

State of California
AIR RESOURCES BOARD

CALIFORNIA NEW VEHICLE COMPLIANCE TEST PROCEDURE

Adopted: June 24, 1976
Amended: May 9, 1979
Amended: June 24, 1996
Amended: March 19, 1998
Amended: August 5, 1999

CALIFORNIA NEW VEHICLE COMPLIANCE TEST PROCEDURES

These test procedures are applicable to any engine family, test group or any subgroup within an engine family or test group selected for compliance testing pursuant to Title 13, California Code of Regulations (CCR) Section 2101. Zero-emission vehicles (ZEVs) and medium-duty vehicles certified in accordance with the optional standards and test procedures established in Title 13, CCR Section 1956.8 shall be exempt from these test procedures.

All testing shall be conducted in accordance with the applicable model year certification emission standards and test procedures except that the testing to determine compliance with the Supplemental Federal Test Procedure (SFTP) emission standards shall not be required before the 2002 model year for passenger cars and light-duty trucks certified to the low-emission and ultra-low-emission exhaust standards. Prior to the 2001 model year, an approved mileage accumulation schedule may be applied to test vehicles to the same extent as mileage accumulation is performed on assembly-line quality audit test vehicles. No mileage accumulation or modifications, with the exception noted below, adjustments, or special preparation or maintenance will be allowed on vehicles chosen for compliance testing without the written consent of the Executive Officer, which consent shall not be unreasonably withheld where such adjustment or alteration is required to render the vehicle testable and reasonably operative. For the purposes of SFTP testing only, mileage accumulation to 4,000 +/- 250 miles (or the mileage determined by the manufacturer for emission-data vehicles certified according to Section 86.090-26, Title 40, Code of Federal Regulations or for emission-data vehicles certified according to 40 CFR §86.1831-01) may be applied to test vehicles without written consent of the Executive Officer.

Specific Special Maintenance (SSM) to candidate test vehicles may also be permitted with the written consent of the Executive Officer. Since some vehicles are subjected to abnormal and extreme engine starting, driving and atmospheric conditions during transit, system components may be temporarily loaded with unnatural amounts of fuel, vapor and carbon. Permitted SSM would restore those vehicles to their natural condition as when consigned for shipment from the manufacturer's assembly plant. Any request for SSM, outlining the necessity for such, must be submitted to the Executive Officer in writing sufficiently in advance of the test date, permitting reasonable time for Air Resources Board staff evaluation.

If the manufacturer elects to specify mileage accumulation, (except in the case of vehicles subject to SFTP testing), adjustments, alterations, or SSM, they will be performed by the manufacturer under the supervision of ARB personnel.

Correction of damage or maladjustment which may reasonably be found to have resulted from shipment of the vehicle is permitted only after test of the vehicle, except where 100% of the manufacturer's production is given that inspection or maintenance by the manufacturer's own personnel. The manufacturer may request that the vehicle be repaired for shipping damage, and be retested. If the Executive Officer concurs, the vehicle may be retested, and the original test results may be replaced by the after-repair test results.

For all vehicles equipped with on-board diagnostic systems, the proper functioning of the malfunction indicator light (MIL) will be verified prior to the initiation of testing. If a fault code is detected or the MIL illuminates during break-in, preconditioning or testing, the test may be aborted and the manufacturer may perform any repairs necessary to extinguish the MIL using the manufacturer's published service procedures. The manufacturer shall also submit: (a) an engineering evaluation of the cause of the fault code or MIL illumination; (b) the manufacturer's opinion as to the nature of the problem; and (c) any corrective action proposed by the manufacturer. The Executive Officer shall review the report, and may require that the proposed corrective action be taken. If, after review of the report, the Executive Officer finds the proposed corrective action inadequate, the Executive Officer may invoke Title 13, CCR Section 2109 or 2110, as appropriate.

Vehicles shall be randomly chosen from the selected engine family, test group or subgroup. Each chosen vehicle will be validly tested once to determine its emissions. Unique specialty hardware and personnel normally necessary to validly prepare the vehicle for performance of the test shall be supplied by the manufacturer prior to the scheduled test date. Failure to supply this unique specialty hardware or personnel may not be used by the manufacturer as a cause for invalidation of the subsequent tests. For evaluation, all emissions shall be projected to 50,000, 100,000, 120,000 or 150,000 miles (where applicable) for light-duty vehicles and to 50,000 or 120,000 miles (where applicable) for medium-duty vehicles using the certification deterioration factors for the engine family, test group or subgroup.

Vehicles shall be tested in groups of five until a "Pass" or "Fail" decision is reached for each pollutant independently for the engine family, test group or subgroup in accordance with the following table:

| <u>Number of Vehicles Tested</u> | <u>Decide "Fail" if "U" is greater than or equal to:</u> | <u>Decide "Pass" if "U" is less than or equal to:</u> |
|----------------------------------|--|---|
| 5 | 2.18 | -0.13 |
| 10 | 2.11 | 0.51 |
| 15 | 2.18 | 0.88 |
| 20 | 2.29 | 1.16 |

where:

$$U = \frac{\sum_{i=1}^n (x_i - \mu_o)}{\sum_{i=1}^n [S (x_i - \mu_o)^2]^{0.5}}$$

- x_i = the projected emissions of one pollutant for the i th vehicle tested.
- μ_o = the applicable model year emission standard for that pollutant.
- n = the number of vehicles tested.

If the Executive Officer makes a "Fail" decision in accordance with the above table, the Executive Officer has found that the average emissions of the vehicles within the selected engine family, test group or subgroup exceed the applicable model year new vehicle emission standard for at least one pollutant.

If no decision can be reached after 20 vehicles have been tested, the Executive Officer may not make a "Fail" decision for the selected engine family, test group or subgroup on the basis of these 20 tests alone. Under those circumstances the Executive Officer may elect to test 10 additional vehicles. If the average projected emissions from the 30 vehicles tested exceeds any one of the exhaust emission standards for which a "Pass" decision has not been previously made, the Executive Officer may render a "Fail" decision.