larger	0.60 (0.60)	9.0	1.5
1983(i)	PC	All	0.39 (0.41)	7.0	0.7
	LDT, MDV	0-3999	0.39 (0.41)	9.0	1.0 (j)
1984(i)	PC	All	0.39 (0.41)	7.0	0.7
	LDT, MDV	0-3999	0.39 (0.41)	9.0	0.7(j)
1985(i)	LDT, MDV	0-3999	0.39 (0.41)	9.0	0.7

Model Year	Vehicle Type (a)	Equivalent Inertia Weight (lbs.)(b)	100,000 Mile Exhaust Emission Standards (grams per vehicle mile)			
			Non-Methane Hydrocarbons(c)	Carbon Monoxide	Oxides of Nitrogen NO ₂ (e)	
1981	PC (Option 1)	All	0.39	(f)	3.4	1.5
	PC (Option 2)	All	0.46	(f)	4.0	1.5
	LDT, MDV (Option 1)	0-3999	0.39	(0.41) (f)	9.0	1.5
	LDT, MDV (Option 2)	0-3999	0.46	(f)	10.6	1.5
	LDT, MDV	4000-5999	0.50	(0.50) (f)	9.0	2.0
	MDV	6000+larger	0.60	(0.60) (f)	9.0	2.3
1982	PC (Option 1)	All		(0.41)	7.0	1.5
	PC (Option 2)	All	0.46		8.3	1.5
	LDT, MDV (Option 1)	0-3999	0.39	(0.41)	9.0	1.5
	LDT, MDV (Option 2)	0-3999	0.46		10.6	1.5
	LDT, MDV	4000-5999	0.50	(0.50)	9.0	2.0
	MDV	6000&larger	0.60	(0.60)	9.0	2.3
1983 & Subsequent	PC	All	0.39	(0.41)	7.0	1.0
	PC	All	0.46		8.3	1.0
	LDT, MDV (Option 1)	0-3999	0.39	(0.41)	9.0	1.0
	LDT, MDV (Option 2)	0-3999	0.46		10.6	1.0
	LDT, MDV	4000-5999	0.50	(0.50)	9.0	1.5
	MDV	6000&larger	0.60	(0.60)	9.0	2.0

(a) "PC" means passenger cars.
"LDT" means light-duty trucks.
"MDV" means medium-duty vehicles.

(b) Equivalent inertia weights are determined under subparagraph 86.129-79(a).

(c) Hydrocarbon standards in parentheses apply to total hydrocarbons.

- (d) The second set of passenger car standards is optional. A manufacturer must select either the primary or optional sets of standards for its full product line for the entire two-year period.
- (e) The maximum projected emissions of oxides of nitrogen measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600, Subparagraph B) shall be no greater than 1.33 times the applicable passenger car standards and 2.0 times the applicable light-duty truck and medium-duty vehicle standards shown in the table. Both the projected emissions and the HWFET standard shall be rounded to the nearest 0.1 gm/mi before being compared.
- (f) For vehicles from evaporative emissions families with projected 50,000 mile evaporative emissions values below 1.0 gm/test, an adjustment to the hydrocarbon exhaust emission standard may be granted by the Executive Officer. The adjusted standard will be calculated using the following formula:

$$HC_{ex} = .75 \left(.185 - \frac{Di+3.3 Hs}{29.4} \right) + HC_o$$

Where:

HC_{ex} = adjusted exhaust hydrocarbon standard

HC_o = unadjusted exhaust hydrocarbon standard

Di = diurnal evaporative emissions

Hs = hot soak evaporative emissions.

- (g) For vehicles certified to special standards authorized by Section 1960.2, Article 2, subchapter 1, Chapter 3, Title 13, California Administrative Code.
- (h) For vehicles certified to special standards authorized by Section 1960.3, Article 2, subchapter 1, Chapter 3, Title 13, California Administrative Code.
- (i) For vehicles certified to special standards authorized by Section 1960.4, Article 2, Subchapter 1, Chapter 3, Title 13, California Administrative Code. Special standards revert to "1983 and subsequent" standards for 1985 and subsequent passenger cars and 1986 and subsequent LDTs and MDVs.
- (j) The Executive Officer may grant limited relief from the 1983 passenger car and 1984 LDT and MDV special NOx standard to a manufacturer who exceeds the standard because of unforeseen technical problems.

5. Additional Requirement

- a. A statement must be supplied that the production vehicles shall be in all material respects the same as those for which certification is granted.
- b. If a gasoline-fueled vehicle manufacturer requires the use of unleaded fuel, a statement will be required that the engine and transmission combinations for which certification is requested are designed to operate satisfactorily on a gasoline having a research octane number not greater than 91.

- c. Labeling required pursuant to paragraph 86.079-35 and Section 1965, Chapter 3, Title 13 of the California Administrative Code shall conform with the requirements specified in the "California Motor Vehicle Tune-Up Label Specifications."
- d. For gasoline-powered vehicles evidence shall be supplied that the air/fuel metering system or secondary air injection system is capable of providing sufficient oxygen to theoretically allow enough oxidation to attain the CO emission standard at barometric pressures equivalent to those expected at altitudes ranging from sea level to 6,000 feet elevation.
- e. The mechanism for adjusting the idle air/fuel mixture, if any, shall be designed so that either:
 - (i) The mixture adjustment mechanism is not visible, even with the air cleaner removed, and special tools and/or procedures are required to make adjustments; or
 - (ii) in the alternative, the Executive Officer may, upon reasonable notice to the manufacturer, require that a certification test of a vehicle be conducted with the idle air/fuel mixture at any setting which the Executive Officer finds corresponds to settings likely to be encountered in actual use. The Executive Officer, in making this finding, shall consider the difficulty of making adjustments, damage to the carburetor in the event of any effort to make an improper adjustment, and the need to replace parts following the adjustment.

The manufacturer shall submit for approval by the Executive Officer his or her proposed method for compliance with this requirement in his or her preliminary application for certification.

- f. The exhaust emissions shall be measured from all exhaust emission data vehicles tested in accordance with the federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600 Subpart B). The oxides of nitrogen emissions measured during such tests shall be multiplied by the oxides of nitrogen deterioration factor computed in accordance with paragraph 86.078-28, and then rounded and compared with the standard as set forth in paragraph 4 above. All data obtained pursuant to this paragraph shall be reported in accordance with procedures applicable to other exhaust emissions data required pursuant to these procedures.

In the event that one or more of the manufacturer's emission data vehicles fail the HWFET standard listed in paragraph 4, the manufacturer may submit to the Executive Officer engineering data or other evidence showing that the system is capable of complying with the standard. If the Executive Officer finds, on the basis of an engineering evaluation, that the system can comply with the HWFET standard, he or she may accept the information supplied by the manufacturer in lieu of vehicle test data.

- g. The manufacturer shall submit to the Executive Officer a statement that those vehicles for which certification is requested have driveability and performance characteristics which satisfy that manufacturer's customary driveability and performance requirements for vehicles sold in the United States. This statement shall be based on driveability data and other evidence showing compliance with the manufacturer's performance criteria. This statement shall be supplied with the manufacturer's final application for certification, and with all running changes for which emission testing is required.

If the Executive Officer has evidence to show that in-use vehicles demonstrate poor performance that could result in wide-spread tampering with the emission control systems, he or she may request all driveability data and other evidence used by the manufacturer to justify the performance statement.

6. Optional 100,000 Mile Certification Procedure

The alternate emission standards shown in paragraph (4) above shall apply to any engine family which meets all of the following additional requirements:

- a. Each exhaust emission durability data vehicle shall be driven, with all emission control systems installed and operating, for 100,000 miles or such lesser distance as the Executive Officer may agree to as meeting the objectives of this procedure. Compliance with the emission standards shall be established as follows:
 - (i) The linear regression line for all pollutants shall be established by use of all required data from tests of the durability vehicle at every 5,000 mile intervals from 5,000 to 100,000 miles. The requirements in subparagraph 86.078-28(a)(4)(i)(B)(durability vehicles must meet emissions standards) refer, for each pollutant, to the highest of either the federal 50,000 mile or California 100,000 mile emission standards.

(ii) Compliance with the hydrocarbon and carbon monoxide standards shall be determined as follows:

(a) For Option 1:

- (A) the interpolated 4,000 and 50,000 mile points on the linear regression line in (i) shall not exceed the appropriate hydrocarbon and carbon monoxide standards, except as in (B) below.
- (B) the linear regression line in (i) may exceed the standard provided that no data point exceeds the standard.
- (C) the hydrocarbon and carbon monoxide data from the 4,000 mile test point of the emission data vehicle shall be multiplied by the deterioration factor computed by dividing the interpolated 50,000 mile point by the interpolated 4,000 mile point. These values shall not exceed the appropriate hydrocarbon and carbon monoxide standards.

(b) For Option 2:

- (A) the interpolated 4,000 and 100,000 mile points on the linear regression line in (i) shall not exceed the appropriate hydrocarbon and carbon monoxide standards, except as in (B) below.
- (B) the linear regression line in (i) may exceed the standard provided that no data point exceeds the standard.
- (C) the hydrocarbon and carbon monoxide data from the 4,000 mile test point of the emission data vehicle shall be multiplied by the deterioration factor computed by dividing the interpolated 100,000 mile point by the interpolated 4,000 mile point. These values shall not exceed the appropriate 100,000 mile hydrocarbon and carbon monoxide standards.

(iii) Compliance with the oxides of nitrogen standard for Options 1 and 2 shall be determined as follows:

- (a) the interpolated 4,000 and 100,000 mile points on the linear regression line in (i) shall not exceed the appropriate 100,000 mile oxides of nitrogen standard except as in (b) below.
- (b) the linear regression line in (i) may exceed the standard provided that no data point exceeds the standard.
- (c) the oxides of nitrogen data from the 4,000 mile test point of the emission data vehicle shall be multiplied by the deterioration factor computed by dividing the interpolated 100,000 mile point by the interpolated 4,000 mile point. These values shall not exceed the appropriate 100,000 mile oxides of nitrogen standard.

All references in these test procedures to "useful life," 5 years, and 50,000 miles shall mean "total life," 10 years, and 100,000 miles, respectively, except in subparagraph (ii).

b. Only the following scheduled maintenance shall be allowed under subparagraph 86.078.25(a)(1)(i).

25(a)(1)(i)(A) Option 1. For 1981 and later model gasoline or diesel-fueled vehicles, maintenance shall be restricted to the inspection, replacement, cleaning, adjustment, and/or service of the following items at intervals no more frequent than indicated.

- (1) Drive belt tension on engine accessories (30,000 miles).
- (2) Valve lash (15,000 miles).
- (3) Spark plugs (30,000 miles).
- (4) Air filter (30,000 miles).
- (5) Exhaust gas sensor (30,000 miles); Provided that an audible and/or visible signal approved by the Executive Officer alerts the vehicle operator to the need for sensor maintenance.
- (6) Choke, cleaning or lubrication only (30,000 miles).
- (7) Idle speed (30,000 miles).
- (8) Fuel Filter (30,000 miles).
- (9) Injection timing (30,000 miles).

25(a)(1)(i)(B) Option 2. For 1981 and later model gasoline or diesel-fueled vehicles, maintenance shall be restricted to the inspection, replacement, cleaning, adjustment, and/or service of the following items at intervals no more frequent than indicated:

- (1) Drive belt tension on engine accessories (30,000 miles).
- (2) Valve lash (15,000 miles).
- (3) Spark plugs (30,000 miles).
- (4) Air filter (30,000 miles).
- (5) Fuel filter (30,000 miles).
- (6) Idle speed (30,000 miles).
- (7) Injection timing (30,000 miles).

(iii) In addition, adjustment of the engine idle speed (curb idle and fast idle), valve lash, and engine bolt torque may be performed once during the first 5,000 miles of scheduled driving, provided the manufacturer makes a satisfactory showing that the maintenance will be performed on vehicles in use.

c. The manufacturer agrees to apply to vehicles certified under this paragraph the provisions of Section 43204 of the California Health and Safety Code for a period of ten year or 100,000 miles, whichever first occurs.

8. For all emission standards options, any vehicle which is subject to a standard set by federal law or regulation controlling emissions of particulate matter must conform to such standard.

Memorandum

To : Huey D. Johnson
Secretary
Resources Agency
1416 - 9th Street
Sacramento, CA 95814

Date : December 29, 1980
Subject: Filing of Notice
of Decision of the
Air Resources Board

From : **Air Resources Board**

Pursuant to Title 17, Section 60007(b), and in compliance with Air Resources Board certification under section 21080.5 of the Public Resources Code, the Air Resources Board hereby forwards for posting the attached notice of decision and response to environmental comments raised during the comment period.


Sally Rump
BOARD SECRETARY

att: Resolution 80-58
Resolution 80-59
Resolution 80-60

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Office of the Secretary

DEC 30 1980

Resources Agency of California

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: PUBLIC HEARING TO CONSIDER CONFIRMATION OF AMENDMENTS TO TITLE
13, CALIFORNIA ADMINISTRATIVE CODE, REGARDING THE 1982 AND
SUBSEQUENT MODEL YEAR EXHAUST EMISSION STANDARDS.

Agenda Item No: 80-25-2 (Resolution No. 60)

Public Hearing Date: December 2, 1980

Response Date: December 2, 1980

Issuing Authority: Air Resources Board

Comment: No comments were received identifying any significant
environmental issues pertaining to this item. The staff
report identified no adverse effects.

Response: N/A

CERTIFIED: *Sally Rump*
Board Secretary

Date: *12/29/80*

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DEC 30 1980

Resources Agency of California

State of California
AIR RESOURCES BOARD

Resolution 80-60

December 2, 1980

Agenda Item No. 80-25-2

WHEREAS, Section 39601 of the Health and Safety Code authorizes the Air Resources Board to adopt standards, rules and regulations necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law; and

WHEREAS, Section 43000(e) of the Health and Safety Code states that emission standards applied to new motor vehicles are standards with which all new motor vehicles shall comply; and

WHEREAS, Sections 43101 and 43104 of the Health and Safety Code authorize the Board to adopt vehicle emission standards and test procedures in order to control or eliminate air pollution caused by motor vehicles; and

WHEREAS, the federal Environmental Protection Agency (EPA) has adopted particulate emission standards for 1982 and subsequent model year diesel-fueled light-duty vehicles and light-duty trucks, which standards are applicable to vehicles sold in California; and

WHEREAS, the Board finds that control of particulate emissions is necessary to protect the public health and achieve federal and state ambient air quality standards; and

WHEREAS, the Board finds that insufficient information is now available to enable it to establish an independent California emission standard for particulate matter; and

WHEREAS, the California Environmental Quality Act and Board regulations require that no project having adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available; and

WHEREAS, an emergency public hearing has been held in accordance with the provisions of the Administrative Procedure Act (Government Code, Title 2, Division 3, Part 1, Chapter 4.5); and

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DEC 30 1980

Resources Agency of California