

## ATTACHMENT I

### Proposed 2<sup>nd</sup> 15-Day Modifications to Sections 1968.2 and 1968.5, title 13, California Code of Regulations

Set forth below are proposed modifications to the amendments to sections 1968.2 and 1968.5, title 13, California Code of Regulations (CCR) that were presented to the Board for adoption on September 28, 2006. The original proposed amendments were made available to the public as part of the 45-Day Notice on August 11, 2006. The original proposed amendments are shown in single underline to indicate additions and ~~single strikeout~~ to indicate deletions made to the existing text that was last amended in 2003. The proposed modifications that were made available by the first “15-day” notice on May 22, 2007, are shown in double underline to indicate additions and ~~double strikeout~~ to indicate deletions. The additional proposed modifications made available by the second “15-day” notice are shown in highlighted double underline to indicate additions and ~~highlighted double strikeout~~ to indicate deletions.

**Various portions of the regulations that are not modified by the staff’s suggested modifications are omitted from the text shown and indicated by:**

“ \* \* \* \* ”

1968.2. Malfunction and Diagnostic System Requirements for 2004 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines (OBD II)

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(d) GENERAL REQUIREMENTS

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(2) MIL and Fault Code Requirements.

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~~(2.5) Erasing a permanent fault code. The OBD II system shall erase a permanent fault code only if either any of the following conditions occur:~~

~~(2.5.1) The OBD II system itself determines that the malfunction that caused the permanent fault code to be stored is no longer present and is not commanding the MIL on, concurrent with pursuant to the requirements of section (d)(2.3) (which for purposes of this section shall apply to all monitors), or~~

~~(2.5.2) Subsequent to a clearing of the fault information in the on-board computer (i.e., through the use of a scan tool or battery disconnect), the diagnostic for the malfunction that caused the permanent fault code to be stored has fully executed (i.e., has executed the minimum number of checks necessary for MIL illumination) and determined the malfunction is no longer present component or system is not malfunctioning.~~

~~(A) For monitors that are required to run once per driving cycle (e.g., catalyst monitor) or subject to the minimum ratio requirements of section (d)(3.2) (e.g., comprehensive component input component rationality monitors), "fully executed" as used in section (d)(2.5.2) shall mean the monitor has run a sufficient number of times to determine that the component or the system is passing (i.e., run once and passed without indication of a fail for a monitor using the standard MIL and fault code protocol of section (d)(2.2)).~~

~~(B) Except as provided for in section (d)(2.5.2)(C) and (D), for monitors that are required to run continuously (e.g., gasoline misfire monitor, fuel system monitor, comprehensive component circuit continuity monitors), "fully executed" as used in section (d)(2.5.2) shall mean the monitor has run and the following criteria are satisfied on a single driving cycle:~~

~~(i) Cumulative time since engine start is greater than or equal to 600 seconds;~~

~~(ii) Cumulative vehicle operation at or above 25 miles per hour occurs for greater than or equal to 300 seconds (medium-duty vehicles with diesel engines certified on an engine dynamometer may use cumulative operation at or above 15% calculated load in lieu of at or above 25 miles per hour for purposes of this criteria); and~~

~~(iii) Continuous vehicle operation at idle (i.e., accelerator pedal released by driver and vehicle speed less than or equal to one mile per hour) for greater than or equal to 30 seconds.~~

In determining whether continuous monitors have “fully executed,” monitors required to use “similar conditions” as defined in section (c) to store and erase pending and confirmed fault codes may not require that the similar conditions to be met prior to erasure of the permanent fault code.

(C) For 2009 and 2010 model year vehicles meeting the permanent fault code requirements of section (d)(2.2.5), manufacturers may request Executive Officer approval to use an alternate definition of “fully executed” as used in section (d)(2.5.2) for monitors subject to section (d)(2.5.2)(B). The Executive Officer shall approve alternate definitions of “fully executed” that:

(i) Will not likely result in a driving cycle that is longer and more difficult to meet than a driving cycle that meets conditions similar to those required under section (d)(2.5.2)(B), and

(ii) Do not require access to enhanced scan tools (i.e., tools that are not generic SAE J1978 scan tools) to determine conditions necessary to meet the alternate definition of “fully executed.”

(D) For the 2011 model year only, if an alternate definition of “fully executed” is approved by the Executive Officer under section (d)(2.5.2)(C) for use on 2009 or 2010 model year vehicles, a manufacturer may continue to use the approved alternate definition for 2011 model year vehicles previously certified in the 2009 or 2010 model year to the alternate definition and carried over to the 2011 model year.

## (2.5) Erasing a permanent fault code

(2.5.1) If the OBD II system is commanding the MIL on, the OBD II system shall erase a permanent fault code only if the OBD II system itself determines that the malfunction that caused the permanent fault code to be stored is no longer present and is not commanding the MIL on, pursuant to the requirements of section (d)(2.3) (which for purposes of this section shall apply to all monitors).

(2.5.2) If all fault information in the on-board computer other than the permanent fault code has been cleared (i.e., through the use of a scan tool or battery disconnect) and the OBD II system is not commanding the MIL on:

(A) Except as provided for in sections (d)(2.5.2)(C) through (E), if the monitor of the malfunction that caused the permanent fault code to be stored is subject to the minimum ratio requirements of section (d)(3.2) (e.g., catalyst monitor, comprehensive component input component rationality monitors), the OBD II system shall erase the permanent fault code at the end of a driving cycle if the monitor has run and made one or more determinations during a driving cycle that the malfunction of the component or the system is not present and has not made any determinations within the same driving cycle that the malfunction is present.

(B) Except as provided for in sections (d)(2.5.2)(D) and (E), if the monitor of the malfunction that caused the permanent fault code to be stored is not subject to the minimum ratio requirements of section (d)(3.2) (e.g., gasoline misfire monitor, fuel system monitor, comprehensive component

- circuit continuity monitors), the OBD II system shall erase the permanent fault code at the end of a driving cycle if:
- (i) The monitor has run and made one or more determinations during a driving cycle that the malfunction of the component or the system is not present and has not made any determinations within the same driving cycle that the malfunction is present;
  - (ii) The monitor has not made any determinations that the malfunction is present subsequent to the most recent driving cycle in which the criteria of section (d)(2.5.2)(B)(i) are met; and
  - (iii) The following criteria are satisfied on any single driving cycle (which may be a different driving cycle than that in which the criteria of section (d)(2.5.2)(B)(i) are satisfied):
    - a. Cumulative time since engine start is greater than or equal to 600 seconds;
    - b. Cumulative vehicle operation at or above 25 miles per hour occurs for greater than or equal to 300 seconds (medium-duty vehicles with diesel engines certified on an engine dynamometer may use cumulative operation at or above 15% calculated load in lieu of at or above 25 miles per hour for purposes of this criteria); and
    - c. Continuous vehicle operation at idle (i.e., accelerator pedal released by driver and vehicle speed less than or equal to one mile per hour) for greater than or equal to 30 seconds.
  - (iv) Monitors required to use "similar conditions" as defined in section (c) to store and erase pending and confirmed fault codes may not require that the similar conditions be met prior to erasure of the permanent fault code.
- (C) For monitors subject to section (d)(2.5.2)(A), the manufacturer may choose to erase the permanent fault code using the criteria under section (d)(2.5.2)(B) in lieu of the criteria under section (d)(2.5.2)(A).
- (D) For 2009 and 2010 model year vehicles meeting the permanent fault code requirements of section (d)(2.2.5), manufacturers may request Executive Officer approval to use alternate criteria to erase the permanent fault code. The Executive Officer shall approve alternate criteria that:
- (i) Will not likely require driving conditions that are longer and more difficult to meet than those required under section (d)(2.5.2)(B), and
  - (ii) Do not require access to enhanced scan tools (i.e., tools that are not generic SAE J1978 scan tools) to determine conditions necessary to erase the permanent fault code.
- (E) If alternate criteria to erase the permanent fault code are approved by the Executive Officer under section (d)(2.5.2)(D), a manufacturer may continue to use the approved alternate criteria for 2011 model year vehicles previously certified in the 2009 or 2010 model year to the alternate criteria and carried over to the 2011 model year.

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(f) MONITORING REQUIREMENTS FOR DIESEL/COMPRESSION-IGNITION

## ENGINES

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### (16) OTHER EMISSION CONTROL OR SOURCE SYSTEM MONITORING

- (16.1) Requirement: For other emission control or source systems that are not identified or addressed in sections (f)(1) through (f)(15) (e.g., homogeneous charge compression ignition (HCCI) controls, hydrocarbon traps, fuel-fired passenger compartment heaters), manufacturers shall submit a plan for Executive Officer approval of the monitoring strategy, malfunction criteria, and monitoring conditions prior to introduction on a production vehicle. Executive Officer approval shall be based on the effectiveness of the monitoring strategy, the malfunction criteria utilized, and the monitoring conditions required by the diagnostic.
- (16.2) For purposes of section (f)(16), emission source systems are components or devices that emit pollutants subject to vehicle evaporative and exhaust emission standards (e.g., NMOG, CO, NO<sub>x</sub>, PM) and include non-electronic components and non-powertrain components (e.g., fuel-fired passenger compartment heaters, on-board reformers).
- (16.3) Except as provided below in this paragraph, for 2005 and subsequent model year vehicles that utilize emission control systems that alter intake air flow or cylinder charge characteristics by actuating valve(s), flap(s), etc. in the intake air delivery system (e.g., swirl control valve systems), the manufacturers, in addition to meeting the requirements of section (f)(16.1) above, may elect to have the OBD II system monitor the shaft to which all valves in one intake bank are physically attached in lieu of monitoring the intake air flow, cylinder charge, or individual valve(s)/flap(s) for proper functional response. For non-metal shafts or segmented shafts, the monitor shall verify all shaft segments for proper functional response (e.g., by verifying the segment or portion of the shaft furthest from the actuator properly functions). For systems that have more than one shaft to operate valves in multiple intake banks, manufacturers are not required to add more than one set of detection hardware (e.g., sensor, switch, etc.) per intake bank to meet this requirement. Vehicles utilizing these emission control systems designed and certified for 2004 or earlier model year vehicles and carried over to the 2005 through 2009 model year shall not be required to meet the provisions of section (f)(16.3) until the engine or intake air delivery system is redesigned.

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### (g) STANDARDIZATION REQUIREMENTS

- (1) Reference Documents:  
The following Society of Automotive Engineers (SAE) and International Organization of Standards for Standardization (ISO) documents are incorporated by reference into this regulation: Upon request by a manufacturer, the Executive Officer may approve use of a subsequently revised finalized version of any of the

SAE and ISO documents listed below if use of the revised document does not adversely affect the purposes, intent, and effectiveness of this regulation.

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- (1.4) ~~Draft~~ SAE J1979 "E/E Diagnostic Test Modes—Equivalent to ISO/DIS 15031-5: April 30, 2002", April 2002 April May 2007 (SAE J1979).

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- (4) Required Emission Related Functions:  
The following standardized functions shall be implemented in accordance with the specifications in SAE J1979 to allow for access to the required information by a scan tool meeting SAE J1978 specifications:

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- (4.8) Vehicle Identification Number:

(4.8.1) All 2005 and subsequent model year vehicles shall have the vehicle identification number (VIN) available in a standardized format through the standardized data link connector in accordance with SAE J1979 specifications. Only one electronic control unit per vehicle shall report the VIN to an SAE J1978 scan tool.

(4.8.2) For 2012 and subsequent model year vehicles, if the VIN is reprogrammable, all emission-related diagnostic information (i.e., all information required to be erased in accordance with SAE J1979 specifications when a Mode/Service \$04 clear/reset emission-related diagnostic information command is received) shall be erased in conjunction with the reprogramming of the VIN.

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- (6) Engine Run Time Tracking Requirements:

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- (6.3) Numerical Value Specifications:

(6.3.1) For each counter specified in section (g)(6):

(A) Each number shall be a four byte value with a minimum value of zero with a resolution of one minute per bit conform to the standardized format specified in SAE J1979.

(B) Each number shall be reset to zero only when a non-volatile memory reset occurs (e.g., reprogramming event). Numbers may not be reset to zero under any other circumstances including when a scan tool (generic or enhanced) command to clear fault codes or reset KAM is received.

(C) If any of the individual counters reach the maximum value, all counters shall be divided by two before any are incremented again to avoid overflow problems.

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- (j) *PRODUCTION VEHICLE EVALUATION TESTING*

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(3) Verification and Reporting of In-use Monitoring Performance.

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- (3.2) For each test group or combination of test groups, the data must include all of the in-use performance tracking data reported through SAE J1979 (i.e., all numerators, denominators, and the ignition cycle counter), the date the data was collected, the odometer reading, the vehicle VIN, and the ECM software calibration identification number and be in the standardized format detailed in Attachment ~~XXX~~D: Rate Based Data of ARB Mail-Out #~~XX-XX~~, Month-Date, ~~Year~~06-23, December 21, 2006, incorporated by reference.

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1968.5. Enforcement of Malfunction and Diagnostic System Requirements for 2004 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines.

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(b) *Testing Procedures*

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(6) Finding of Nonconformance after Enforcement Testing.

After conducting enforcement testing pursuant to section (b)(4) above, the Executive Officer shall make a finding of nonconformance of the OBD II system in the identified motor vehicle class if:

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(B) OBD II Ratio Testing.

- (i) For monitors ~~specified in sections (b)(6)(B)(i)a. through e. below on 2004 through 2008 2014 model year vehicles certified to a ratio of 0.100 in accordance with title 13, CCR section 1968.2(d)(3.2.1)(D) and on 2007 through 2012 model year vehicles for the first three years the monitor is certified to the in-use performance ratio monitoring requirements of sections 1968.2(d)(3.2.1)(A) through (C)~~, the data collected from the vehicles in the test sample indicate either that the average in-use monitor performance ratio for one or more of the monitors in the test sample group is less than 0.100 or that 66.0 percent or more of the vehicles in the test sample group have an in-use monitor performance ratio of less than 0.100 for the same monitor:
- a. monitors on 2004 through 2014 model year vehicles certified to a ratio of 0.100 in accordance with title 13, CCR section 1968.2(d)(3.2.1) (D).
  - b. monitors specified in title 13, CCR section 1968.2(e) on 2007 through 2012 model year vehicles for the first three model years the monitor is certified to the in-use performance ratio monitoring requirements of title 13, CCR sections 1968.2(d)(3.2.1)(A) through (C).
  - c. the fuel system air-fuel ratio cylinder imbalance monitor specified in title 13, CCR section 1968.2(e)(6.2.1)(C) on 2015 through 2017 model year vehicles.
  - d. the secondary exhaust gas sensor monitor specified in title 13, CCR section 1968.2(e)(7.2.2)(C) on 2012 through 2014 model year vehicles, and
  - e. monitors specified in title 13, CCR section 1968.2(f) on 2013 through 2015 model year vehicles.
- (ii) For monitors ~~on 2006 2007 and subsequent model year vehicles that have been certified for more than three years to the ratios in title 13, CCR sections 1968.2(d)(3.2.1)(A) through (C) and are not described in sections (b)(6)(B)(i)b. through e. above~~, the data collected from the vehicles in the test sample indicate either that 66.0 percent or more of the vehicles in the test sample group have an in-use monitor performance ratio of less than the required minimum ratio defined in title 13, CCR section

1968.2(d)(3.2.1) for the same monitor or that the average in-use monitor performance ratio for one or more of the monitors in the motor vehicle class is less than the required minimum ratio defined in title 13, CCR section 1968.2(d)(3.2.1) as defined by determining the average in-use monitor performance ratio for one or more of the monitors in the test sample group is less than: