

Pt. 1045, App. I

40 CFR Ch. I (7–1–13 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.

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

§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 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.