

CALIFORNIA: MOTORCYCLES: EMISSIONS

History

CARB administers a program for reducing emissions from highway motorcycles.

Authority for controlling emissions from highway motorcycles is established in sections 1958 (exhaust) and 1976 (evaporative), title 13, California Code of Regulations (CCR). The California exhaust emission test procedures are adopted from the US Environmental Protection Agency's (EPA's) exhaust test procedures in title 40, Code of Federal Regulations, Part 86, subpart E and subpart F.

The original (1975) regulations set hydrocarbon (HC) and carbon monoxide standards for all motorcycles with engine displacements of at least 50 cubic centimeters (cc). The 1998 amendments added control of oxides of nitrogen (NO_x) to the regulations for the larger, Class 3 motorcycles (280 cc or greater). They set a Tier I standard of 1.4 grams per kilometer (g/km) HC+NO_x beginning with 2004 models and a Tier II standard of 0.8 g/km HC+NO_x beginning in 2008 for major manufacturers. The standards include corporate averaging provisions. For small volume manufacturers, the Tier I requirement begins with the 2008 model year; there is no Tier II standard.

Small volume manufacturers were defined in the final regulations as manufacturers with annual California sales of no more than 300 motorcycles.

A 2006 Review of the 1998 Amendments to the California On-Road Motorcycle Regulations assessed the progress made by manufacturers to meet 2004 and 2008 on-road motorcycle emission requirements.

Technical Standards

Applicability

This regulation is applicable to motorcycles, motorcycle engines, and the manufacturers of either motorcycles or motorcycle engines produced on or after 1 January 1978.

As defined in California Health & Safety Code, Section 39041 and in California Vehicle Code, Section 400, a motorcycle is:

- (a) A motor vehicle having a seat or saddle for the use of the rider, designed to travel on not more than three wheels in contact with the ground.
- (b) A motor vehicle that has four wheels in contact with the ground, two of which are a functional part of a sidecar, is a motorcycle if the vehicle otherwise comes within the definition of subdivision (a).
- (c) A farm tractor is not a motorcycle.

(d) A three-wheeled motor vehicle that otherwise meets the requirements of subdivision (a), has a partially or completely enclosed seating area for the driver and passenger, is used by local public agencies for the enforcement of parking control provisions, and is operated at slow speeds on public streets, is not a motorcycle. However, a motor vehicle described in this subdivision shall comply with the applicable sections of this code imposing equipment installation requirements on motorcycles.

Motorcycles and motorcycle engines are excluded if:

(1) The engine displacement is less than 50cc, or

(2) An 80 kg (176 lb) driver cannot

(A) start from a dead stop using only the engine, or

(B) exceed a maximum speed of 40 km/hr (24.9 mph) on a level paved surface.

Emission Standards

California regulates HC, NO_x, and CO emissions from motorcycles. The useful life of 279 cc motorcycles is 5 yr/30,000 km.

Exhaust Emission Standards			
Model Year	Engine Displacement (cc)	HC+NO _x (g/km)	CO (g/km)
1978 - 1979	50 < cc < 170	5.0 (HC only)	17
1978 - 1979	170 ≤ cc < 750	5.0+0.0155(D-170) [†] (HC only)	17
1978 - 1979	≤ 750	14 (HC only)	17
1980 - 1981	All (≤50 cc)	5.0 (HC only)	17
1982 and subsequent	50 < cc ≤ 279	1.0 (HC only)	12
1982 - 1985 (manufactured prior to March 1, 1985)	≤ 280	2.5 (HC only)	12
1985 - 1987 (manufactured after February 28, 1985)	≤ 280	1.4 (HC only) ^{‡*}	12
1988 - 2003	280 < cc ≤ 699	1.0 (HC only) ^{‡*}	12
1988 - 2003	≤ 700	1.4 (HC only) ^{‡*}	12
2004 - 2007	≤280	1.4 ^{‡*}	12
2008 and subsequent	≤280	0.8 ^{‡*}	12
Notes: [†] D = engine displacement of motorcycles in cubic centimeters. [‡] Compliance with a standard to be applied as a “corporate average.” See below. * Small manufacturers are currently exempt from Tier 2			

Compliance with a standard to be applied as a “corporate average” calculated as:

$$\frac{\sum_{j=1}^n (\text{PROD}_{jx}) (\text{STD}_{jx})}{\sum_{j=1}^n (\text{PROD}_{jx})} = \text{STD}_{ca}$$

where,

n = Class III motorcycle engine families (engines with displacement of 280 cc or greater manufactured after February 28, 1985)

PROD_{jx} = Number of units of Class III engine family j produced for sale in California in model year x

STD_{jx} = The manufacturer designated HC or HC + NO_x emission standard, whichever applies, for engine family j in model year x, which shall be determined by the manufacturer subject to the following conditions:

(1) for Model Year 1988 through 2003 motorcycle engines and motorcycles with engine displacement of 280cc or greater, no individual engine family exhaust emission standard shall exceed 2.5 g/km HC, and

(2) for Model Year 2004 and subsequent motorcycle engines and motorcycles with engine displacement of 280cc or greater, no individual engine family exhaust emission standard shall exceed 2.5 g/km HC+NO_x, and

(3) no engine family designation or engine family exhaust emission standard shall be amended in a model year after the engine family is certified for the model year, and

(4) prior to sale or offering for sale in California, each engine family shall be certified in accordance with Section 1958(c) and shall be required to meet

the manufacturer's designated HC or HC + NO_x standard, whichever applies, as a condition of the certification Executive Order. Prior to certification the manufacturer shall also submit estimated production volumes for each engine family to be offered for sale in California.

STDCa = A manufacturer's corporate average HC or HC + NO_x exhaust emissions, whichever applies, from those California motorcycles or motorcycle engines subject to the California corporate average HC or HC + NO_x exhaust emission standard, as established by an Executive Order certifying the California production for the model year. This order must be obtained prior to the issuance of certification Executive Orders for individual engine families for the model year and shall include but not be limited to the following requirements:

(1) During the manufacturer's production year, for each engine family, the manufacturer shall provide the following information to the Executive Officer within 30 days after the last day in each calendar quarter:

(A) vehicle identification numbers and an explanation of the identification code;

(B) the total number of vehicles or motorcycle engines produced for sale in California and their applicable designated emissions standards.

(2) The manufacturer's average HC or HC + NO_x exhaust emissions, whichever applies, shall meet the applicable corporate average standard at the end of the manufacturer's production for the model year.

(3) Production and sale of vehicles which result in non-compliance with the California standard for the model year shall cause a manufacturer to be subject to civil penalties, per vehicle, pursuant to Health and Safety Code Section 43154. All excess emissions resulting from final non-compliance with the California standard shall be made up in the following model year.

(4) For a period of up to one year following the end of the model year, for each model the manufacturer shall submit California sales and registration data as it becomes available.

Source:

http://transportpolicy.net/index.php?title=California:_Motorcycles:_Emissions