State of California
AIR RESOURCES BOARD

Resolution 81-68

November 19, 1981

Agenda Item No.: 81-24-2

WHEREAS, Sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (the "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;

WHEREAS, Section 43100 of the Health and Safety Code authorizes the Board to certify new motor vehicles;

WHEREAS, Section 43102 of the Health and Safety Code provides that no new motor vehicle shall be certified unless it meets specified emission standards and test procedures set by the state board;

WHEREAS, Sections 43013, 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;

WHEREAS, Sections 43000(c) and 43000(e) of the Health and Safety Code state that emission standards and test procedures applied to new motor vehicles are standards and procedures with which all new motor vehicles must comply;

WHEREAS, Title 13, California Administrative Code (CAC), Section 1960.1 presently establishes a 50,000-mile oxides of nitrogen (NOx) emission standard for the 1982 model year of 1.5 grams per mile (g/mi) for vehicles in the 4,000-5,999 pounds equivalent inertia weight (EIW) class and 2.0 g/mi for vehicles in the 6,000 pounds and larger EIW class;

WHEREAS, Title 13, CAC, Section 1960.1 presently establishes a 50,000-mile NOx emission standard for 1983 and subsequent model years of 1.0 g/mi for vehicles in the 4,000-5,999 pounds EIW class and 1.5 g/mi for vehicles in the 6,000 pounds and larger EIW class;

WHEREAS, Title 13, CAC, Section 1960.1 presently establishes optional 100,000-mile NOx emission standards for the 1982 model year of 1.5 g/mi for vehicles in the 0-3,999 pounds EIW class, 2.0 g/mi for vehicles in the 4,000-5,999 pounds EIW class and 2.3 g/mi for vehicles in the 6,000 pounds and larger EIW class;

WHEREAS, Title 13, CAC, Section 1960.1 presently establishes optional 100,000-mile NOx emission standards for 1983 and subsequent model years of 1.0 g/mi for vehicles in the 0-3,999 pounds EIW class, 1.5 g/mi for vehicles in the 4,000-5,999 pounds EIW class and 2.0 g/mi for vehicles in the 6,000 pounds and larger EIW class;

WHEREAS, an individual manufacturer of gasoline-powered light-duty trucks and medium-duty vehicles (4,000 pounds and larger EIW) has, on the basis of economic concerns, petitioned the Board to carry over the 1982 50,000-mile standards for vehicles in the 4,000-5,999 pounds and 6,000 pounds and larger EIW classes to 1983 and subsequent years, subject to a seven-year/75,000-mile recall;

WHEREAS, several manufacturers of diesel-powered passenger cars, light-duty trucks and medium-duty vehicles (0-3,999 pounds EIW) have petitioned the Board to reconsider the present 1983 and subsequent years optional 100,000 mile 1.0 g/mi NOx standard based upon the asserted lack of technological capability to meet the standard by 1983;

WHEREAS, an individual manufacturer of diesel-powered light-duty trucks and medium-duty vehicles in the 4,000 pounds and larger EIW class has petitioned the Board to reconsider the 1983 and subsequent years optional 100,000-mile 1.5 g/mi (4,000-5,999 pounds EIW) and 2.0 g/mi (6,000 pounds and larger EIW) NOx emissions standards based upon the asserted lack of technological capability to meet the standards by 1983;

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

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with the provisions of the Administrative Procedure Act (Government Code, Title 2, Division 3, Part 1, Chapter 3.5);

WHEREAS, the Board reaffirms its previous finding that the control of NOx emissions from motor vehicles is necessary to protect the health and well-being of people in the state, and to achieve and maintain state and national ambient air quality standards; and

WHEREAS, the Board finds:

That three-way catalyst technology exists which is capable of meeting the presently existing 50,000-mile exhaust emission standards for 1983 and subsequent model years for gasoline-powered light-duty trucks and medium-duty vehicles in the 4,000-5,999 pounds EIW class and the 6,000 pounds and larger EIW class;

That there are technological problems associated with diesel-powered passenger cars, light-duty trucks and medium-duty vehicles (0-3,999 pounds EIW) using mechanical exhaust gas recirculation (EGR) technology to meet the optional 100,000-mile 1.0 g/mi NOx standard by 1983;

That manufacturers are developing a more advanced electronically controlled EGR system which has demonstrated the potential of meeting the 1.0 g/mi NOx emissions standard for passenger cars, light-duty trucks, and medium-duty vehicles (0-3,999 pounds EIW) by 1984;

That there are technological problems associated with diesel-powered passenger cars, light-duty trucks and medium-duty vehicles (4,000-5,999 pounds EIW) using mechanical EGR technology to meet the 1983 and subsequent model years optional 100,000-mile 1.5 g/mi NOx standard by 1983;

That electronically controlled EGR systems will be utilized and could achieve the 1.5 g/mi (4,000-5,999 pounds EIW) NOx levels by 1984;

That in model year 1984 optional 100,000-mile NOx emission standards of 1.0 g/mi (0-3,999 pounds EIW) and 1.5 g/mi (4,000-5,999 pounds EIW) are technologically and economically feasible and would allow the manufacturers the necessary lead time to perfect electronically controlled EGR systems for diesel-powerd passenger cars, light-duty trucks, and medium-duty vehicles;

That failure to extend the 1982 100,000-mile optional standards for vehicles in the 0-3,999 and 4,000-5,999 pounds EIW classes through 1983 will cause economic hardship to the manufacturers and the impairment of model availability to California consumers;

That no substantial evidence has been presented to support the one manufacturer's claim that it cannot meet the 1983 and subsequent model years optional 100,000-mile 2.0 g/mi NOx emission standard for vehicles in the 6,000 pounds and larger EIW class, and, to the contrary, the Board finds that the evidence indicates that the manufacturer can meet the present 1983 and subsequent model years standard for this weight class;

That the continuation to 1984 of the present 1982 100,000-mile optional NOx standards for vehicles in the 0-3,999 and 4,000-5,999 pounds EIW classes may have an adverse effect on the environment but that any NOx increases are mitigated to the maximum extent feasible by associated reductions in particulate emissions and that other alternatives are not technologically or economically feasible;

NOW, THEREFORE, BE IT RESOLVED that the Board hereby amends Title 13, California Administrative Code, Section 1960.1 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 confirms its previous finding that in the 1983 and subsequent model years the 50,000-mile NOx emission standards of 1.0 g/mi (4,000-5,999 pounds EIW) and 1.5 g/mi (6,000 pounds and larger EIW) are presently technologically and economically feasible for light-duty trucks and medium-duty vehicles.

BE IT FURTHER RESOLVED that the Board confirms its previous finding that in 1983 and subsequent model years the 100,000-mile optional NOx emissions standard of 2.0 g/mi for vehicles in the 6,000 pounds and larger EIW are presently technologically and economically feasible for medium-duty vehicles.

BE IT FURTHER RESOLVED that the amended optional standards are as stringent and, in the aggregate, as protective of public health as the applicable federal standards.

I certify that the above is a true and correct copy of Resolution 81-68 as adopted by the Air Resources Board.

David Olson for
Sally Rump, Board Secretary

Attachment A

Amend Section 1960.1, Title 13, California Administrative Code, to read as follows:

1960.1. Exhaust Emission Standards and Test Procedures - 1981 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

(a) The exhaust emissions from new 1981 and subsequent model passenger cars, light-duty trucks, and medium-duty vehicles, subject to registration and sold and registered in this state, shall not exceed:

50,000 MILE 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)(6)
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 &	PC	All	0.39 (0.41)	7.0	0.4
	PC (5)	All	0.39 (0.41)	7.0	0.7
Subsequent	LDT,MDV	0-3999	0.39 (0.41)	9.0	0.4
	LDT,MDV (5)	0-3999	0.39 (0.41)	9.0	1.0
	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)	Carbon Monoxide	Oxides of Nitrogen (NO_2) (6)
1981	PC (Option 1)	All	0.39 (7)	3.4	1.5
	PC (Option 2)	All	0.46 (7)	4.0	1.5
	LDT,MDV (Option 1)	0-3999	0.39 (0.41) (7)	9.0	1.5
	LDT,MDV (Option 2)	0-3999	0.46 (7)	10.6	1.5
	LDT,MDV Option 1	4000-5999	0.50 (0.50) (7)	9.0	2.0
	MDV Option 1	6000 & larger	0.60 (0.60) (7)	9.0	2.3
1982	PC (Option 1)	All	0.39 (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 Option 1	4000-5999	0.50 (0.50)	9.0	2.0
	MDV Option 1	6000 & larger	0.60 (0.60)	9.0	2.3
1983-&-Subsequent	PC (Option 1)	All	0.39 (0.41)	7.0	~~1.0~~ 1.5
	PC (Option 2)	All	0.46	8.3	~~1.0~~ 1.5
	LDT,MDV (Option 1)	0-3999	0.39 (0.41)	9.0	~~1.0~~ 1.5
	LDT,MDV (Option 2)	0-3999	0.46	10.6	~~1.0~~ 1.5
	LDT,MDV Option 1	4000-5999	0.50 (0.50)	9.0	~~1.5~~ 2.0
	MDV Option 1	6000 & larger	0.60 (0.60)	9.0	2.0
1984 & Subsequent	PC Option 1	All	0.39 (0.41)	7.0	1.0
	PC Option 2	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 Option 1	4000-5999	0.50 (0.50)	9.0	1.5
	MDV Option 1	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) This set of standards for 1983 and later model vehicles is optional. A manufacturer may choose to certify to these optional standards pursuant to the conditions set forth in Section 1960.15.

(6) 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 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.

(7) For vehicles from evaporative emissions families with projected 50,000 mile evaporative emissions values below 1.0 gm/test, an adjustment to the hydrocarb 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.

(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 ~~May 20, 1981~~ November 19, 1981.

(c) With respect to any new vehicle required to comply with the standards set forth in paragraph (a), the manufacturer's written maintenance instructions for in-use vehicles shall not require scheduled maintenance more frequently than or beyond the scope of maintenance permitted under the test procedures referenced in paragraph (b) above. Any failure to perform scheduled maintenance shall not excuse an emissions violation unless the failure is related to or causative of the violation.

(d) Any vehicle required to comply with the standards set forth in paragraph (a) which is subject to a standard set by federal law or regulation controlling emissions of particulate matter must conform to such standard.

NOTE: Authority cited: Sections 39600 and 39601, Health and Safety Code. Reference: Sections 43013, 43100, 43101, 43104 and 43106, Health and Safety Code.

HISTORY:

1. New section filed 6-13-78; effective thirtieth day thereafter (Register 78, No. 24).

2. Amendment of subsection (b) filed 2-9-79 as an emergency; effective upon filing (Register 79, No. 6).

3. Certificate of Compliance filed 5-11-79 (Register 79, No. 19).

4. Amendment filed 5-31-79; effective thirtieth day thereafter (Register 79, No. 22).

5. Amendment filed 10-7-80 as an emergency; effective upon filing (Register 80, No. 41). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 2-5-81.

6. Certificate of Compliance as to order 10-7-80 filed 1-28-81 (Register 81, No. 5).

Attachment B

Proposed

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
Amended: May 20, 1981
Amended: November 19, 1981

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)	50,000 Mile 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
	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	All	0.39 (0.41)	7.0	0.4
	PC(k)	All	0.39 (0.41)	7.0	0.7
	LDT, MDV	0-3999	0.39 (0.41)	9.0	0.4
	LDT,MDV(k)	0-3999	0.39 (0.41)	9.0	1.0
	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(j)
	LDT, MDV	0-3999	0.39 (0.41)	9.0	1.0
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)	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 (Option 1)	4000-5999	0.50 (0.50) (f)	9.0	2.0
	MDV(Option 1)	6000+larger	0.60 (0.60) (f)	9.0	2.3
1982	PC(Option 1)	All	0.39 (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 (Option 1)	4000-5999	0.50 (0.50)	9.0	2.0
	MDV(Option 1)	6000&larger	0.60 (0.60)	9.0	2.3
1983 & Subsequent	PC (Option 1)	All	0.39 (0.41)	7.0	~~1.0~~ 1.5
	PC (Option 2)	All	0.46	8.3	~~1.0~~ 1.5
	LDT, MDV (Option 1)	0-3999	0.39 (0.41)	9.0	~~1.0~~ 1.5
	LDT, MDV (Option 2)	0-3999	0.46	10.6	~~1.0~~ 1.5
	LDT, MDV (Option 1)	4000-5999	0.50 (0.50)	9.0	~~1.5~~ 2.0
	MDV (Option 1)	6000&larger	0.60 (0.60)	9.0	2.0
1984 & Subsequent	PC (Option 1)	All	0.39 (0.41)	7.0	1.0
	PC (Option 2)	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 (Option 1)	4000-5999	0.50 (0.50)	9.0	1.5
	MDV (Option 1)	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:

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

Where:

HC_{ex} = adjusted exhaust hydrocarbon standard

HC_o = unadjusted exhaust hydrocarbon standard

Di = diurnal evaporative emissions
Hs = hot soak evaporative emissions.

(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) Optional Standards. A manufacturer may choose to certify to these optional standards pursuant to the provisions set forth in Section 1960.15, Title 13, California Administrative Code.

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).

c. In addition, adjustment of the engine 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.

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

7. 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

Memorandum

To : Huey D. Johnson
Secretary
Resources Agency

Date : February 3, 1982

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 enviromental comments raised during the comment period.

Harold Holmes
Board Secretary

attachment
Resolution 81-68

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Hearing to Consider Amendments to Title 13, California Administrative Code, Sections 1960.1 and 1960.15 and Related Test Procedures Regarding Oxides of Nitrogen Exhaust Emissions Standards for 1983 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles

Agenda Item No.: 81-24-2

Public Hearing Date: November 19, 1981

Response Date: November 19, 1981

Issuing Authority : Air Resources Board

Comment: The staff report noted that there may be an adverse environmental impact from extending the NOx standards in question. No other comments were received identifying any significant environmental issues pertaining to this item.

Response: Staff noted and the Board found that increased NOx emissions are mitigated to the maximum extent feasible by associated reductions in particulate emissions and that other alternatives are not technologically or economically feasible at this time.

CERTIFIED: Sally Rumpf, by MK
Board Secretary

Date: 12/31/81