

APPENDIX II

TEST PROCEDURES

State of California
AIR RESOURCES BOARD

CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES
FOR 2001 MODEL YEAR AND LATER
SPARK-IGNITION MARINE ENGINES

Adopted: October 21, 1999
Amended: July 21, 2002
Amended: (insert date of amendment)

Note: This appendix shows staff's proposed modifications to the test procedure amendments adopted by the Air Resources Board on November 17, 2005, in accordance with Resolution 05-57. All existing test procedure language is indicated by plain type. Staff's originally proposed additions to the test procedure language, as specified in Attachment B of Resolution 05-57, are shown in underlined text and staff's originally proposed deletions are shown in ~~strikeout~~. Staff's incorporation of proposed modifications to the original proposal, as described in Attachment C of Resolution 05-57 (identical to Appendix IV of this Notice of Modified Text) and via conforming modifications thereof, are shown in double underlined text to indicate additions and ~~double strikeout~~ text to indicate deletions. Only these double underlined and ~~double strikeout~~ modifications are subject to comment during this comment period.

CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES
FOR 2001 MODEL YEAR AND LATER SPARK-IGNITION MARINE ENGINES

Part I. Emission Regulations for 2001 and Later New Spark-Ignition Marine Engines, General Provisions.

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9. Exhaust Emission Standards for 2001 and Later Spark-Ignition Marine Engines.

(a) Model year 2001 and later model year spark-ignition personal watercraft and outboard marine engines:

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(b) Exhaust emissions from new model year 2003 and later spark-ignition inboard and sterndrive marine engines must not exceed the exhaust emission standards listed in Table 2 for the designated emission durability test period. Prior to Model Year 2007 certification, each engine manufacturer must select either Option 1 (OPT 1) or Option 2 (OPT 2) for its entire production for the 2007 and 2008 model years.

Table 2.

Inboard and Sterndrive Exhaust Emission Standards (by Implementation Date)		
Model Year	HC+NO_x (grams per kilowatt-hour)	Durability Test Period (hours)
2003-2008 ¹	16.0 ²	—
2007 and Later ³	5.0	480

- ~~1. Engines with a maximum rated power exceeding 373 kilowatts (500 horsepower) are not required to comply with these standards.~~
- ~~2. Compliance with the HC+NO_x standard may be averaged on a sales-weighted basis, across the engine manufacturers' California production, based on projected California sales or the projected California percentage of national sales.~~
- ~~3. For model year 2007, engine manufacturers shall certify a minimum of 45% of their California production (projected California sales or projected California~~

percentage of national sales) to the standard. For model year 2008, engine manufacturers shall certify a minimum of 75% of their California production (projected California sales or projected California percentage of national sales) to the standard.

Inboard/Stern Drive Marine Engine Standards

<u>MODEL YEAR</u>	<u>RATED POWER</u> [kilowatts]	<u>COMPLIANCE OPTION</u> ¹	<u>DURABILITY</u> [hours / years]	<u>EXHAUST STANDARD</u>		<u>SUPPLEMENTAL MEASURE</u> ³⁴
				<u>NMHC</u> ² + <u>NOx</u> [grams per kilowatt-hour]	<u>TYPE</u> ³	
<u>2003 - 2006</u>	<u>kW ≤ 373</u>	<u>N/A</u>	<u>N/A</u>	<u>16.0</u>	<u>AVE</u>	<u>None</u>
<u>2007</u>	<u>kW ≤ 373</u>	<u>OPT 1</u>	<u>N/A</u>	<u>16.0 (55%)</u>	<u>AVE</u>	<u>None</u>
			<u>480 / 10</u>	<u>5.0 (45%)</u>	<u>FIXED</u>	
<u>2008</u>	<u>kW ≤ 373</u>	<u>OPT 2</u>	<u>N/A</u>	<u>14.0</u>	<u>FIXED</u>	<u>Evaporative Low-Permeation Liquid Fuel Line Hoses</u>
			<u>480 / 10</u>	<u>5.0</u>	<u>FIXED</u>	<u>Evaporative Low-Permeation Liquid Fuel Line Hoses</u>
<u>2009 and later</u>	<u>kW ≤ 373</u>	<u>N/A</u>	<u>480 / 10</u>	<u>5.0</u> ⁵⁶	<u>FIXED</u>	<u>Carryover</u> ⁶⁷
	<u>373 < kW ≤ 485</u>		<u>480 / 150</u> ⁵ / <u>403</u>	<u>5.0</u> ⁵⁶	<u>AVE</u>	
	<u>kW > 485</u>		<u>50</u> ⁴⁵ / <u>1</u>	<u>5.0</u> ⁵⁶	<u>AVE</u>	

- Notes:
1. Once a manufacturer has chosen an option, that option must continue to be used exclusively across product lines
 2. The non-methane component of hydrocarbon
 3. Corporate averaging (AVE) may be used to demonstrate compliance with the exhaust emission standard, except where a FIXED standard is required
 34. Supplemental measures may be different than shown, but must provide equal and verifiable emission reductions to those indicated
 45. For the purpose of durability testing, ~~Engine manufacturers may request a shorter durability period for high power engines provided they submit data supporting a shorter period components that have been approved with an hourly warranty period shorter than the full hourly durability period per § 2445.1 (c)(3)(C)4. may be replaced at the specified warranty interval~~
 56. All engines ≤ 373 kW must meet a 5.0 g/kW-hr NMHC+NOx capping standard. For engines > 373 kW, the standard may be met by sales-averaging with engines equal to or less than 373 kW
 67. The same or better supplemental emission control hardware used to meet the standard in 2007 must be used every model year thereafter

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