

State of California  
Air Resources Board

**Final Statement of Reasons for Rulemaking Including  
Summary of Comments and Agency Response**

**PUBLIC HEARING TO CONSIDER TECHNICAL STATUS AND PROPOSED REVISIONS  
TO MALFUNCTION AND DIAGNOSTIC SYSTEM REQUIREMENTS FOR 1994 AND  
SUBSEQUENT MODEL YEAR PASSENGER CARS, LIGHT-DUTY TRUCKS, AND  
MEDIUM-DUTY VEHICLES AND ENGINES (OBD II)**

Considered: December 12, 1996  
Agenda Item No: 96-10-2

I. GENERAL

The "Staff Report: Initial Statement of Reasons for Rulemaking" ("Staff Report"), released October 25, 1996, is incorporated herein by reference.

Following a public hearing on December 12, 1996, the Air Resources Board (ARB or Board), by Resolution 96-60, approved for adoption amendments to Title 13, California Code of Regulations (CCR), section 1968.1. The regulation establishes on-board diagnostic system requirements for 1994 and subsequent model-year passenger cars, light-duty trucks, and medium-duty vehicles and engines (OBD II). The hearing was a biennial review requested by the Board to review the technical status of the OBD II program and to consider any necessary revisions to the requirements.

Between the last Board hearing in December 1994 and the hearing in December 1996, staff monitored initial implementation of the OBD II regulation and manufacturers' compliance progress. Prior to the December 1996 hearing, staff proposed modifications to section 1968.1 which were made available to the public, with the Staff Report, on October 25, 1996. The amendments were proposed to address manufacturers' implementation concerns, to clarify the regulations where necessary, and to improve the effectiveness of the regulations for future model year vehicles.

After listening to testimony from manufacturers and other interested parties, the Board approved the amendments proposed by the staff with two additional modifications requested by the manufacturers regarding deficiencies and alternate fuel vehicles. The two modifications along with other minor amendments were made available to the public from February 3, 1997, to February 18, 1997. The ARB mailed a copy of the "Notice of Availability of Modified Text," which is incorporated by reference herein, to each person described in subsection (a) through (d), inclusive of section 44, Title 1, California Code of Regulations, on February 3, 1997. A second "Notice of Availability of Modified Text," which is incorporated by reference herein, was mailed to the same persons with a comment period from July 10, 1997 to July 25, 1997. This second

notice included clarifications to the misfire detection requirements. As set forth in the Notices, the following amendments were noticed:

Section (m)(5.1) was modified by the Board to extend the provision to waive specific monitoring requirements on vehicles certified to run on alternate fuels. With the modification, the provision expires with the 2004 model year instead of the 1998 model year.

For purposes of consistency, the staff modified the certification procedures for alternate fuel retrofit systems (sections 2030 and 2031, Title 13, CCR, and “California Certification and Installation Procedures for Alternative Fuel Retrofit Systems for Motor Vehicles Certified for 1994 and Subsequent Model Years and for All Model Year Motor Vehicle Retrofit Systems Certified for Emission Reduction Credit”). In accordance with the modification requested by the Board regarding alternate fuel vehicles, the modification provides retrofit system manufacturers with similar leniency through the 2004 model year.

Sections (m)(6.2) and (m)(6.3) were modified to extend the existing deficiency provisions in the regulation. Manufacturers will be allowed with Executive Officer approval to certify vehicles through the 2003 model year with two deficiencies without being subject to fines. Additionally, for 2004 and later model year vehicles, manufacturers will be allowed to certify vehicles with one deficiency without being subject to fines. The Board also extended the carry-over provisions to allow manufacturers a two year carry-over for deficiencies (with a third year available if special circumstances merit additional lead time to correct the deficiency).

Sections (b)(1.2.2), (b)(3.3.2), (l)(1.0), and (l)(4.0) were modified to clarify that small volume manufacturers are not required to meet the specified phase-in percentages; however, such manufacturers shall achieve full compliance by the last year of the phase-in.

Section (b)(3.2)(A) was modified to remove the maximum limit of 1000 revolutions for evaluating whether catalyst damaging misfire levels are present. However, the use of any interval greater than 200 revolutions continues to be subject to Executive Officer approval.

Section (b)(3.4.1)(B) was modified to indicate that when using fuel shutoff during the occurrence of catalyst damaging misfire, the malfunction indicator lamp (MIL) need not be illuminated until the second driving cycle as specified in Section (b)(3.4.1)(A).

Sections (b)(3.4.1)(A) and (b)(3.4.2)(A) were modified to further clarify the conditions under which the MIL must be illuminated and a fault code stored in response to detected misfire.

Sections (b)(3.4.1)(A), (b)(3.4.2)(A), and (b)(3.4.2)(B) were modified to further clarify the conditions when a temporary misfire fault code may be erased.

Section (e) was modified to clarify an allowance for manufacturers to indicate system readiness before all monitors have been completed if the vehicle is operated at extreme conditions (e.g., cold ambient temperatures, high altitudes, etc.) over multiple driving cycles.

Section (h)(7) was modified to limit the amount of misfire detection capability data that must be submitted at the time of certification. By deleting the phrase “etc.” at the end of this section, manufacturers are only required to submit data for the following three misfire patterns: misfire across random cylinders, complete misfire in one cylinder, and complete misfire in paired cylinders.

Section (n)(21.0) was modified to clarify that an equivalent phase-in shall include full compliance no later than one year after the final year of the required phase-in.

Title 13, CCR, section 1968.1 incorporates by reference several Society of Automotive Engineers (SAE) and International Standards Organization (ISO) recommended practices and documents. Most of these documents were included in the regulations as they existed prior to this rulemaking and several have been updated by these amendments. The SAE and ISO documents that are incorporated by reference in the regulation include:

SAE Recommended Practice J1930, “Electrical/Electronic Systems Diagnostic Terms, Definitions, Abbreviations, and Acronyms,” September 1995;  
SAE Draft Recommended Practice J1939, “Serial Controlled Communications Vehicle Network,” January 1994;  
SAE Recommended Practice J1962, “Diagnostic Connector,” January 1995;  
SAE Recommended Practice J1978, “OBD II Scan Tool,” June 1994;  
SAE Recommended Practice J1979, “E/E Diagnostic Test Modes,” July 1996;  
SAE Recommended Practice J1850, “Class B Data Communications Network Interface,” July 1995;  
SAE Recommended Practice J2012, “Diagnostic Trouble Code Definitions,” October 1994;  
SAE Draft Technical Report J2008, “Organization of Vehicle Service Information,” November 1995;  
ISO 9141-2, “Road Vehicles-Diagnostic Systems-CARB Requirements for Interchange of Digital Information,” February 1994;  
ISO 14230-4, “Road Vehicles-Diagnostic Systems-KWP 2000 Requirements for Emission-related Systems,” April 1996.

Existing administrative practice of the ARB has been to have technical recommended practices, such as the SAE documents, and test procedures of the type found in Title 13, CCR, section 2030-2031 incorporated by reference rather than printed in the CCR. These procedures are highly complex and technical documents. They include “nuts and bolts” engineering protocols and have a limited audience. Because the ARB has never printed SAE documents or test procedures in the CCR, the affected public is accustomed to the incorporation format utilized in sections 1968.1 and 2030-2031. Moreover, printing portions of the documents in the CCR when the bulk of the procedures are incorporated by reference would be unnecessarily confusing to the affected public.

The Board has determined that this regulatory action will not result in a mandate to any local agency or school district the costs of which may or may not be reimbursable by the state pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code.

The Board has further determined that no alternative considered by the agency would be more effective in carrying out the purpose for which the regulatory action was proposed or would be as effective and less burdensome to affected private persons than the action taken by the Board.

## II. SUMMARY OF COMMENTS AND AGENCY RESPONSE

Prior to the public hearing on December 12, 1996, written comments were received from: American Automobile Manufacturers Association (AAMA), Association of International Automobile Manufacturers (AIAM), Chrysler Corporation (Chrysler), General Motors (GM), Ford Motor Company (Ford), Jack Heyler of the Automotive Services Council of California (ASC), California Automotive Wholesalers Association (CAWA), Volvo Cars of North America (Volvo), Rolls-Royce (RR), and the SAE J2008 Task Force (SAE).

At the Board Hearing, AAMA, Chrysler, AIAM, CAWA, Motor and Equipment Manufacturers Association (MEMA) et. al., ASC, GM, and Ford testified.

Vehicle manufacturers generally supported the amendments that provide clarification of the requirements and address OBD II implementation concerns. However, concerns were expressed with respect to certain existing requirements including the deficiency provisions and alternate fuel vehicle requirements as well as staff's proposed new requirements for PCV valve monitoring and standardized service information. Aftermarket parts manufacturer representatives supported the amendments removing the tamper resistance requirements for reprogrammable on-board computers, but requested the requirements also be removed for non-reprogrammable units and that manufacturers not be allowed to certify vehicles with anti-tampering controls.

### Alternate Fuel Vehicles

**1. Comment:** Monitoring strategies for alternate fuel vehicles cannot be simply carried over from gasoline-fueled vehicles and require additional resources for development and validation testing. However, because alternate fuel vehicles represent only a small portion of total vehicle sales, resource constraints may force manufacturers to restrict model offerings if additional lead time is not provided to implement fully compliant OBD II systems. As such, the provision to waive specific monitoring requirements on alternate fuel vehicles should be extended from the 1998 model year through the 2004 model year. (AAMA) (Chrysler) (GM) (Ford)(Volvo)

**Agency Response:** After consideration of the testimony provided by vehicle manufacturers at the Hearing, the Board directed staff to modify the requirements to provide the additional lead time requested by the manufacturers. The modification was included in the "Notice of Availability of Modified Text."

## Deficiency Provisions

**2. Comment:** Despite manufacturers good faith efforts, last minute glitches can occur in the software and hardware utilized on the vehicle for OBD II. OBD II represents a tremendous amount of software programming and calibration work and even the smallest mistake can cause a monitor to function improperly. Many times, these software “bugs” are not discovered in time to resolve the concern before production. Additionally, because of new monitoring strategies that will be phased-in for more stringent requirements through the 2004 model year as well as new vehicle model introductions and more stringent exhaust emission standards, there is significant risk that a manufacturer will not be able to meet all of the requirements on all of its models in the time frame required by the regulation. As a result, the existing deficiency provisions should be expanded and extended to allow two deficiencies without monetary fines for the 1997 through 2003 model years and one deficiency without monetary fines indefinitely, beginning with the 2004 model year. (AAMA) (Chrysler) (GM) (Ford) (AIAM) (Volvo)

**3. Comment:** The current deficiency provisions only allow a manufacturer to carry-over a deficiency for one model year if hardware modifications are required to correct the deficiency. For deficiencies that only require software modifications to correct the problem, manufacturers are not allowed to carry-over the deficiency on future model year vehicles. However, due to the complexity of OBD II software and the amount of lead time required for proper validation and software “debugging”, manufacturers need to be able to carry-over software and hardware deficiencies to future model year applications to ensure against false malfunction detections. Additionally, many times one model year is not enough time to make the necessary hardware or software changes given resource constraints and production deadlines. As such, the regulation should be modified to allow any deficiency to be carried over for two model years with a provision for a third model year if significant hardware changes are required that cannot be accomplished within the given lead time. (AAMA) (Chrysler) (GM) (Ford) (AIAM) (Volvo)

**Agency Response:** After consideration of the testimony presented by the manufacturers at the Hearing, the Board directed staff to modify the regulation as requested by the manufacturers. The staff included this modification as part of the 15-day notice.

**4. Comment:** While the deficiency provisions and the alternate phase-in provisions give manufacturers considerable flexibility in meeting the OBD II requirements, they are not adequate for some manufacturers who only produce a few engine families. For these manufacturers, it is not cost-effective to develop a fully compliant system for the last one or two model years before an engine is discontinued. As such, the Board should adopt a provision which allows deficiencies without fines on engines which are being phased-out by a manufacturer shortly after a new requirement becomes effective. (AIAM)

**Agency Response:** As amended by the Board, the regulation would allow two deficiencies without monetary penalties through the 2003 model year, one deficiency without penalty thereafter, and a two to three year carry-over of deficiencies. The staff does not believe that further relief is

needed for engines which are being phased-out shortly after a new requirement becomes effective. Manufacturers may utilize the alternate phase-in provision and the revised deficiency provisions on an engine that is to be phased-out. Staff believes these provisions will allow manufacturers to modify their OBD II systems in a cost-effective manner while achieving the maximum emission reductions as quickly as possible. After the 2004 model year, there are no further phase-in requirements; therefore, the provision for a single deficiency after the 2003 model year should be acceptable for all vehicle manufacturers.

#### Future Review of the Requirements

**5. Comment:** The ARB should hold a workshop and hearing in the future to evaluate manufacturers' progress in meeting the requirements for misfire monitoring, catalyst monitoring, and evaporative system monitoring on vehicles meeting more stringent exhaust emission standards (e.g., LEVs and ULEVs). Further, the new requirements for positive crankcase ventilation (PCV) system monitoring, thermostat monitoring, software validation, and standardized service information should also be revisited at that time. (GM)

**6. Comment:** The ARB should review manufacturers progress in meeting the evaporative system monitoring requirement for 0.020 inch leak detection next year due to the rapidly approaching deadline for introduction in the 2000 through 2002 model years. (Ford)

**Agency Response:** In the Board's resolution (#96-60), it directed staff to closely monitor vehicle manufacturers' progress in meeting the adopted requirements and report back to the Board if further amendments are necessary. Staff is currently planning a biennial review of the OBD II requirements for 1998, but will report back to the Board sooner should further modifications to the adopted requirements be necessary before 1998. Manufacturers to date have not submitted data suggesting that the 0.020 inch leak detection requirements cannot be met within the timeframe specified in the regulation.

#### Alternate Phase-in

**7. Comment:** The alternate phase-in schedule proposed by staff should be modified to include a provision that allows less than 100% compliance in the final year of the scheduled phase-in as long as the manufacturer's alternate phase-in plan generates credits that exceed the scheduled phase-in. This would give manufacturers extra flexibility in phasing-in new monitoring strategies on troublesome or low sales volume models. Manufacturers would then meet the 100% compliance requirement in the following year (the year after the last year of the scheduled phase-in). (AIAM)

**Agency Response:** In the 15-day notice mailed out on February 3, 1997, the staff modified the alternate phase-in requirements. With the modification, equivalent phase-in schedules need not achieve 100 percent compliance until the model year following the end of the specified phase-in.

#### Small Volume Manufacturers

**8. Comment:** In the sections regarding catalyst monitoring, misfire monitoring, standardized calibration identification, and software verification, there are required phase-in percentages for manufacturers to meet. ARB has generally not required small volume manufacturers to meet the phase-in schedule provided 100% compliance is achieved by the last model year of the required phase-in. However, in the catalyst and misfire monitoring sections, the required phase-in percentages have been revised by the staff but the requirements for small volume manufacturers have not been updated to reflect the revised, final year of the scheduled phase-in. For the calibration identification and software verification phase-in schedules, there is no provision for small volume manufacturers to be exempted from the phase-in. These sections should be modified to be consistent with past ARB policy. (AIAM) (RR)

**Agency Response:** In the Staff Report, staff inadvertently left out the small volume provisions in the four sections. With the 15-day notice mailed out on February 3, 1997, staff modified the sections according to the commenter's request.

#### Standardized Service Information (J2008)

**9. Comment:** The SAE document J2008, "Organization of Vehicle Service Information," November 1995, referenced by staff and included in the proposed amendments is a Draft Technical Report and the document will be undergoing significant changes before it can be adopted as an industry standard. Additionally, J2008 only specifies how service information should be organized and does not specify a software delivery program that would allow a technician to access the information as envisioned by ARB. (SAE)

**10. Comment:** The Board should not adopt the staff's proposal requiring manufacturers to make available service information in the electronic format standardized in the SAE J2008 Draft Technical Report beginning by the 2002 model year. The SAE document is in draft form and it is too early in the development process for ARB to mandate its usage. The document should be finalized and software delivery programs developed before manufacturers are required to implement it. At a minimum, if the Board decides to adopt the requirement, additional lead time should be granted beyond the 2002 model year. (AIAM)

**Agency Response:** From the time that OBD II was originally adopted in 1989, the regulation has contained references to several SAE documents. These documents provide details on how specific requirements are to be implemented by vehicle manufacturers (e.g., the specifications for the standardized diagnostic connector, how fault codes are to be retrieved, etc.). The use of SAE documents to accomplish this task is appropriate because details of the implementation of technical requirements are best worked out by the automotive engineers themselves.

Most of the documents referenced by the OBD II regulation may not have been created by the SAE absent OBD II requirements for standardization. In some of the documents, it is clearly stated that their purpose is to provide for OBD compliance. Because of this interdependent

relationship between ARB and SAE, it is appropriate for ARB to use draft documents to establish the regulations (thus, confirming to SAE that ARB believes the document is directionally correct) and then work with SAE to finalize the document. This permits modifications to be made to the documents to ensure that they will provide for compliance with the regulation prior to their formal completion.

Regarding SAE J2008, the staff plans to work with SAE to resolve any remaining issues and expects SAE to complete work on the document no later than 1998. Manufacturers have until 2002 to begin implementing its requirements, providing ample leadtime from finalization of the document to the time that its requirements must be met. Even though the document has not yet been finalized, the version referenced in the OBD II regulation is a complete, detailed document that has been approved by an SAE committee and subsequently published as an official SAE document. Several manufacturers have already begun to develop and convert their service information into a J2008 compliant format based on the draft version. Software delivery programs are being developed by these manufacturers in conjunction with the conversion of their service information so that dealer technicians can access the new software format. Additionally, there are several aftermarket service information vendors who manufacture and sell consolidated service information in printed format or in a computer media such as CD-ROM. Most of these vendors have also begun working on J2008 compliant software delivery programs to fill this developing need and to maintain a competitive presence in the market. Therefore, staff is confident that J2008 format service information and software necessary to access the databases will be readily available by 2002. As with previously adopted draft documents, the staff will report back to the Board when the final version is adopted by SAE. If necessary at that time, the staff will also report to the Board any significant implementation concerns that develop.

**11. Comment:** The proposed amendments purport to improve access to diagnostic and repair information by requiring manufacturers to make proprietary diagnostic protocol information available to independent tool makers for incorporation into aftermarket diagnostic tools. However, the staff has inadequately justified why this requirement has been delayed until the 2000 through 2002 model year even though OBD II has already been implemented in a variety of 1994 and newer vehicles. (CAWA)

**Agency Response:** The staff believes the commenter has misunderstood the existing requirements and the proposed amendments to the OBD II regulation. The staff believes the commenter has confused the proposed modifications to section (k)(2.1) regarding proprietary scan tool routines with the proposed new requirements (and associated phase-ins) for J2008 service information (section (k)(6.0)) and for calibration identification number access (section (l)(1.0)). Currently, manufacturers are required under section (k)(2.1) to make available emission-related diagnostic and repair procedures that require only the use of a generic scan tool and other commonly available tools. The purpose of this requirement is to facilitate the repair of emission-related problems for independent technicians that do not have vehicle manufacturers' service equipment (the type provided to franchised dealers) at their disposal. However, manufacturers and



the service industry have commented that this requirement is too restrictive since most aftermarket scan tools incorporate at least some manufacturer specific scan tool routines, and these routines provide for more efficient diagnosis and repair of malfunctions. Therefore, the regulation should be amended to permit use of such routines in the required service literature.

Accordingly, staff proposed amendments to allow manufacturers to also reference manufacturer-specific scan tool routines if they provide information to aftermarket diagnostic equipment and tool manufacturers on how to incorporate and utilize these routines. Since in many cases it will be easier for vehicle manufacturers to provide these routines as opposed to writing service procedures that do not require their use, the section as modified will better achieve the goal of making useful service information available to the aftermarket service industry for emission-related problems. There is no phase-in for this requirement nor is there any “delay” in the current requirements as the commenter suggested because this is an additional option for manufacturers to utilize to achieve compliance with current requirements in the OBD II regulation.

Electronic access to calibration identification numbers has been added to the OBD II requirements to make it easier for technicians to determine if a vehicle has the most appropriate software installed. This is a new requirement for which lead time must be provided because it will require significant changes to vehicle software for implementation. Currently, technicians determine the calibration number through the use of manufacturer specific scan tool routines, or from the part number of the on-board computer. Use of these methods can continue until the more efficient method can be implemented.

#### Cost Impact on California Businesses

**12. Comment:** The staff has falsely concluded that the proposed amendments will have “no significant adverse impact” on California businesses by ignoring the impact on the aftermarket emission-related parts manufacturers and distributors. By delaying the standardized service information requirement (SAE J2008) until 2002, ARB is overlooking the intervening seven years (i.e., from the beginning of OBD II implementation until 2002) and the aftermarket’s need for access to diagnostic and service information. Therefore, the conclusion that this regulatory proposal has no significant adverse impact is inadequate and must be revisited by ARB before acting on the proposal. (CAWA)

**Agency Response:** Section (k)(2.1) of the OBD II regulation already requires manufacturers to make available service information necessary to diagnose and repair emission-related malfunctions. This requirement has been part of the regulation since 1991. The adoption of section (k)(6.0) is intended to improve the availability and usefulness of emission-related service information primarily by requiring that it be made available in a standardized electronic format. Electronic access to service information will provide for easy searching through the material, it can be easily updated, and should ultimately be less expensive than printed material. As such, it provides for greater access by the aftermarket to manufacturers’ service information and, therefore,

cannot be considered to have a negative impact on the aftermarket service industry relative to the status quo.

The staff proposed that implementation of standardized service information begin in 2002 to provide manufacturers with sufficient time to organize and format the required information. As discussed in the staff's response to comment number 9, some manufacturers and service information providers have already begun to convert to the SAE J2008 format; however, additional lead time is necessary to complete this task and to finalize the SAE document itself.

### Tampering Protection

**13. Comment:** Even with the proposed amendments to section (d) of the regulation, it unnecessarily and unreasonably permits manufacturers to employ tamper resistance on vehicles that are not likely to be modified. The section should be further amended to require manufacturers to exempt product lines which are unlikely to be tampered instead of providing the option to vehicle manufacturers to apply for such an exemption. (CAWA)

**14. Comment:** ARB should eliminate all tampering protection requirements (including those for non-reprogrammable computers). Further, by simply removing the tampering protection requirements, ARB is leaving anti-tampering protection to each manufacturer's discretion. Instead, ARB should withhold certification of any new vehicle which contains anti-tampering protection and would prevent or restrict access to the OBD system or its data. (MEMA)

**Agency Response:** The staff continues to strongly support the position that tamper resistance protections are necessary to prevent computer modifications that will cause vehicle emissions to increase or reduce the effectiveness of the OBD II system. To date, aftermarket parts manufacturers and service providers have not demonstrated a need to "access" the vehicle manufacturers' software for the purpose of designing and installing aftermarket parts.

Regarding "access" to the OBD system or its data, the commenter refers to language in section 202(m) of the 1990 Clean Air Act (CAA) amendments. The legislative history of the 1990 amendments to the federal CAA indicates that the section was amended to protect consumer freedom of choice in servicing OBD systems and competition in the vehicle repair industry. In reviewing the language of the amendments and the legislative history, the ARB believes the term "access" as used in section 202(m)(4)(b) refers to the diagnostic information generated by the OBD system (i.e., fault codes and vehicle operation parameters) for use in repairing malfunctions that have been detected by the system. Previously, some manufacturers have permitted only franchised dealers to access such information, forcing independent repair establishments to use conventional tools such as voltmeters and vacuum gauges to diagnose malfunctions, which can be less efficient. Therefore, such dealers would have a market advantage. Consistent with the CAA and the federal service information rule implementing section 202(m), the OBD II regulation requires that data generated by the OBD II systems be readily available to all service and repair facilities through the standardized communication link.

The commenters, however, interpret access with respect to modifying the function of the OBD system for the purposes of making aftermarket parts OBD compatible. Consistent with the US EPA's service information rule, the ARB does not believe that such is the intent of the section. Further, the ARB recognizes that the software designed by vehicle manufacturers to meet the OBD II requirements contains proprietary trade secrets and, as such, the ARB believes that aftermarket manufacturers do not have a right to the information; indeed, the ARB believes that vehicle manufacturers have an undeniable right to protect such information from access and disclosure. Thus, the ARB does not believe that it has the authority to do what the commenters have requested.

As detailed in the Staff Report, the staff proposed deletion of the tamper resistance requirements for electronically reprogrammable vehicles because of vehicle manufacturers' concerns that they were too costly and burdensome to implement, and because they appear unnecessary due to manufacturers' plans to continue to implement comparably effective security measures for proprietary reasons.

**15. Comment:** Even if the Board is not prepared to adopt other portions of the proposed amendments to the OBD II regulation, the Board should bifurcate the anti-tampering provisions from the other amendments and send those directly to the Office of Administrative Law (OAL) for prompt finalization. (MEMA)

**Agency Response:** The staff recognizes that certain parties want the adopted amendments to take effect as soon as possible. As such, the staff has worked to prepare the post hearing documents in a timely manner. However, the staff does not believe that bifurcation of the approval process is necessary.

#### Reprogramming

**16. Comment:** Independent service technicians need to be able to reprogram on-board computers at a reasonable cost to avoid problems in future I/M programs. ARB should adopt comprehensive standards for reprogramming to ensure independent technicians will be able to purchase and use standardized reprogramming equipment for use in emission testing and repairs. (ASC)

**Agency Response:** Federal regulation, beginning with the 1998 model year, will require vehicle manufacturers to make their reprogramming equipment available for independent service providers to purchase (this equipment gives service technicians the ability to install updated software developed by the vehicle manufacturer, but does not permit the technicians to alter the contents of the program). The staff understands that independent service providers may have limited resources to purchase such equipment for multiple makes of vehicles, and the staff, therefore, supports the concept of a standardized reprogramming system whereby a single tool could be utilized by technicians to reprogram the on-board computer for any vehicle manufacturer that uses electronically reprogrammable computers. As such, staff has had numerous discussions with vehicle

and aftermarket equipment manufacturers regarding the development of standardized reprogramming equipment. To date, however, a solution that will allow standardized reprogramming yet still protect the integrity of calibration data and proprietary software developed by the vehicle manufacturers has not been found. Additionally, it is staff's understanding that most reprogramming events occur during the first two years of a vehicle's life, and because the vehicles are still covered by warranty, the reprogramming generally occurs at that manufacturer's dealerships. The staff does not believe that the independent service industry has demonstrated a need for reprogramming capability that outweighs ARB and manufacturers' concerns regarding protection of the integrity of vehicle on-board computers. Nevertheless, staff will continue to monitor the issue with the help of the aftermarket and the vehicle manufacturers and consider future requirements if a technically sound solution can be developed.

**17. Comment:** ARB should require manufacturers to offer a reprogramming service to independent service providers that is both convenient and affordable until a standardized reprogramming system is available. ARB should also ensure that all emission test and repair facilities have affordable access to reprogramming software through public media. (ASC)

**Agency Response:** Many dealer facilities offer a "walk-up" service where an independent technician can bring in a vehicle or its computer and have it reprogrammed at the dealer facility for a fee. This provides independent technicians with an alternative to purchasing manufacturers' reprogramming equipment for reprogramming vehicle computers with updated software. However, the staff is not aware of another near term alternative that is not subject to the security concerns already discussed.

#### Future Emission Control Technologies

**18. Comment:** The Board should consider amendments allowing extra flexibility in monitoring requirements for future emission control devices that are not specifically addressed in the regulation. (Chrysler)

**Agency Response:** The amendments proposed by staff include provisions for future emission control devices not specifically addressed in the regulation. Section (a)(1.10) requires manufacturers to submit a plan for ARB approval of a monitoring strategy and fault thresholds prior to introduction of a new emission control device. ARB will review and approve the strategy based on the effectiveness of the monitoring strategy, the malfunction criteria, and the monitoring conditions required by the diagnostic.

#### Miscellaneous

**19. Comment:** When consumers have competitive choices as to where they have their vehicles repaired and what parts they can use, costs for repairs are lower. OBD II regulations should therefore be tailored to keep the marketplace open and free from obstructing the independent aftermarket's opportunity to compete. (MEMA)

**Agency Response:** One of the primary goals of the OBD II program is and always has been to improve the availability of service information to the aftermarket repair industry. As such, the OBD II regulation contains several requirements for standardization of diagnostic connectors, communication protocols, fault codes, engine parameter data, and test equipment. Additionally, staff has proposed new amendments improving the availability of diagnostic and repair information for all emission-related repairs. These requirements will allow independent repair shops to utilize a single diagnostic tool to access all of the information generated by the OBD II system for any manufacturer's vehicle. Staff believes these steps are clear indications of ARB's continuing commitment to the aftermarket service industry. Further, the ARB has received no evidence that any aspect of the OBD II regulation will hinder the manufacturing of aftermarket replacement parts, or vehicle diagnosis and repair by independent service providers.