

## ATTACHMENT I

### **Proposed Second 15-Day Modifications to Sections 1968.2 and 1968.5, title 13, California Code of Regulations**

Set forth below are proposed modifications to sections 1968.2 and 1968.5, title 13, CCR, approved for adoption on April 25, 2002. The proposed modifications that were made available by the first "15-day" notice on October 10, 2002 are shown in underline to indicate additions and ~~strikeout~~ to indicate deletions. The additional proposed modifications made available by the second "15-day" notice on January 15, 2003 are shown in double underline to indicate additions and ~~double strikeout~~ to indicate deletions. The italicized, indented commentaries explain the rationale for the second set of proposed modifications and are not part of the regulations.

**Various portions of the regulations that are not modified by the second set of modifications are omitted from the text shown and indicated by:**

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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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(3) Monitoring Conditions.

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- (3.2) As specifically provided for in section (e), manufacturers shall define monitoring conditions in accordance with the criteria in sections (d)(3.2.1) through (3.2.3). The requirements of section (d)(3.2) shall be phased in as follows: ~~50-30~~ percent of all 2005 model year vehicles, ~~75-60~~ percent of all 2006 model year vehicles, and 100 percent of all 2007 and subsequent model year vehicles. Manufacturers may use an alternate phase-in schedule in lieu of the required phase-in schedule if the alternate phase-in schedule provides for equivalent compliance volume as defined in section (c) with the exception that 100 percent of 2007 and subsequent model year vehicles shall comply with the requirements. Small volume manufacturers shall meet the requirements on 100 percent of 2007 and subsequent model year vehicles but shall not be required to meet the specific phase-in requirements for the 2005 and 2006 model years.

*Commentary: This modification to section 1968.2 (d)(3.2) requires that small volume manufacturers comply with the in-use performance ratio requirements starting with the final year of the phase-in (i.e., 2007) in lieu of having to meet the intermediate phase-in percentages in 2005 and 2006. This modification, which recognizes the difficulty that small volume manufacturers have in meeting intermediate phase-in percentages with a limited product line, is consistent with the extra leadtime generally provided for small volume manufacturers in all other phase-in schedules (e.g., section (e)(18.2.3)) and was inadvertently overlooked.*

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(4) In-Use Monitor Performance Ratio Definition.

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(4.2) Numerator Specifications

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(4.2.2) Specifications for incrementing:

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- (D) For monitors that run or complete during engine off operation, the numerator shall be incremented within 10 seconds after the monitor has completed during engine off operation or during the first 10 seconds of engine start on the subsequent driving cycle.

*Commentary: This modification to section 1968.2 (d)(4.2.2)(D) clarifies that for engine-off monitors, the numerator is required to be incremented no later than within 10 seconds of the following engine start, thereby allowing manufacturers to increment the numerator during the “engine-off” period or during start-up following the “engine-off” period. This modification was made in response to a recent manufacturer’s request to increment the numerator during the “engine-off” period right after the “engine-off” monitor is completed.*

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## **(e) MONITORING REQUIREMENTS**

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### **(1.5) CATALYST MONITORING FOR DIESELS**

(1.5.1) Requirement: On all 2004 and subsequent model year diesel passenger cars, light-duty trucks, and medium-duty passenger vehicles (see section (c)) and all 2005 and subsequent model year diesel medium-duty vehicles, the OBD II system shall monitor the catalyst system for proper conversion capability.

(1.5.2) Malfunction Criteria:

(A) For 2004 and subsequent model year diesel passenger cars, light-duty trucks, and medium-duty passenger vehicles certified to a chassis dynamometer tailpipe emission standard:

- (i) ~~Except as provided below, t~~The OBD II system shall detect a catalyst system malfunction when the catalyst system’s conversion capability decreases to the point that emissions exceed 1.75 times the applicable FTP full useful life NMHC, NOx, or PM standard (or, if applicable, NMHC+NOx standard).
- (ii) ~~For vehicles not exempted from NMHC conversion efficiency monitoring under the provisions of~~Except as provided below in section (e)(1.5.2)(A)(iiiv), if no failure or deterioration of the catalyst system NMHC conversion capability could result in a vehicle’s emissions exceeding 1.75 times any of the applicable standards, the OBD II system shall detect a malfunction when the system has no detectable amount of NMHC conversion capability.
- (iii) ~~For vehicles not exempted from NMHC conversion efficiency monitoring under the provisions of~~Except as provided below in section (e)(1.5.2)(A)(iiiv), if no failure or deterioration of the catalyst system NOx conversion capability could result in a vehicle’s emissions exceeding 1.75 times any of the applicable standards, the OBD II system shall detect a malfunction when the system has no detectable amount of NOx conversion capability.

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(B) For 2005 and 2006 model year diesel medium-duty vehicles (~~except including~~ medium-duty passenger vehicles certified to an engine dynamometer tailpipe emission standard):

- (i) Except as provided below, the OBD II system shall detect a NOx conversion catalyst system malfunction when the catalyst system’s

conversion capability decreases to the point that emissions exceed 1.75 times the applicable FTP full useful life NOx or PM standard (or, if applicable, NMHC+NOx standard).

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(C) For 2007 and subsequent model year diesel medium-duty vehicles (~~except including~~ medium-duty passenger vehicles certified to an engine dynamometer tailpipe emission standard):

- (i) ~~Except as provided below,~~ The OBD II system shall detect a catalyst system malfunction when the catalyst system's conversion capability decreases to the point that emissions exceed 1.75 times the applicable FTP full useful life NMHC, NOx, or PM standard (or, if applicable, NMHC+NOx standard).
- (ii) ~~For vehicles not exempted from NMHC conversion efficiency monitoring under the provisions of~~ Except as provided below in section (e)(1.5.2)(C)(~~iii~~iv), if no failure or deterioration of the catalyst system NMHC conversion capability could result in a vehicle's emissions exceeding 1.75 times any of the applicable standards, the OBD II system shall detect a malfunction when the system has no detectable amount of NMHC conversion capability.
- (iii) ~~For vehicles not exempted from NOx conversion efficiency monitoring under the provisions of~~ Except as provided below in section (e)(1.5.2)(C)(~~iii~~iv), if no failure or deterioration of the catalyst system NOx conversion capability could result in a vehicle's emissions exceeding 1.75 times any of the applicable standards, the OBD II system shall detect a malfunction when the system has no detectable amount of NOx conversion capability.

*Commentary: The catalyst monitor malfunction criteria for medium-duty diesel vehicles (MDVs) (sections 1968.2 (e)(1.5.2)(B), and (C)) were modified from 1.5 to 1.75 times the applicable standards to be consistent with the requirements for diesel passenger cars and light-duty trucks. Additionally, sections (e)(1.5.2)(A), (B), and (C) were modified for medium-duty passenger vehicles (MDPVs). MDPVs that are certified to a chassis dynamometer tailpipe emission standard will be required to meet the same monitoring requirements as passenger cars and light-duty trucks. This requirement is appropriate since these MDPVs meet the same tailpipe emission standards as the passenger car and light-duty trucks. MDPVs that are certified to an engine dynamometer tailpipe emission standard will be required to meet the same monitoring requirements as medium-duty vehicles that are also certified to the engine dynamometer standards. These modifications were made in response to public comment received during the first "15-day" comment period expressing concern over having to meet different monitoring requirements for MDPVs and medium-duty vehicles even though the emission standards are the same for some applications within the two categories.*

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(3.5) MISFIRE MONITORING FOR DIESELS

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(3.5.3) Monitoring Conditions: The OBD II system shall monitor for misfire during engine idle conditions at least once per driving cycle in which the monitoring conditions for misfire are met. A manufacturer shall submit monitoring conditions to the Executive Officer for approval. The Executive Officer shall approve manufacturer defined monitoring conditions that are determined (based on manufacturer submitted data and/or other engineering documentation) to be: (i) be technically necessary to ensure robust detection of malfunctions (e.g., avoid false passes and false detection of malfunctions), (ii) require no more than 1000 cumulative engine revolutions, and (iii) do not require any single continuous idle operation of more than 15 seconds to make a determination that a malfunction is present (e.g., a decision can be made with data gathered during several idle operations of 15 seconds or less). For 2004 model year vehicles only, a manufacturer may comply with the monitoring conditions for diesel misfire monitoring in title 13, CCR section 1968.1 in lieu of meeting the monitoring conditions in section (e)(3.5.3).

*Commentary: This modification to section 1968.2 (e)(3.5.3) clarifies that misfire monitoring for diesel applications is required only once per driving cycle. Staff recently received questions regarding this requirement and added the language to avoid misinterpretations that monitoring was required to be continuous.*

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(8) EXHAUST GAS RECIRCULATION (EGR) SYSTEM MONITORING

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(8.3) Monitoring Conditions:

(8.3.1) Manufacturers shall define the monitoring conditions for malfunctions identified in section (e)(8.2) (e.g., flow rate) in accordance with sections (d)(3.1) and (d)(3.2) (i.e., minimum ratio requirements). For purposes of tracking and reporting as required in section (d)(3.2.2), all monitors used to detect malfunctions identified in section (e)(8.2~~2~~) shall be tracked separately but reported as a single set of values as specified in section (d)(5.2.2).

*Commentary: The reference in the EGR monitoring requirements (section 1968.2 (e)(8.3.1)) has been corrected to properly reflect the appropriate section reference.*

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(10) ENGINE COOLING SYSTEM MONITORING

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(10.2) Malfunction Criteria:

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(10.2.2) ECT Sensor

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- (C) Stuck in Range Below the Highest Minimum Enable Temperature. To the extent feasible when using all available information, the OBD II system shall detect a malfunction if the ECT sensor inappropriately indicates a ~~fixed~~ temperature below the highest minimum enable temperature required by the OBD II system to enable other diagnostics (e.g., an OBD II system that requires ECT to be greater than 140 degrees Fahrenheit to enable a diagnostic must detect malfunctions that cause the ECT sensor to inappropriately indicate a ~~fixed~~ temperature below 140 degrees Fahrenheit). Manufacturers are exempted from this requirement for temperature regions in which the monitors required under sections (e)(10.2.1) or (e)(10.2.2)(B) will detect ECT sensor malfunctions as defined in section (e)(10.2.2)(C).
- (D) Stuck in Range Above the Lowest Maximum Enable Temperature.
- (i) To the extent feasible when using all available information, the OBD II system shall detect a malfunction if the ECT sensor inappropriately indicates a ~~fixed~~ temperature above the lowest maximum enable temperature required by the OBD II system to enable other diagnostics (e.g., an OBD II system that requires ECT to be less than 90 degrees Fahrenheit at engine start to enable a diagnostic must detect malfunctions that cause the ECT sensor to inappropriately indicate a ~~fixed~~ temperature above 90 degrees Fahrenheit).

*Commentary: The monitoring requirements for ECT sensors “stuck in range below the highest minimum enable temperature” and “stuck in range above the lowest maximum enable temperature” (sections 1968.2 (e)(10.2.2)(C) and (D)) have been modified. In the previous regulation (section 1968.1), ECT sensors were required to be monitored, like all other comprehensive components, for rationality faults “to the extent feasible” and “using all available information.” In reorganizing the requirements for clarity in section 1968.2, the ECT monitoring requirements were removed from the comprehensive components section and put into a separate section. New language was drafted requiring ECT sensors to be monitored for indicating a fixed temperature. However, staff received questions regarding what a “fixed” temperature is, and rather than define a new term, the language has been modified to revert back to the language used in the previous regulation. Monitoring is now required, to the extent feasible, for ECT sensors reading in range but inappropriately high or low instead of at a “fixed” temperature. And, as used in the original 1968.1 regulation, “all available information” in this context refers to all information that is available to the OBD II system on a vehicle such as other sensor readings and/or calculated values.*

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(15) PARTICULATE MATTER (PM) TRAP MONITORING

(15.1) Requirement: On all 2004 and subsequent model year diesel passenger cars, light-duty trucks, and medium-duty passenger vehicles (see section (c)) and all 2005 and subsequent model year diesel medium-duty vehicles, manufacturers shall monitor the PM trap on vehicles so-equipped for proper performance.

(15.2) Malfunction Criteria:

(15.2.1) For 2004 and subsequent model year diesel passenger cars, light-duty trucks, and medium-duty passenger vehicles certified to a chassis dynamometer tailpipe standard, the OBD II system shall detect a malfunction prior to a decrease in the capability of the PM trap that would cause a vehicle's emissions to exceed 1.5 times the applicable standards.

(15.2.2) For 2005 and 2006 model year diesel medium-duty vehicles (~~except~~ including medium-duty passenger vehicles certified to an engine dynamometer tailpipe standard), the OBD II system shall detect a malfunction of the PM trap when catastrophic failure occurs. The Executive Officer shall exempt vehicles from this PM trap monitoring requirement upon determining that if the manufacturer has ~~can~~ demonstrated with data and/or engineering evaluation that catastrophic failure of the PM trap will not cause emissions to exceed 1.5 times the applicable standards.

*Commentary: The particulate matter trap monitoring requirements (section 1968.2 (e)(15)) were modified for medium-duty passenger vehicles (MDPVs). MDPVs that are certified to a chassis dynamometer tailpipe emission standard will be required to meet the same monitoring requirements as passenger cars and light-duty trucks. As stated previously, these MDPVs meet the same tailpipe emission standards as the passenger car and light-duty trucks. MDPVs that are certified to an engine dynamometer tailpipe emission standard will be required to meet the same monitoring requirements as medium-duty vehicles that are also certified to the engine dynamometer standards. These modifications were made in response to public comment received during the first "15-day" comment period expressing concern over having to meet different monitoring requirements for MDPVs and medium-duty vehicles even though the emission standards are the same for some applications within the two categories.*

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(16) COMPREHENSIVE COMPONENT MONITORING

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(16.2) Malfunction Criteria:

(16.2.1) Input Components:

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(C) For vehicles that require precise alignment between the camshaft and the crankshaft, the OBD II system shall monitor the crankshaft position sensor(s) and camshaft position sensor(s) to verify proper alignment

between the camshaft and crankshaft in addition to monitoring the sensors for circuit continuity and rationality malfunctions. Proper alignment monitoring between a camshaft and a crankshaft shall only be required in cases where both are equipped with position sensors. For 2006 and subsequent model year Low Emission Vehicle II applications vehicles equipped with VVT systems and a timing belt or chain, the OBD II system shall detect a malfunction if the alignment between the camshaft and crankshaft is off by one or more cam/crank sprocket cogs (e.g., the timing belt/chain has slipped by one or more teeth/cogs). If a manufacturer demonstrates that a single tooth/cog misalignment cannot cause a measurable increase in emissions during any reasonable driving condition, the manufacturer shall detect a malfunction when the minimum number of teeth/cogs misalignment needed to cause a measurable emission increase has occurred. For the 2006 through 2008 model years only, a manufacturer may also request Executive Officer approval to use a larger threshold than one tooth/cog. The Executive Officer shall approve the request upon determining that the manufacturer has demonstrated that hardware modifications are necessary to meet the one tooth/cog threshold and that further software modifications are not able to reduce the larger threshold.

*Commentary: This modification to section 1968.2 (e)(16.2.1)(C) incorporates language from ARB Mail-Out #95-20 regarding camshaft/crankshaft position sensor monitoring. The crankshaft/camshaft alignment monitoring requirement applies only to those vehicles that require precise alignment between the camshaft and the crankshaft such as vehicles equipped with variable valve timing and/or control (VVT) systems. Clarification was also added that this monitoring is only required in cases where the camshaft and the crankshaft actually have position sensors. For example, engines with two camshafts and one crankshaft typically only have position sensors on one of the camshafts and on the crankshaft. In such a case, alignment monitoring is required between the camshaft equipped with a position sensor and the crankshaft, but not between the other camshaft (that does not have a position sensor) and the crankshaft.*

*Further, for 2006 and subsequent model year Low Emission Vehicle II applications with timing belts/chains and VVT systems, alignment monitoring is required to be able to catch a misalignment of a single tooth/cog. Staff has added a provision to allow a manufacturer to indicate a malfunction when misalignment is greater than one tooth/cog if a manufacturer demonstrates that a single tooth/cog misalignment cannot cause a measurable increase in emissions during any reasonable driving condition.*

*Additionally, staff also added an allowance for manufacturers, with Executive Officer approval, to receive a two-year exemption (from the 2006 to the 2008 model years) from this requirement if hardware changes are needed. These modifications were made in response to public comment received during the first*

*“15-day” comment period expressing concerns regarding technological feasibility and cost-effectiveness of implementing the requirement on non-VVT equipped vehicles.*

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(18) EXCEPTIONS TO MONITORING REQUIREMENTS

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- (18.2) Whenever the requirements in section (e) of this regulation require a manufacturer to meet a specific phase-in schedule (e.g., (e)(11) cold start emission reduction strategy monitoring requires 30 percent in 2006 model year, 60 percent in 2007 model year, and 100 percent in 2008 model year):
- (18.2.1) The phase-in percentages shall be based on the manufacturer’s projected sales volume for all vehicles subject to the requirements of title 13, CCR section 1968.2 unless specifically stated otherwise in section (e).
- (18.2.2) Manufacturers may use an alternate phase-in schedule in lieu of the required phase-in schedule if the alternate phase-in schedule provides for equivalent compliance volume as defined in section (c) except as specifically noted for the phase in of in-use monitor performance ratio monitoring conditions in section (d)(3.2).
- (18.2.3) Small volume manufacturers may use an alternate phase-in schedule in accordance with section (e)(18.2.2) in lieu of the required phase-in schedule or may ~~are required to~~ meet the requirement on all vehicles by the final year of the phase-in in lieu of meeting the specific phase-in requirements for each model year (e.g., in the example in section (e)(18.2), small volume manufacturers are required to meet 100% in the 2008 model year for cold start emission reduction strategy monitoring, but not 30% in the 2006 model year or 60% in the 2007 model year).

*Commentary: The modification to section 1968.2 (e)(18.2.3) clarifies that in lieu of meeting the required phase-in schedule wherever specified for a monitoring requirement in section (e), small volume manufacturers may either use an alternate phase-in schedule as specified in section (e)(18.2.2) or meet the requirement on all vehicles by the final year of the required phase-in. This modification was made in response to industry confusion over which phase-in schedule small volume manufacturers are allowed to use.*

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**(f) STANDARDIZATION REQUIREMENTS**

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(4) Required Emission Related Functions:

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- (4.3) Freeze Frame.

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(4.3.2) "Freeze frame" conditions must include the fault code which caused the data to be stored and all of the signals required in section (f)(4.2.1) except number of stored confirmed fault codes and MIL status. Freeze frame conditions shall also include all of the signals required on the vehicle in sections (f)(4.2.2) through (4.2.4) that are available in the specific diagnostic or emission-critical powertrain control unit that stored the fault code except: oxygen sensor output, air/fuel ratio sensor output, catalyst temperature, evaporative system vapor pressure, ~~MIL status~~, monitor status since last engine shut off, distance traveled while MIL activated, distance traveled since fault memory last cleared, and number of warm-up cycles since fault memory last cleared.

*Commentary: The freeze frame data set requirements in section 1968.2 (f)(4.3.2) were modified to reduce the minimum number of parameters required for freeze frame data. The new language only requires a small common set of parameters to be stored for all faults plus any other parameters used by the specific control module storing the fault code. Previously, the provision required that for every fault, all parameters available on the vehicle had to be stored. This modification was made in response to public comment received during the first "15-day" comment period. The comment indicated that CAN systems generally consist of several "independent" OBD-control modules that control various diagnostics and store appropriate fault codes but do not individually have access to all of the data parameters available on a vehicle. Rather than requiring all parameters to be unnecessarily sent to all control modules solely for the purposes of freeze frame storage, the language was modified to minimize the amount of unnecessary data transfer between modules without reducing the diagnostic value of freeze frame data to technicians.*

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(5) In-use Performance Ratio Tracking Requirements:

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(5.2) Numerical Value Specifications:

(5.2.1) For the numerator, denominator, general denominator, and ignition cycle counter:

(A) Each number shall have a minimum value of zero and a maximum value of 65,535 with a resolution of one.

(B) Each number shall be reset to zero only when a non-volatile memory reset occurs (e.g., reprogramming event, etc.) or, if the numbers are stored in keep-alive memory (KAM), when KAM is lost due to an interruption in electrical power to the control module (e.g., battery disconnect, etc.). Numbers may not be reset to zero under any other circumstances including when a scan tool command to clear fault codes or reset KAM is received.

*Commentary: Regarding the standardized requirements for in-use performance ratio tracking, modifications were made to section 1968.2 (f)(5.2.1)(B) to allow numbers to be stored in keep-alive memory (KAM) and only be erased during battery disconnects. Consistent with the existing regulation, KAM stored numbers may not be reset to zero in response to a scan tool command. This allowance was agreed upon early in the regulation development, but was mistakenly omitted from the original regulation proposal.*

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(7) Exceptions to Standardization Requirements.

- (7.1) For medium-duty vehicles equipped with engines certified on an engine dynamometer, a manufacturer may request Executive Officer approval to use both: (1) an alternate diagnostic connector, communication protocol, and emission-related message structure and format in lieu of the standardization requirements in sections (f)(2) and (4) that refer to SAE J1962, SAE J1978, and SAE J1979, and (2) an alternate communication protocol in lieu of the as well as the identified protocols in section (f)(3). The Executive Officer shall approve the request if upon determination that:
- (A) The ARB has adopted an on-board diagnostic regulation for heavy-duty vehicles; ~~and (B) the alternate diagnostic connector, communication protocol, and emission-related message format and structure requested by the manufacturer meets the standardization requirements in the on-board diagnostic regulation for heavy-duty vehicles;~~ or
- (B) For 2004 and 2005 model year vehicles only, the alternate diagnostic connector, communication protocol, and emission-related message format and structure requested by the manufacturer meet the standardization requirements of SAE J1939 and the manufacturer has implemented features (e.g., readiness code indication via the MIL pursuant to section (f)(4.1.3)) that will allow the vehicle to be tested in a California Inspection and Maintenance test facility. If the ARB has not adopted a heavy-duty vehicle on-board diagnostic regulation by July 1, 2004, the Executive Officer shall extend the provisions of this section through the 2006 model year. The Executive Officer shall extend the provisions of this section one additional model year on each subsequent July 1 if the ARB has not adopted a heavy-duty vehicle on-board diagnostic regulation by that date.

*Commentary: An additional clause was added to the SAE J1939 allowance for medium-duty vehicles (section 1968.2 (f)(7.1)(B)), requiring the Executive Officer to extend the temporary allowance for SAE J1939 one model year at a time for each year that passes without the ARB adopting a heavy-duty OBD regulation. This clause was added in response to public comment made during the first “15-day” comment period expressing concern over a possible “gap” beyond the 2005 model year should the heavy-duty OBD rulemaking be delayed.*

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**(g) MONITORING SYSTEM DEMONSTRATION REQUIREMENTS FOR CERTIFICATION**

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(3) Required Testing:

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- (3.3) VVT System: For ~~2005~~2006 and subsequent model year Low Emission II applications, the manufacturer shall perform a test at each target error limit and slow response limit calibrated to the malfunction criteria (e.g., 1.5 times the FTP standard) in sections (e)(13.2.1) and (13.2.2). In conducting the VVT system demonstration tests, the manufacturer may use computer modifications to cause the VVT system to operate at the malfunction limit if the manufacturer can demonstrate that the computer modifications produce test results equivalent to an induced hardware malfunction.

*Commentary: Public comment received during the first "15-day" comment period indicated the discrepancy between the starting date for implementing demonstration testing of the VVT system (section 1968.2 (g)(3.3)) and the monitoring requirements for VVT systems (section 1968.2 (e)(13)). Accordingly, staff corrected this by delaying the start date of VVT system demonstration testing from the 2005 model year to the 2006 model year.*

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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(3) Vehicle Selection for Enforcement Testing.

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(B) Size of Test Sample Group.

After determining the motor vehicle class to be tested, the Executive Officer shall determine the appropriate number of vehicles to include in the test sample group for enforcement testing in accordance with the following guidelines:

- (i) For OBD II emission testing, the Executive Officer shall follow the ~~procedures regarding sample size established in provisions of title 13, CCR section 2137 regarding (e.g., using a test sample size. In accordance with section 2137, the Executive Officer shall test of at least 10 vehicles) that have been procured following the protocol of section (b)(3)(C) below and meet the selection criteria of section (b)(3)(D)(i) below to determine. The testing of 10 such vehicles shall be determinative as to their representativeness of the emissions characteristics of the motor vehicle class being tested.~~
- (ii) For OBD II ratio testing, the Executive Officer shall collect data from a test sample group of ~~at least 30 vehicles that have been procured following the protocol of section (b)(3)(C) below and meet the selection criteria of section (b)(3)(D)(ii) below to determine. The testing of 30 such vehicles shall be determinative as to their representativeness of the in-use OBD II monitoring performance of the motor vehicle class being tested.~~

*Commentary: The language “determinative as to their representativeness,” which was added to sections 1968.5 (b)(3)(B)(i) and (ii) as part of the first 15-day modifications, has been deleted. This was done in response to public comment received during the first “15-day” comment period contending that the language was confusing and its intent unclear.*

*It has been the intent of the ARB from the beginning of this rulemaking that it would follow, to the greatest extent possible, the procurement and selection protocol that has historically been used in the exhaust emission enforcement testing. (See Staff Report: Initial Statement of Reasons for Proposed Rulemaking (Staff Report), p. 75.) For example, as initially proposed, section (b)(3)(B)(i) stated that for OBD II emission testing, the Executive Officer would “follow the procedures regarding sample size established in title 13, CCR section 2137.” And section (b)(3)(C) provided that in procuring vehicles for OBD II enforcement*

*testing the Executive Officer would follow the same procurement policies “. . . in accordance with section 2137.”*

*In response to comments from industry, the staff in the first 15-day modifications attempted to clarify and reaffirm its intent that it would closely follow the protocol and practice of section 2137. (See Appendix IV to the first 15-Day Notice of Availability of Modified Text, p. 11.) Specifically, language was added in section (b)(3)(B)(i) that provided that vehicles in the test sample group must be properly procured and selected in accordance with provisions that specifically reference 2137 and closely parallel the terms of that section. Second, regarding the sample size for OBD II emission testing, the proposed modifications attempted to make clear that a sample size, with as few as 10 properly procured and selected vehicles, could be used by the Executive Officer to determine the emissions characteristics of the motor vehicle class being tested. As stated in Appendix IV, the use of 10 vehicles is fully consistent with the long-established protocol and practice followed for exhaust emission testing under section 2137. Using the same sample size for both exhaust emission testing and OBD II emission testing is appropriate given the nature of the testing performed (on a dynamometer) and that testing under both protocols is correlated to a vehicle’s certified emission level.*

*Section (b)(3)(B)(ii) was similarly modified in the first 15-day modifications to be consistent with practice under section 2137. The modified language included provisions that the Executive Officer would procure vehicles pursuant to the protocols of section 2137 and select vehicles using criteria similar to that used under section 2137. However, recognizing the uniqueness of ratio-based testing, the ARB determined that a sample size of 30 rather than 10 vehicles would be appropriate. As stated in the rationale for the first 15-day modification, “using common statistical methods, the pass/fail ratio criteria to be used for enforcement testing were modified from the minimum ratio requirements in section 1968.2 to account for a sample size of 30.” (Appendix IV, p. 11; see also Appendix V of the Staff Report: Initial Statement of Reasons for Proposed Rulemaking, issued on March 8, 2002).*

*As indicated above, because industry continues to be unclear about the ARB’s intent to follow the established protocols of section 2137, staff has proposed further modifications to these sections. Sections (b)(3)(B)(i) and (ii) have been modified to more closely parallel the specific language of section 2137. As was intended with the previous version, the modified language defines in much simpler terms the minimum number of vehicles that the Executive Officer needs to test to determine the emission characteristics and/or in-use monitoring performance of a motor vehicle class. While the proposed modifications identify the minimum number of vehicles that are required to be tested to make a determination, the staff recognizes that under existing practice for exhaust emission enforcement, the Executive Officer typically selects and tests more vehicles than the minimum. The Executive Officer will often include and test as*

many as 14 vehicles in the test sample, even though a determination may be based on a sample of as few as 10 vehicles. The Executive Officer procures and selects these additional vehicles to ensure that a sufficient number remain in the sample if some vehicles are later disqualified. (See section (b)(3)(D).) It is the intent of the ARB that this practice be continued for OBD II enforcement testing (i.e., the Executive Officer will typically procure and select test samples that have more than 10 and 30 vehicles respectively for OBD II emission and ratio testing). And, as is currently done in exhaust emission enforcement, any additional tested vehicles that are not disqualified will be used as part of the test sample group when determining nonconformance.

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(D) Vehicles to be included in a Test Sample Group.

- (i) In selecting vehicles to be included in a test sample group for enforcement OBD II emission testing, the Executive Officer shall include only vehicles that:

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- c. Have mileage an odometer reading and age that are is equal to or less than 75 percent of the certified full useful life mileage and have an age of less than the certified full useful life age for the subject vehicles.

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- (ii) In selecting vehicles to be included in a test sample group for enforcement OBD II ratio testing, the Executive Officer shall include only vehicles that:

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- d. Have mileage an odometer reading and age that are less than or equal to the certified full useful life mileage and age for the subject vehicles.

- (iii) In selecting vehicles to be included in a test sample group for enforcement testing of any other requirement of title 13, CCR section 1968.2 (not covered by sections (b)(3)(D)(i) or (ii) above), the Executive Officer shall include only vehicles that:

\* \* \* \*

- d. Have mileage an odometer reading and age that are less than or equal to the certified full useful life mileage and age for the subject vehicles.

- (iv) Upon following the procurement and selection provisions set forth above in sections (b)(3)(B) through (D) and determining that no reasonably apparent evidence exists that a vehicle fails to meet the criteria set forth above, it shall be presumed that the Executive Officer has properly included vehicles in a test sample group. If, at any time during the enforcement process, the Executive Officer discovers, by either evidence presented by the manufacturer as provided in section (b)(7) or on his or her own, that a vehicle fails to meet one or more of the applicable criteria of section (b)(3)(D)(i) through (iii), the Executive Officer shall remove the vehicle from the test sample group. The Executive Officer may replace any vehicle removed with an additional vehicle selected in accordance with sections (b)(3)(C) and (D) above. Test results relying on data from

the removed vehicle shall be recalculated without using the data from the removed vehicle.

*Commentary: Regarding the vehicle selection criteria for enforcement testing, references to “odometer reading” in sections 1968.5 (b)(3)(D)(i)c., (ii)d., and (iii)d. were modified to “mileage” to clarify that the actual mileage of the vehicle is the critical factor, not simply the current odometer reading. This modification was made in response to public comment received during the first “15-day” comment period that indicated that the rejection process for test vehicle selection should be consistent with those for the current ARB in-use emissions compliance testing, which rejects vehicles where the mileage cannot be accurately determined due to an inoperative or replaced odometer.*

*Section (b)(3)(D)(iv) has been modified to delete the presumption that the Executive Officer has properly included vehicles in the test sample group in response to comments received during the first “15-day” comment period that this presumption is unnecessary. In deleting the language, the staff found the express presumption to be unnecessary in that, under California law, there is an existing presumption that public employees will regularly and properly perform their duties. (See Evidence Code section 664.) In this case, even without the deleted presumption, a presumption would nonetheless exist that the ARB staff has properly performed their duties – that is, they have properly followed the procurement and selection provisions and, to the best of their abilities, have properly included vehicles in the test sample. Under the law, the presumption is rebuttable. Staff recognized this by providing that vehicles will be removed from the sample and their data voided if subsequent evidence is produced that the vehicles do not meet the criteria for selection.*

*Section (b)(3)(D)(iv) has been further modified to make consistent the timeframes for a manufacturer to produce evidence within the provisions of section (b)(7).*

\* \* \* \*

- (7) Executive Officer Notification to the Manufacturer Regarding Determination of Nonconformance.

\* \* \* \*

(C) Within the time period set by the Executive Officer in section (b)(7)(B)(iv) and any extensions of time granted under section (b)(7)(H), the manufacturer may shall provide the Executive Officer, consistent with paragraphs (i) through (iii) below, with any test results, data, or other information derived from vehicle testing that may rebut or mitigate the results of the ARB testing, including any evidence that a motor vehicle class, if determined to be nonconforming, should be exempted from mandatory recall. (See section (c)(3)(B) below.)

(i) For OBD II emission testing and OBD II ratio testing:

- a. The manufacturer may submit evidence to demonstrate that vehicles in the test sample group used by the Executive Officer were

inappropriately selected, procured, or tested in support of a request to have vehicles excluded from the test sample group in accordance with section (b)(3)(D)(iv).

- b. If the manufacturer elects to conduct additional testing of vehicles or engines in the motor vehicle class and submit the results of such testing to the Executive Officer, the manufacturer shall:
  - 1. Present evidence that it has followed the vehicle procurement and test procedures set forth in sections (b)(3) and (4) above, or
  - 2. If the manufacturer elects to use different procurement and testing procedures, also submit a detailed description of the procurement and test procedures used and evidence that such procedures provide an equivalent level of assurance that the results are representative of the motor vehicle class, by the manufacturer in conducting such testing. ~~notify the Executive Officer before conducting such testing so that the Executive Officer may have the opportunity to review the testing protocol of the manufacturer, and witness the testing of vehicles.~~
- (ii) If the manufacturer objects to the size of the test sample group or the method used to procure vehicles in the test sample group used by the Executive Officer pursuant to section (b)(3)(B)(iii) or (b)(3)(C)(iii), the manufacturer shall set forth what it considers to be the appropriate size and procurement method, ~~and the reasons therefore, and test data from vehicles that confirm the manufacturer's position.~~
- (iii) If the manufacturer elects to present evidence to overcome the presumption of nonconformance in section (b)(6)(C)(ii) above, the manufacturer shall demonstrate that the vehicles in the motor vehicle class comply with in-use monitor performance ratio requirements of title 13, CCR section 1968.2(d)(3.2) by presenting ~~following one of the~~ following procedures:
  - a. ~~Presenting e~~ Evidence in accord with the procurement and testing requirements of sections (b)(3) and (4).
  - b. Any other evidence that Requesting Executive Officer approval to use an alternate procedure to demonstrate compliance. The Executive Officer shall approve the alternate procedure if the manufacturer demonstrates that it would provide an equivalent level of proof that vehicles operated in California do comply with the in-use monitor performance ratio requirements.
- (D) ~~The Executive Officer shall not may, but is not required to, consider accept~~ any information submitted by a manufacturer pursuant to section (b)(7)(C) above after the time established for submission of such information has passed unless the manufacturer could not have reasonably foreseen the need for providing the information within the time period provided. In determining whether to accept late information, the Executive Officer will consider the lateness of the submission, the manufacturer's reasons for why such information was not timely presented, the materiality of the information

to the Executive Officer's final determination, and what effect any delay may have on effective enforcement and the health and welfare of the State.

*Commentary: Several modifications were made regarding the requirements for manufacturer data in response to nonconformance determinations (section 1968.5 (b)(7)(C)). Section 1968.5 (b)(7)(C) was modified to clarify that evidence generated and submitted by the manufacturer must be done consistent with the subsequent paragraphs (i) through (iii) and that such evidence may consist of any test results, data, or other information derived from vehicle testing.*

*Section 1968.5 (b)(7)(C)(i) was added to better organize into a single section the provisions regarding data that a manufacturer may submit in response to an Executive Officer's preliminary finding of nonconformity related to OBD II emission and ratio testing. Section 1968.5 (b)(7)(C)(i)a. reiterates that manufacturers can submit evidence to show that vehicles were inappropriately procured or tested consistent with section (b)(3)(D)(iv). Further, if a manufacturer elects to submit additional vehicle test data for the Executive Officer to consider, section 1968.5 (b)(7)(C)(i)b. requires the manufacturer to use the same procurement and test procedures as used by the ARB or, if using a different procedure, to provide descriptions of the alternate procedure and evidence to support why it provides equally representative test results. This language was added to provide clear direction to a manufacturer as to the minimum level of testing it should use when developing data to supply to the Executive Officer.*

*Section 1968.5 (b)(7)(C)(ii), which deals with the sample size and test procedures for "other OBD II testing," has been modified to require manufacturers to submit test data from vehicles to support their position that that a different sample method or procurement process should have been followed by the Executive Officer.*

*The phrase "in the motor vehicle class" was added to section 1968.5 (b)(7)(C)(iii) to clarify that manufacturers have to submit data from vehicles in the motor class.*

*Section 1968.5 (b)(7)(D) was modified from the mandatory "shall not" to the permissive "may, but is not required to accept." The staff has proposed the modification to provide the Executive Officer greater flexibility in considering evidence submitted by the manufacturer that, although late, may have a significant bearing on a final determination. The Executive Officer would balance the identified factors in determining whether it would be in the public interest to accept the late information.*

\* \* \* \*

(c) Remedial Action

\* \* \* \*

(3) Ordered Remedial Action-Mandatory Recall.

\* \* \* \*

(B) A motor vehicle class shall not be subject to mandatory recall if the Executive Officer determines that, even though a monitor meets a criterion set forth in section (c)(3)(A)(i)-(vi) for mandatory recall:

\* \* \* \*

(ii) The monitor meets the criterion solely due to a failure or deterioration mode of a monitored component or system that could not have been reasonably foreseen to occur by the manufacturer.

*Commentary: Regarding the exceptions to mandatory recall (section 1968.5 (c)(3)(B)), the word “reasonably” has been added to section 1968.5 (c)(3)(B)(ii). Consistent with the original intent and inferred by the original language, “reasonably” was added to help better define the level of a manufacturer’s responsibility in designing OBD II systems to detect malfunctions.*