

ATTACHMENT G

Additional Changes Presented at the Hearing

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FOR CONSIDERATION BY THE AIR RESOURCES BOARD AT THE PUBLIC HEARING TO CONSIDER ADOPTION OF EMISSION STANDARDS AND TEST PROCEDURES FOR NEW 2001 AND LATER OFF-ROAD LARGE SPARK-IGNITION ENGINES

OCTOBER 22, 1998

Staff's Suggested Modifications to the Original Proposal (Attachment F herein)

The Proposed Emission Standards and Test Procedures were released by the Air Resources Board staff ("Staff") on September 4, 1998. Based on comments received on the released documents and the regulations and test procedures contained therein, the Staff is suggesting the following modifications to the proposed emission standards and test procedures for new 2001 and later off-road large spark-ignition engines for consideration by the Air Resources Board ("Board") at this hearing.

<1> Title 13 Section 2433 (b) & (d) and TP Part I (7)(a): *changed to reflect 2002 and subsequent model-year standards of 9.0 g/bhp-hr HC+NOx and 410 g/bhp-hr CO with a durability demonstration of 1000 hour for engines 1 liter and less; also modified to reflect 3.0 g/bhp-hr and 37 CO certification standard with a durability demonstration of 3500 hours and 4.0 g/bhp-hr HC+NOx and 50 g/bhp-hr CO in-use compliance standard for larger engines in 2004-2006; also modified to reflect 25/50/75 phase-in from 2001-2003*

<2> Title 13 Section 2433: *small engines one liter and less will use small off-road engine regulations and test procedures but will not be able to average with engines below 25 horsepower; addition of small-volume provisions - no standards until 2004*

<3> Title 13 Section 2433(e): *delete first sentence and make applicable beginning in 2004 - EMA 3*

<4> Title 13 Section 2434(c)(3): *change to allow alternative identification methods and/or tracking numbers and alternative means of attaching them - EMA 5*

<5> Title 13 Section 2434(c)(5)(G) and (H): *delete the requirement to list the build date and durability period - EMA 9*

<6> Title 13 Section 2435(I): *typo correction - EMA 13*

<7> Title 13 Section 2435(b)(2): *replacement of diesel fuel with engine fuels*

<8> Title 13 Section 2435 (b) (2) and (3):changes in warranty period - EMA 15

(A) 2 years for engines less than 1.0 liter

(B) 2 years or 1,500 hours for engines equal to or greater than 1.0 liter in 2001-2003 model years.

(C) 3 years or 2,500 hours for engines equal to or greater than 1.0 liter in 2004 and subsequent model years

(D) high-cost warranted parts for engines equal or greater than 1.0 liter will be warranted for five years or 3,500 hours.

(E) In the absence of a device to measure hours of use, the engine must be warranted for a period of years noted above. The dollar value of a high cost part shall be based on the same value as the on-road warranty provisions.

<9> Title 13 Section 2435(c): added "and (b)(3)" for consistency with part (b) above

<10> Title 13 Section 2436(a): change for additional manufacturer flexibility - multiple model years noted on warranty statement - EMA 18

<11> Title 13 Section 2437 and 2438; typos corrected - EMA 23 and 32

<12> Title 13 Section 2437(a)(1): typo; new engine compliance begins with 2001, as noted in the staff report

<13> Title 13 Section 2437 (b): addition of provision for reduced PLT testing after 2006 if a manufacturer can show that its PLT and in-use test results are consistent and complying, subject to annual review; addition of a 1 percent cap on PLT testing for small volume manufacturers

<14> Title 13 Section 2437(b) and (b)(1)(A): PLT begins with 2001, as noted in the staff report - EMA 20

<15> Title 13 Section 2437(c)(8):typo correction--EMA 21

<16> Title 13 Section 2437 (f)(1); "family" removed

<17> Title 13 Section 2438(a): verbiage change/deletion--EMA 25

<18> Title 13 Section 2438(a)(1)--identify in-use test engine family during production period - EMA 26

<19> Title 13 Section 2438(a)(3) & (7):in-use test & engine procurement at 50 percent of useful life minimum, require submission of plan - EMA 28

<20> Title 13 Section 2438(a)(3)(C):reference clarification -- "(a)(1)" and "(a)(2)" instead of "(c)(1)" and "(c)(2)" - EMA 29

<21> Title 13 Section 2438(b)(5):*additional reporting time for failed engines: The manufacturer must report an emissions test failure of a test engine within 72 hours after the completion of the test specifying the emission results and identifying the pollutant which failed to comply with the emission standard. The manufacturer must report all such reasons of noncompliance within fifteen business days of an engine family failure. Additional time beyond the initial fifteen days may be granted providing that the manufacturer receive prior approval from the Executive Officer. - EMA 34*

<22> Title 13 Section 2438(c)(1)(C):*engine serial ID alternate identification allowed - EMA 35*

<23> Title 13 Section 2438(d):*modify to add voluntary recall protocol - EMA 38 and 42*

<24> Title 13 Section 2438(e)(7):*typo correction; 1.0 liter cut point*

<25> Title 13 Section 2439(a)--*references correction; Sections 2436 and 2438*

<26> Title 13 Section 2439(f)(2):*clarification; registration lists as applicable - EMA 46*

<27> Part I: *typo corrections - EMA 47*

<28> Part I, 3(a): *typo corrections - EMA 48*

<29> Part I, 11(d):*revision; manufacturers determine emission deterioration factors using good engineering practice; plan to determine DFs must be submitted to EO and EO must approve before implementation - EMA 59*

<30> Part I 12(d): *maintenance performed on engines used to determine the deterioration factors must be consistent with the maintenance requirements - EMA 65*

<31> Part I, 13(a)(2):*clarify; engine family or group of engine families*

<32> Part I, 16(a)(3):*clarify and delete; Executive Order will be issued for each engine family, not engine family groups - EMA 67*

<33> Part I, 18(a): *clarify references; Section 11(a)(1) thru 11(a)(4) - EMA 69*

<34> Part I, 21: *"heavy-duty" deleted - EMA 73*

<35> Title 13 Section 2411 (a)(1) *ATV Definition delete 600 pounds unladen*