

Pt. 1045, App. I

40 CFR Ch. I (7-1-11 Edition)

(7) In 40 CFR part 1068, subpart D, we identify several reporting and record-keeping items for making demonstrations and getting approval related to importing engines.

(8) In 40 CFR 1068.450 and 1068.455 we specify certain records related to testing production-line engines in a selective enforcement audit.

(9) In 40 CFR 1068.501 we specify certain records related to investigating and reporting emission-related defects.

(10) In 40 CFR 1068.525 and 1068.530 we specify certain records related to recalling nonconforming engines.

§1045.1 (since the end of the phase-in period specified in 40 CFR 91.104):

(1) For engines at or below 4.3 kW, the HC+NO_x standard is 81.00 g/kW-hr.

(2) For engines above 4.3 kW, the following HC+NO_x standard applies:

$$STD = 6.00 + 0.250 \cdot (151 + 557/P^{0.9})$$

Where:

STD = The HC+NO_x emission standard, in g/kW-hr.

P = The average power of an engine family, in kW.

(b) See 40 CFR 91.104 for standards that applied to outboard and personal watercraft engines during the phase-in period.

APPENDIX I TO PART 1045—SUMMARY OF PREVIOUS EMISSION STANDARDS

(a) The following standards apply to outboard and personal watercraft engines produced before the model years specified in

APPENDIX II TO PART 1045—DUTY CYCLES FOR PROPULSION MARINE ENGINES

(a) The following duty cycle applies for discrete-mode testing:

E4 Mode No.	Engine speed ¹	Torque (percent) ²	Weighting factors
1	Maximum test speed	100	0.06
2	80%	71.6	0.14
3	60%	46.5	0.15
4	40%	25.3	0.25
5	Warm idle	0	0.40

¹ Speed terms are defined in 40 CFR part 1065. Percent speed values are relative to maximum test speed.

² Except as noted in §1045.505, the percent torque is relative to maximum torque at maximum test speed.

(b) The following duty cycle applies for ramped-modal testing:

RMC Mode	Time in mode (seconds)	Engine speed ^{1,2}	Torque (percent) ^{2,3}
1a Steady-state	225	Idle	0
1b Transition	20	Linear transition	Linear transition
2a Steady-state	63	Maximum test speed	100
2b Transition	20	Linear transition	Linear transition
*3a Steady-state	271	40%	25.3%
3b Transition	20	Linear transition	Linear transition
4a Steady-state	151	80%	71.6%
4b Transition	20	Linear transition	Linear transition
5a Steady-state	161	60%	46.5%
5b Transition	20	Linear transition	Linear transition
6 Steady-state	229	Warm idle	0

¹ Speed terms are defined in 40 CFR part 1065. Percent speed values are relative to maximum test speed.

² Advance from one mode to the next within a 20-second transition phase. During the transition phase, command linear progressions of speed and torque from the speed setting and torque setting of the current mode to the speed setting and torque setting of the next mode.

³ Except as noted in §1045.505, the percent torque is relative to maximum torque at maximum test speed.

PART 1048—CONTROL OF EMISSIONS FROM NEW, LARGE NONROAD SPARK-IGNITION ENGINES

Subpart A—Overview and Applicability

Sec.

- 1048.1 Does this part apply to me?
- 1048.2 Who is responsible for compliance?
- 1048.5 Which engines are excluded from this part's requirements?
- 1048.10 How is this part organized?
- 1048.15 Do any other regulation parts apply to me?
- 1048.20 What requirements from this part apply to excluded stationary engines?
- 1048.30 Submission of information.

Subpart B—Emission Standards and Related Requirements

- 1048.101 What exhaust emission standards must my engines meet?
- 1048.105 What evaporative emissions standards and requirements apply?
- 1048.110 How must my engines diagnose malfunctions?
- 1048.115 What other requirements apply?
- 1048.120 What warranty requirements apply to me?
- 1048.125 What maintenance instructions must I give to buyers?
- 1048.130 What installation instructions must I give to equipment manufacturers?
- 1048.135 How must I label and identify the engines I produce?
- 1048.140 What are the provisions for certifying Blue Sky Series engines?
- 1048.145 Are there interim provisions that apply only for a limited time?

Subpart C—Certifying Engine Families

- 1048.201 What are the general requirements for obtaining a certificate of conformity?
- 1048.205 What must I include in my application?
- 1048.210 May I get preliminary approval before I complete my application?
- 1048.220 How do I amend the maintenance instructions in my application?
- 1048.225 How do I amend my application for certification to include new or modified engine configurations?
- 1048.230 How do I select engine families?
- 1048.235 What emission testing must I perform for my application for a certificate of conformity?
- 1048.240 How do I demonstrate that my engine family complies with exhaust emission standards?
- 1048.245 How do I demonstrate that my engine family complies with evaporative emission standards?

- 1048.250 What records must I keep and make available to EPA?
- 1048.255 What decisions may EPA make regarding my certificate of conformity?

Subpart D—Testing Production-line Engines

- 1048.301 When must I test my production-line engines?
- 1048.305 How must I prepare and test my production-line engines?
- 1048.310 How must I select engines for production-line testing?
- 1048.315 How do I know when my engine family fails the production-line testing requirements?
- 1048.320 What happens if one of my production-line engines fails to meet emission standards?
- 1048.325 What happens if an engine family fails the production-line testing requirements?
- 1048.330 May I sell engines from an engine family with a suspended certificate of conformity?
- 1048.335 How do I ask EPA to reinstate my suspended certificate?
- 1048.340 When may EPA revoke my certificate under this subpart and how may I sell these engines again?
- 1048.345 What production-line testing records must I send to EPA?
- 1048.350 What records must I keep?

Subpart E—Testing In-use Engines

- 1048.401 What testing requirements apply to my engines that have gone into service?
- 1048.405 How does this program work?
- 1048.410 How must I select, prepare, and test my in-use engines?
- 1048.415 What happens if in-use engines do not meet requirements?
- 1048.420 What in-use testing information must I report to EPA?
- 1048.425 What records must I keep?

Subpart F—Test Procedures

- 1048.501 How do I run a valid emission test?
- 1048.505 How do I test engines using steady-state duty cycles, including ramped-modal testing?
- 1048.510 What transient duty cycles apply for laboratory testing?
- 1048.515 What are the field-testing procedures?

Subpart G—Compliance Provisions

- 1048.601 What compliance provisions apply to these engines?
- 1048.605 What provisions apply to engines certified under the motor vehicle program?
- 1048.610 What provisions apply to vehicles certified under the motor vehicle program?