

ATTACHMENT B

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: (insert date of amendment)

[Note: The proposed amendments for this rulemaking action are shown in ~~strike through~~ to indicate proposed deletions and underline to indicate proposed additions.]

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/Sterndrive Marine Engine Standards

MODEL YEAR	RATED POWER [kilowatts]	COMPLIANCE OPTION ¹	DURABILITY [hours / years]	EXHAUST STANDARD		SUPPLEMENTAL MEASURE ³
				NMHC ² +NOx [grams per kilowatt-hour]	TYPE	
2003 - 2006	kW ≤ 373	N/A	N/A	16.0	AVE	None
2007	kW ≤ 373	OPT 1	N/A	16.0 (55%)	AVE	None
			480 / 10	5.0 (45%)	FIXED	
		OPT 2	N/A	14.0	FIXED	Evaporative Low-Permeation Liquid Hoses
2008	kW ≤ 373	OPT 1	N/A	16.0 (25%)	AVE	None
			480 / 10	5.0 (75%)	FIXED	
		OPT 2	480 / 10	5.0	FIXED	Evaporative Low-Permeation Liquid Hoses
2009 and later	kW ≤ 373	N/A	480 / 10	5.0 ⁵	FIXED	Carryover ⁶
	373 < kW ≤ 485		480 / 10	5.0 ⁵	AVE	
	kW > 485		50 ⁴ / 1	5.0 ⁵	AVE	

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. Supplemental measures may be different than shown, but must provide equal and verifiable emission reductions to those indicated
4. Engine manufacturers may request a shorter durability period for high power engines provided they submit data supporting a shorter period
5. 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
6. 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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