State of California
AIR RESOURCES BOARD

Resolution 76-44

November 23, 1976

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;

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

WHEREAS, the Board has found that more stringent exhaust emission standards for passenger cars, light-duty trucks, and medium-duty vehicles are needed to achieve the ambient air quality standards in the South Coast Air Basin and in other areas of the State;

WHEREAS, on October 7 and 8, 1976 the Air Resources Board staff conducted a workshop with representatives of motor vehicle manufacturers to discuss the costs and technological feasibility of more stringent exhaust emission standards for passenger cars, light-duty trucks, and medium-duty vehicles, and to discuss needed changes to the Board's test procedures for such vehicles;

WHEREAS, based on information presented at the October 7 and 8 meetings and on information previously submitted to the Board and to the U.S. Environmental Protection Agency the Board has found that more stringent exhaust emission standards for passenger cars, light-duty trucks, and medium-duty vehicles are, commencing with the 1979 model-year, both technologically feasible and cost/effective;

WHEREAS, technical amendments to the Board's test procedures are necessary to clarify certain definitions, to amend the method for calculation or road load horsepower, and to establish the test requirements for four-wheel drive vehicles, all in conformance with proposed federal test procedures; and

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 4.5);

NOW, THEREFORE, BE IT RESOLVED, that the Board hereby amends its regulations in Article 2, Subchapter 1, Chapter 3 of Title 13, California Administrative Code as described in Exhibits I, II, III, and IV to Staff Report 76-22-2(a) dated November 23, 1976.

BE IT FURTHER RESOLVED, that the Board hereby adopts the "California Exhaust Emission Standards and Test Procedures for 1975 Through 1979 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" dated February 19, 1975, as last amended November 23, 1976.

BE IT FURTHER RESOLVED, that the Board hereby adopts the "California Exhaust Emission Standards and Test Procedures for 1980 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" dated November 23, 1976: Provided, that Subparagraphs (3)(f), (3)(g), and (5)(e) of said procedure shall not be in effect unless specifically adopted by the Board by resolution.

BE IT FURTHER RESOLVED, that the Board will consider that the adoption of the oxides of nitrogen standards proposed in the staff report 76-22-2(a) for 1982 and Subsequent model passenger cars, light duty trucks, and medium duty vehicles, at a continuation of today's public hearing which will be held in January, 1977.

Amendment to Section 1955.1
Title 13, California Administrative Code

1955.1. Exhaust Emission Standards and Test Procedures-1975 Through ~~1978~~ 1979 Model-Year Passenger Cars.

(a) The exhaust emissions from new 1975 through ~~1978~~ 1979 model-year gasoline-fueled passenger cars having an engine displacement of 50 cubic inches or greater, subject to registration and sold and registered in this state, shall not exceed:

Exhaust Emission Standards
(grams per mile)

| Model-Year | Hydrocarbons | Carbon Monoxide | Oxides of Nitrogen ($NO_2$) |
|---|---|---|---|
| 1975 | 0.9* | 9.0 | 2.0 |
| 1976 | 0.9* | 9.0 | 2.0 |
| 1977 | 0.41 | 9.0 | 1.5 |
| 1978 | 0.41 | 9.0 | 1.5 |
| 1979 | 0.41 | 9.0 | 1.5 |

*Hydrocarbon emissions from limited-production passenger cars shall not exceed 1.5 grams per mile.

(b) The test procedures for determining compliance with these standards are set forth in "California Exhaust Emission Standards and Test Procedures for 1975 through ~~1978~~ 1979 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles", adopted by the Air Resources Board February 19, 1975, as amended March 17, 1975, April 16, 1975, February 20, 1976, ~~and~~ March 31, 1976, ~~and~~ April 28, 1976, and November 23, 1976.

Amendment to Section 1955.5, Title 13,
California Administrative Code

1955.5 Exhaust Emission Standards and Test Procedures - 1975 Through ~~1978~~ 1979 Model-Year Light-Duty Trucks.

(a) The exhaust emissions from new 1975 through ~~1978~~ 1979 model-year light-duty trucks having an engine displacement of 50 cubic inches or greater, subject to registration and sold and registered in this state, shall not exceed:

Exhaust Emission Standards
(grams per mile)

| Model-Year | Hydrocarbons | Carbon Monoxide | Oxides of Nitrogen ($NO_2$) |
|---|---|---|---|
| 1975 | 2.0 | 20 | 2.0 |
| 1976 | 0.9 | 17 | 2.0 |
| 1977 | 0.9 | 17 | 2.0 |
| 1978 | 0.9 | 17 | 2.0 |
| 1979 | 0.41 (0.50)* | 9.0 | 1.5 (2.0)* |

*Standards in parenthesis apply to light-duty trucks with equivalent inertia weights of 4000 lbs. or larger.

(b) The standards shown in subdivision (a) for the 1975 model year shall apply to 1975 and 1976 model limited-production light-duty trucks.

(c) The test procedures for determining compliance with these standards are set forth in "California Exhaust Emission Standards and Test Procedures for 1975 Through ~~1978~~ 1979 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles", adopted by the Air Resources Board February 19, 1975, as amended March 17, 1975, April 16, 1975, February 20, 1976, and March 31, 1976, and April 28, 1976, and November 23, 1976.

Amendment to Section 1959, Title 13,
California Administrative Code

1959. Exhaust Emission Standards and Test Procedures - 1978 and 1979 Model Medium-Duty Vehicles.

(a) The exhaust emissions from new 1978 and 1979 medium-duty vehicles having an engine displacement of 50 cubic inches or greater, subject to registration and sold and registered in this state, shall not exceed:

Exhaust Emission Standards
(grams per mile)

| Model-Year | Hydrocarbons | Carbon Monoxide | Oxides of Nitrogen ($NO_2$) |
|---|---|---|---|
| 1978 | 0.9 | 17 | 2.3 |
| 1979 | 0.9 | 17 | 2.3 |

(b) The test procedures for determining compliance with these standards are set forth in "California Exhaust Emission Standards and Test Procedures for 1975 Through ~~1978~~ 1979 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles", adopted by the Air Resources Board February 19, 1975, as amended March 17, 1975, April 16, 1975, February 20, 1976, ~~and~~ March 31, 1976, ~~and~~ April 28, 1976, and November 23, 1976.

New Section 1960, Title 13,
California Administrative Code

1960. Exhaust Emission Standards and Test Procedures - 1980 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

(a) The exhaust emissions from new 1980 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:

Exhaust Emission Standards
(grams per mile)

| Model-Year | Vehicles | Equivalent Inertia Weight (lbs) | Non-Methane Hydrocarbons | Carbon Monoxide | Oxides of Nitrogen ($NO_2$) |
|---|---|---|---|---|---|
| 1980 | Passenger cars (PC) | All | 0.41 | 9.0 | 1.0 |
| | Light-Duty Trucks (LDT) | 0-3999 | 0.41 | 9.0 | 1.5 |
| | Light-Duty Trucks (LDT) | 4000-5999 | 0.50 | 9.0 | 2.0 |
| | Medium-Duty Vehicles (MDV) | All | 0.9 | 17 | 2.3 |
| 1981 and subsequent | PC | All | 0.41 | 9.0 | 1.0 |
| | LDT and MDV | 0-3999 | 0.41 | 9.0 | 1.0 |
| | LDT and MDV | 4000-5999 | 0.50 | 9.0 | 1.5 |
| | MDV | 6000 and larger | 0.60 | 9.0 | 2.0 |

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

# CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 1980 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 November 23, 1976, are hereby adopted as the California Exhaust Emission Standards and Test Procedures for 1980 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 1980 and subsequent model passenger cars, light-duty trucks and medium-duty vehicles, except motorcycles. A manufacturer may elect to certify heavy-duty vehicles of 10,000 pounds maximum gross vehicle weight rating or less as medium-duty vehicles, in which event heavy-duty emission standards and test procedures will not apply. 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.

i. "Incomplete truck" means any truck which does not have the primary load carrying device or container attached.

j. "Vehicle curb weight" means, for incomplete trucks, 75% of the GVW rating or any higher vehicle curb weight specified by the manufacturer.

k. "Basic vehicle frontal area" means the area enclosed by the geometric projection of the basic vehicle along the longitudinal axis, which includes tires but excludes mirrors and air deflectors, onto a plane perpendicular to the longitudinal axis of the vehicle.

l. "Van" means a light-duty truck or medium-duty vehicle having an integral enclosure, fully enclosing the driver compartment and load carrying device, and having no body sections protruding more than 30 inches ahead of the leading edge of the windshield.

3. Test Procedures

Subparagraphs (3)(f) and (3)(g) below do not apply to 1980 model light-duty trucks and medium-duty vehicles.

a. Hydrocarbon emissions shall be measured with an analytical system which responds only to the non-methane fraction.

In the alternative, a manufacturer may correct the total measured hydrocarbons with a methane content correction factor. This factor shall be 0.89 for gasoline-fueled passenger cars equipped with an oxidation catalyst, and 1.00 for all other vehicles. If any manufacturer has reason to believe that the above methane content correction factors are not appropriate for his exhaust emission control system, he may present evidence to the Executive Officer to support this claim. After examining the manufacturer's data, the Executive Officer may designate a methane content correction factor different than those stated above.

All hydrocarbon test data shall be reported as non-methane hydrocarbons (NMHC).

b. Mileage will be accumulated on four wheel drive vehicles in their normal on-highway mode of operation. For emissions testing, four wheel drive vehicles will be tested in a two wheel drive mode of operation. Full time four wheel drive vehicles will have the front drive wheels temporarily disengaged by the vehicle manufacturer. Four wheel drive vehicles which can be manually shifted to a two wheel drive mode will be tested in the normal on-highway two wheel drive mode of operation.

c. Durability data submitted pursuant to subparagraph 86.077-24(f) may be from vehicles previously certified by EPA or ARB.

d. The requirements in subparagraph 86.078-28(a)(4)(i)(B) (durability vehicles must meet emission standards) refer to Federal emission standards.

e. For all light-duty trucks and medium-duty vehicles, except vans, and for heavy-duty vehicles optionally certified as medium-duty vehicles, the road load power (horsepower) at 50 mph shall be 0.58 times "A", rounded to the nearest 0.5 horsepower. For vans, the road load power (horsepower) shall be 0.50 times "A", rounded to the nearest 0.5 horsepower. "A" is the basic vehicle frontal area ($ft^2$) plus the additional frontal area ($ft^2$) of mirrors and optional equipment exceeding 0.1 square feet and which are sold on more than 33% of the car line.

Where it is expected that more than 33% of the vehicles in an engine family will be equipped with air conditioning, the road load power shall be increased by 10%, not to exceed 1.4 horsepower before rounding, for testing all test vehicles representing such engine family if those vehicles are intended to be offered with air conditioning in production.

f. Paragraph 86.078-25(a) (Maintenance) is amended as follows:
25(a)(1)(i)(A) For gasoline-fueled vehicles, the following items may be inspected, replaced, cleaned, adjusted, and/or serviced as required:
(1) Valve lash
(2) Air filter (no more frequently than once every 30,000 miles).

25(a)(1)(iii) (Adjustment of engine idle speed during first 5,000 miles of vehicle operation.) Deleted.

25(a)(3) (Service of exhaust gas recirculation systems.) Deleted.

25(a)(4) (Service of catalytic converter.) Deleted.

25(a)(8)(i) The first sentence (adjustment of engine idle speed) is replaced by: "Adjustment of engine idle speed on emission data vehicles may be performed only if the idle speed exceeds the manufacturer's recommended idle speed by 300 rpm or more, or if there is a problem of stalling."

g. Any maintenance allowed by the Executive Officer pursuant to Section 86.078-25(a)(5)(iii) shall be provided by the manufacturer at no cost to the vehicle owner.

h. Notwithstanding changes in vehicle selection procedures, manufacturers may carry over data from 1979 model medium-duty vehicles to the 1980 model year.

4. Standards

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

| Model Year | Vehicle Type* | Equivalent Inertia Weight (lbs.)** | Exhaust Emission Standards (grams per vehicle mile) Non-Methane Hydrocarbons | Carbon Monoxide | Oxides of Nitrogen |
|---|---|---|---|---|---|
| 1980 | PC | All | 0.41 | 9.0 | 1.0 |
| | LDT | 0-3999 | 0.41 | 9.0 | 1.5 |
| | LDT | 4000-5999 | 0.50 | 9.0 | 2.0 |
| | MDV | All | 0.9 | 17 | 2.3 |
| 1981 and subsequent | PC | All | 0.41 | 9.0 | 1.0 |
| | LDT,MDV | 0-3999 | 0.41 | 9.0 | 1.0 |
| | LDT,MDV | 4000-5999 | 0.50 | 9.0 | 1.5 |
| | MDV | 6000 and larger | 0.60 | 9.0 | 2.0 |

*"PC" means passenger cars.
"LDT" means light-duty trucks.
"MDV" means medium-duty vehicles

**Equivalent inertia weights are as determined under Section 86.129-79(a).

5. Additional Requirements

Subparagraphs (5)(d) and (5)(e) below do not apply to 1980 model light-duty trucks and medium-duty vehicles.

a. A statement must be supplied that the production vehicles shall be in all material respects the same as those for which approval 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 approval is requested are designed to operated satisfactorily on a gasoline having a research octane number not greater than 91.

c. Labeling required pursuant to paragraph 86.078-35 shall also contain the following statement:

> "This vehicle conforms to California regulations applicable to (insert current year) model-year new vehicles."

Samples of working models of these labels may be required by the board as needed for inspection and approval, and may be retained by the board for reference and comparison purposes.

d. Evidence must be supplied that the emission control systems on certified vehicles provide approximately the same percentage control of emissions at altitudes of up to 6,000 feet as these systems provide at sea level.

e. The mechanism for adjusting the idle air/fuel mixture, if any shall be designed so that either:

i) the mixture cannot be adjusted without the use of special tools and/or procedures not readily available to the general public or the service industry including franchised dealers; or

ii) the mixture cannot be adjusted outside the range of the manufacturer's specification, if any, $\pm$ 0.5% CO, as measured at the tailpipe with all emission control components operating normally.

The manufacturer shall submit the proposed method for compliance with this requirement in his preliminary application for certification.

# CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 1975 THROUGH ~~1978~~ 1979 MODEL PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES

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

ADOPTED: February 19, 1975
AMENDED: March 17, 1975
AMENDED: April 16, 1975
AMENDED: February 20, 1976
AMENDED: March 31, 1976
AMENDED: April 28, 1976
AMENDED: June 30, 1976
AMENDED: November 23, 1976

CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES
FOR 1975 THROUGH ~~1978~~ 1979 MODEL
PASSENGER CARS, LIGHT-DUTY TRUCKS
AND MEDIUM-DUTY VEHICLES

The provisions of Subparts A, C, and D, plus portions of Subparts H and I, Part 85, Title 40, Code of Federal Regulations, as they existed on January 1, 1975, are hereby adopted as California's Exhaust Emission Standards and Test Procedures for 1975 Through ~~1978~~ 1979 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles, according to the following table and with the following exceptions and additions:

| FUEL | MODEL YEAR | VEHICLE CLASS |
|---|---|---|
| GASOLINE | 1975-~~1978~~ 1979<br>1975-~~1978~~ 1979<br>1978-1979 | PASSENGER CARS<br>LIGHT-DUTY TRUCKS<br>MEDIUM-DUTY VEHICLES |
| DIESEL FUEL | 1978-1979<br>1978-1979 | LIGHT-DUTY TRUCKS<br>MEDIUM-DUTY VEHICLES |

1. The Subparts apply as follows to the classifications noted, excluding motorcycles and vehicles with less than 50 cubic inches displacement:

1.a. Gasoline-fueled 1975 through ~~1978~~ 1979 model passenger cars are covered by Subpart A.

1.b. Gasoline-fueled 1975 through ~~1978~~ 1979 model light-duty trucks are covered by Subpart C.

1.c. Gasoline-fueled 1978 and 1979 model medium-duty vehicles are covered by the following subparagraphs, in several Subparts, in the sequence listed:

85.703 through 85.706
85.774-2 through 85.774-4
85.275-5(a)(2) through (4) (also refer to paragraph 6 of this standard)
85.774-5(b),(c),(d) and (f) (also refer to paragraph 6 of this standard)
Paragraph 7 of this standard
85.275-5(f)
85.275-6 through -29
Paragraph 8 of this standard
85.774-31 through -35
85.774-28 and -39

1.d. Diesel-fueled 1978 and 1979 model light-duty trucks are covered by Subpart D.

1.e. Diesel-fueled 1978 and 1979 model medium-duty vehicles are covered by the following subparagraphs, in the sequence listed:

85.903 through 85.906
85.974-2 through 85.974-4
85.376-5(a)(2) through (4) (also refer to paragraph 6 of this standard)
85.774-5(b),(c),(d) and (f) (also refer to paragraph 6 of this standard)
Paragraph 7 of this standard
85.376-5(f)
85.376-6 through -29
Paragraph 8 of this standard
85.974-31 through -35
85.974-38 and -39

1.f. A manufacturer may elect to certify 1978 model heavy-duty vehicles of 10,000 pounds maximum gross vehicle weight rating or less as medium-duty vehicles, in which event heavy-duty emission standards and test procedures will not apply.

2. Definitions: Any applicable definition in the California Health and Safety Code, Division 26, or in the California Vehicle Code as incorporated into Division 26, shall apply, and if inconsistent with any definition in these test procedures these Codes shall take precedence.

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.

i. "Incomplete truck" means any truck which does not have the primary load carrying device or container attached.

~~j. "Loaded-vehicle-weight"-means:~~

~~(1)--For-passenger-cars,-the-vehicle-curb-weight-plus 300-pounds.~~

~~(2)--For-light-duty-trucks-and-medium-duty-vehicles, the-vehicle-curb-weight-plus-500-pounds,-not-to exceed-the-GVW-rating.~~

~~k.~~j. "Vehicle curb weight" means, for incomplete trucks, 75% of the GVW rating~~.~~ or any higher vehicle curb weight specified by the manufacturer.

k. "Basic vehicle frontal area" means the area enclosed by the geometric projection of the basic vehicle along the longitudinal axis, which includes tires but excludes mirrors and deflectors, onto a plane perpendicular to the longitudinal axis of the vehicle.

l. "Van" means a light-duty truck or medium-duty vehicle having an integral enclosure, fully enclosing the driver compartment and load carrying device, and having no body sections protruding more than 30 inches ahead of the leading edge of the windshield.

3. Any reference to vehicle sales throughout the United States shall mean vehicle sales in California.

4. Regulations concerning EPA hearings, EPA inspections, specific language on the Certificate of Conformity, and evaporative emissions shall not be applicable to these procedures.

5. Durability data submitted pursuant to subparagraphs 85.075-5(f), 85.275-5(f) or 85.376-5(f) may be from vehicles previously certified or approved by EPA or ARB, notwithstanding the changes in road load horsepower ~~and-ballast-requirements~~ specified in paragraphs 16 ~~and-17~~ below.

6. Division and selection of medium-duty vehicle (MDV) engines.

6.a. The engines used in 1978 model MDVs shall be divided into engine families based on the criteria of subparagraphs 85.275-5(a)(2) through (4) or 85.376-5(a)(2) through (4). These engine families include engines for both light-duty trucks (LDTs) and MDVs.

6.b. Division of engine families into codes and selection of codes to be tested shall be in accordance with subparagraphs 85.774-5(b), (c), (d) and (f).

7. Selection and testing of Medium-duty Vehicles.

7.a. For each engine code selected in 6.b., the manufacturer shall determine if more than 50% of projected sales are derived from LDTs or MDVs.

If LDTs are the majority, proceed to 7.b.
If MDVs are the majority, proceed to 7.c.

7.b. Determine if the code, as selected in 6.b., is used in one of the LDTs which was selected in Subpart C, subparagraph 85.275-5 (gasoline) or Subpart D, subparagraph 85.376-5 (diesel).

A manufacturer has the following options:

If the answer to 7.b. is affirmative, proceed to 8.a. or, if preferred, to 7.c.

If the answer to 7.b. is negative, proceed to 7.c.

7.c. Select the inertia weight class/transmission combination with the highest sales.

7.d. For the combination selected in 7.c., select the axle ratio with the highest sales.

7.e. One MDV, built to the exact specification of each combination selected in 7.d., shall be tested in accordance with:

- Subpart C, for gasoline-fueled LDTs, following durability or emission data vehicle requirements as applicable.

- Subpart D, for diesel-fueled LDTs, following durability or emission data vehicle requirements as applicable.

MDVs tested to LDT procedures of subparts C or D must meet MDV emission standards, paragraph 13.

8. Certification of MDV engines.

8.a. Engine codes classified as affirmative in 7.b. shall be certified for all MDV applications of the selected engine code, provided that compliance with LDT standards is demonstrated.

8.b. Engine codes in MDVs which meet the test requirements of 7.e. shall be certified for all MDV applications of the selected engine code.

9. The requirements in subparagraphs 85.075-28(c)(1)(ii), 85.275-28(c)(1)(ii) and 85.376-28(c)(1)(ii) (durability vehicles must meet emission standards) refer to Federal Emission standards.

10. Labeling required pursuant to paragraphs 85.075-35 and 85.275-35 shall also conform to Section 1965 of Title 13, California Administrative Code. For diesel-powered light-duty trucks and medium-duty vehicles, the requirements of subparagraph 85.376-35(a)(4)(v) do not apply. Labeling required pursuant to subparagraph 85.376-35 shall contain the statement "This vehicle conforms to California regulations applicable to (insert current year) model-year new vehicles." Labeling is also required which conforms to Section 43200 of the California Health and Safety Code.

11. A statement must be supplied that the production vehicles shall be in all material respects the same design as those for which vehicle approval is granted.

12. 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 approval is requested are designed to operate satisfactorily on a gasoline having a research octane number not greater than 91.

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

Exhaust Emission Standards
(grams per vehicle mile)

| Model Year | Vehicle Type* | Equivalent Inertia Weight (lbs.) | Hydrocarbon | Carbon Monoxide | Oxides of Nitrogen |
|---|---|---|---|---|---|
| 1975 | PC | All | 0.9 | 9.0 | 2.0 |
| | LDT*** | All | 2.0 | 20 | 2.0 |
| 1976 | PC | All | 0.9** | 9.0 | 2.0 |
| | LDT | All | 0.9 | 17 | 2.0 |
| 1977 | PC | All | 0.41 | 9.0 | 1.5 |
| | LDT | All | 0.9 | 17 | 2.0 |
| 1978 | PC | All | 0.41 | 9.0 | 1.5 |
| | LDT | All | 0.9 | 17 | 2.0 |
| | MDV | All | 0.9 | 17 | 2.3 |
| 1979 | PC | All | 0.41 | 9.0 | 1.5 |
| | LDT | 0-3999 | 0.41 | 9.0 | 1.5 |
| | LDT | 4000-5999 | 0.50 | 9.0 | 2.0 |
| | MDV | All | 0.9 | 17 | 2.3 |

*"PC" means passenger cars.
"LDT" means light-duty trucks.
"MDV" means medium-duty vehicles.

**Except that hydrocarbon emissions from limited-production vehicles shall not exceed 1.5 grams per vehicle mile.

***These standards apply to 1975 and 1976 limited-production light-duty trucks.

14. Regulations requiring testing of new vehicles intended for initial sale at high altitudes are not adopted.

15. For the 1977 and subsequent model years, subparagraphs 85.075-28 (c)(2)(i), 85.275-28 (c)(2)(i), and 85.376-28 (c)(2)(i), are amended to read:

> The exhaust emission test results for each emission data vehicle shall be multiplied by the appropriate deterioration factor: Provided, that if a deterioration factor as computed in paragraph (c)(1)(iii) is less than one, that deterioration factor shall be one for the purposes of this paragraph. After multiplying the emission data vehicle's hydrocarbon exhaust emission value by the appropriate deterioration factor the following methane content correction factor will be applied:

A. For all passenger cars, light-duty trucks and medium-duty vehicles not equipped with an oxidation catalyst the methane content correction factor shall be a multiplicative factor of 1.00.

B. For oxidation catalyst equipped passenger cars the methane content correction factor shall be a multiplicative factor of 0.89.

C. For light-duty trucks and medium-duty vehicles equipped with oxidation catalysts the methane content correction factor shall be a multiplicative factor of 1.00.

If any manufacturer has reason to believe that the above methane content correction factors are not appropriate for his exhaust emission control system he may present evidence to the Executive Officer to support this claim. After examining the manufacturer's data, the Executive Officer may designate a methane content correction factor different from those stated above.

16. Beginning with 1978 models, the ~~equivalent-inertia-weight and~~ road load horsepower for light-duty trucks and medium-duty vehicles shall be derived ~~from-the-following-table:~~ as follows:

a. For all light-duty trucks and medium-duty vehicles, except vans, and for heavy-duty vehicles optionally certified as medium-duty vehicles, the road load power (horsepower) at 50 mph shall be 0.58 times "A", rounded to the nearest 0.5 horsepower.

b. For vans, the road load power (horsepower) shall be 0.50 times "A", rounded to the nearest 0.5 horsepower.

c. "A" is the basic vehicle frontal area ($ft^2$) plus the additional frontal area ($ft^2$) of mirrors and optional equipment exceeding 0.1 square feet and which are sold on more than 33% of the car line.

| ~~Loaded-Vehicle Weight-(pounds)~~ | ~~Equivalent-Inertia Weight-(pounds)~~ | ~~Road-Load-Power-at 50-m.p.h.-(horsepower)~~ |
|---|---|---|
| ~~Up-to-1,225~~ | ~~1,000~~ | ~~9.5~~ |
| ~~1,226-to-1,375~~ | ~~1,250~~ | ~~10.3~~ |
| ~~1,376-to-1,625-~~ | ~~1,500~~ | ~~11.0~~ |
| ~~1,626-to-1,875~~ | ~~1,750~~ | ~~12.0~~ |
| ~~1,876-to-2,125~~ | ~~2,000~~ | ~~12.8~~ |
| ~~2,126-to-2,375~~ | ~~2,250~~ | ~~13.6~~ |
| ~~2,376-to-2,625~~ | ~~2,500~~ | ~~14.5~~ |
| ~~2,626-to-2,875~~ | ~~2,750~~ | ~~15.3~~ |
| ~~2,876-to-3,250~~ | ~~3,000~~ | ~~16.1~~ |
| ~~3,251-to-3,750~~ | ~~3,500~~ | ~~17.7~~ |
| ~~3,751-to-4,250~~ | ~~4,000~~ | ~~19.4~~ |
| ~~4,251-to-4,750~~ | ~~4,500~~ | ~~21.0~~ |
| ~~4,751-to-5,250~~ | ~~5,000~~ | ~~22.7~~ |
| ~~5,251-to-5,750~~ | ~~5,500~~ | ~~24.3~~ |
| ~~5,751-to-6,250~~ | ~~6,000~~ | ~~25.9~~ |
| ~~6,251-to-6,750~~ | ~~6,500~~ | ~~27.6~~ |
| ~~6,751-to-7,250~~ | ~~7,000~~ | ~~29.2~~ |
| ~~7,251-to-7,750~~ | ~~7,500~~ | ~~30.9~~ |
| ~~7,751-to-8,250~~ | ~~8,000~~ | ~~32.5~~ |
| ~~8,251-to-8,750~~ | ~~8,500~~ | ~~34.2~~ |
| ~~8,751-to-9,250~~ | ~~9,000~~ | ~~35.8~~ |
| ~~9,251-to-9,750~~ | ~~9,500~~ | ~~37.4~~ |
| ~~9,751-to-10,000~~ | ~~10,000~~ | ~~39.1~~ |

d. The Executive Officer may allow use of road load horsepower values at 50 mph other than the values ~~listed-in-the-table above.~~ calculated using the above method.

e. Where it is expected that more than 33% of the vehicles in an engine family will be equipped with air conditioning, the road load power as determined under subparagraphs (a), (b), or (d) above shall be increased by 10%, not to exceed 1.4 horsepower before rounding, for testing all test vehicles representing such engine family if those vehicles are intended to be offered with air conditioning in production.

~~17.--Beginning-with-1978-models,-light-duty-trucks-and-medium-duty-vehicles-will-carry-a-simulated-payload-of-200-pounds of-ballast-for-mileage-accumulation.~~

17. Mileage will be accumulated on four wheel drive vehicles in their normal on-highway mode of operation. For emissions testing, four wheel drive vehicles will be tested in a two wheel drive mode of operation. Full time four wheel drive vehicles will have the front drive wheels temporarily disengaged by the vehicle manufacturer. Four wheel drive vehicles which can be manually shifted to a two wheel drive mode will be tested in the normal on-highway two wheel drive mode of operation.

18. The Executive Officer may allow any manufacturer who meets all of the following conditions to certify 1978 model-year medium-duty vehicles according to heavy-duty standards and test requirements:

    1. The manufacturer has not and/or will not produce any 1977 model-year light-duty vehicles for sale in California.

    2. The manufacturer demonstrates that there is inadequate lead time to develop or purchase the technology needed to meet the 1978 medium-duty vehicle standards.

    3. The manufacturer states that one additional year's time will allow the development or purchase of such technology.

State of California
AIR RESOURCES BOARD

RESOLUTION 76-45

November 23, 1976

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;

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;

WHEREAS, the Board has found that more stringent evaporative emission standards for motor vehicles are needed to achieve the ambient air quality standards in the South Coast Air Basin and in other areas of the state;

WHEREAS, based on information submitted to the Board and to the United States Environmental Protection Agency the Board has found that more stringent evaporative emission standards for motor vehicles are, commencing with the 1980 model-year, both technologically feasible and cost/effective; and

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 4.5);

NOW, THEREFORE, BE IT RESOLVED, that the Board hereby amends its regulations in Article 2, Subchapter 1, Chapter 3 of Title 13, California Administrative Code as follows:

Amend Section 1976(b) as follows:

1976. [Standards and Test Procedures for Fuel Evaporative Emissions from Gasoline-Powered Vehicles.]

(b) Evaporative emissions from new 1978 and subsequent model-year gasoline-powered motor vehicles except motorcycles shall not exceed: ~~6.0 grams of hydrocarbons per test~~.

Evaporative Emission Standards
(grams per test)

| | Hydrocarbons |
|---|---|
| 1978-79 | 6.0 |
| 1980 and later | 2.0 |

The procedure for determining compliance with ~~this~~ these standards is set forth in "California Evaporative Emission Standards and Test Procedures for 1978 and Subsequent Model Gasoline-Powered Motor Vehicles except Motorcycles," adopted by the Air Resources Board on April 16, 1975, ~~and~~ as amended ~~on~~ May 14, 1975, March 31, 1976, ~~and~~ October 5, 1976, and November 23, 1976.

BE IT FURTHER RESOLVED, that the Board hereby adopts the "California Evaporative Emission Standards and Test Procedures for 1978 and Subsequent Model Gasoline-Powered Motor Vehicles except Motorcycles" dated April 16, 1975, as last amended November 23, 1976.

CALIFORNIA EVAPORATIVE EMISSION
STANDARDS AND TEST PROCEDURES
FOR 1978 AND SUBSEQUENT MODEL
GASOLINE-POWERED MOTOR VEHICLES
EXCEPT MOTORCYCLES

The provisions of Title 40, Code of Federal Regulation, Part 86, Subparts A and B, as they pertain to evaporative emission standard and test procedures and as they existed on September 22, 1976, are hereby adopted as the California Evaporative Emission Standards and Test Procedures for 1978 and Subsequent Model Gasoline-Powered Motor Vehicles Except Motorcycles, with the following exceptions and additions:

1. ~~This~~ These standards and ~~these~~ test procedures are applicable to all new 1978 and subsequent model gasoline-powered passenger cars, light-duty trucks, medium-duty vehicles and heavy-duty vehicles with engine displacements of greater than 50 cubic inches which are subject to registration and first sold and registered in this state. The evaporative emission standards are:

| Model Year | Hydrocarbons (grams per test) |
|---|---|
| 1978-79 | 6.0 |
| 1980 and later | 2.0 |

2. The definitions in Section 1900, Title 13, California Administrative Code, and in the applicable model year California exhaust emission standards and test procedures, are hereby incorporated into this test procedure by reference.

3. Approval of medium-duty vehicles shall be based on the same standard and test procedures as light-duty trucks. In selecting medium-duty test vehicles the Executive Officer shall consider the availability of test data from comparably equipped light-duty vehicles and the size of medium-duty vehicles at it relates to the practicability of evaporative emission testing.

4. Demonstration of system durability and determination of an evaporative emission deterioration factor for each evaporative emission engine family shall be based on tests of representative vehicles and/or systems. For purposes of evaporative emission durability testing a representative vehicle is one which, with the possible exception of the engine and drivetrain, was built at least three months prior to the commencement of evaporative emission testing, or is one which the manufacturer demonstrates has stabilized non-fuel-related evaporative emissions.

   a. For 1978 model evaporative emission engine families which require durability testing for exhaust emissions certification, either

      i. Evaporative emission testing shall be conducted on all durability vehicles at the 5,000, 10,000, 20,000, 30,000, 40,000, and 50,000 mile test points. Testing may be performed at more frequent intervals with advance written

approval from the Executive Officer. The results of all valid evaporative emission tests within each evaporative emission engine family shall be plotted as a function of mileage, and a least-squares fit straight line shall be drawn through the data. The evaporative emission deterioration factor is defined as the interpolated 50,000 mile value on that line minus the extrapolated 4,000 mile value on that line, but in no case shall the factor be less than zero.

OR

ii. The manufacturer shall propose in his preliminary application for approval a method for durability testing and for determination of a deterioration factor for each evaporative emission engine family. The Executive Officer shall review the method, and shall approve it if it meets the following requirements:

A. The method must cycle and test the complete evaporative emission control system for the equivalent of at least 50,000 miles of typical customer use.

B. The method must reflect the flow of liquid and gaseous fuel through the evaporative emission control system, and the exposure (both peak and cyclical) to heat, vibration, and ozone expected through 50,000 miles of typical customer use.

C. The method must have specifications for acceptable system performance, including maximum allowable leakage after 50,000 miles of typical customer use.

No evaporative emission control system durability testing shall be required for 1978 model year vehicles which do not require exhaust emission control system durability testing unless the Executive Officer determines that durability performance is likely to be significantly inferior to 1977 model year systems.

b. For 1979 and later model evaporative emission engine families, both (4)(a)(i) and (4)(a)(ii) shall apply to all families selected for exhaust emission durability testing, and (4)(a)(ii) shall apply to those evaporative emission engine families which are not subject to testing for exhaust emission durability. The deterioration factors determined under (4)(a)(i), if any, shall be averaged with the deterioration factors determined under (4)(a)(ii) to determine a single evaporative emission deterioration factor for each evaporative emission engine family.

5. Approval of heavy-duty vehicles, excluding medium-duty vehicles, shall be based on an engineering evaluation of the system and data submitted by the applicant. Such evaluation may include successful public usage on light-duty or medium-duty vehicles, adequate capacity of storage containers, routing of lines to prevent siphoning, and other emission-related factors deemed appropriate by the Executive Officer. In the event that the U.S. Environmental Protection Agency does not grant California a waiver to implement Section 3 of this procedure, then Section 5 shall also apply to medium-duty vehicles.

6. The measured evaporative emissions from all test vehicles except vehicles tested pursuant to paragraph 4 above shall be corrected for background emissions by subtracting 1.0 grams per test.