UPDATED INFORMATIVE DIGEST OF ADOPTED ACTION

Sections Affected: Amendments to sections 1968.1, 2030, 2031, Title 13, California Code of Regulations (CCR), and the certification procedures referenced in the latter two sections, "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," November 21, 1995.

Background: Section 1968.1 was originally adopted by the Board on September 14, 1989. The regulation requires manufacturers to implement on-board diagnostic systems on new motor vehicles. Implementation of the regulation began with the 1994 model year, and the regulation requires that essentially all new 1996 and later model year passenger cars, light-duty trucks, and medium-duty vehicles and engines be equipped with OBD II systems. The section specifically requires monitoring of engine misfire, catalysts, oxygen sensors, evaporative systems, exhaust gas recirculation, secondary air systems, fuel systems, and all electronic powertrain components that can affect emissions when malfunctioning. The regulation also requires OBD II systems to provide specific diagnostic information in a standardized format through a standardized serial data link on-board the vehicles.

In 1989, when initially adopting section 1968.1, the Board directed the staff to provide an update within two years on the progress of manufacturers in designing and implementing monitoring systems to meet the OBD II requirements. It further directed the staff to propose any modifications to the regulation that were deemed necessary based on industry progress to date.

On September 12, 1991, the staff reported to the Board and proposed a number of modifications to address manufacturers' implementation concerns, to clarify misunderstood regulatory language, and to enhance the effectiveness of the requirements in some areas. The Board considered further amendments to the OBD II regulation on July 9, 1993, in response to a Petition from Ford Motor Company. At the Hearing, the Board adopted amendments to provide limited compliance relief to manufacturers that attempt in good faith to meet the requirements in full but are unable to certify a fully compliant system.

Another update on manufacturers' progress towards meeting the OBD II requirements was held on December 12, 1994. Again, the Board adopted modifications to the regulation to address manufacturers' implementation concerns, strengthen specific monitoring requirements, and to clarify regulatory language. Continuing with its practice, the Board again directed staff to follow manufacturers' progress and to report back in two years time with its findings and any necessary modifications to the regulation.

During the past two years, the staff has closely monitored vehicle manufacturers' progress with OBD II compliance. With the requirements of section 1968.1 becoming generally applicable to essentially all vehicle models with the 1996 model year, manufacturers and ARB staff have gained considerable experience with OBD II systems. To date, OBD II systems have, in the great majority of instances, been working reliably in-use to detect emission-related malfunctions.

However, manufacturers have identified areas in which minor refinements to section 1968.1 would provide for improved monitoring system performance.

In response to these issues, the Board considered the following amendments, among others, to section 1968.1. Staff proposed to amend subsection (b)(3.0) to provide vehicle manufacturers with some additional leadtime to meet the general misfire detection requirements. Staff also proposed that the misfire detection requirements be amended to provide greater latitude to vehicle manufacturers with respect to the criteria for determining illumination of the Malfunction Indicator Light (MIL) so that continuing misfire events can more accurately be distinguished from temporary, non-repeatable misfire conditions. Regarding catalyst monitoring, staff proposed to amend subsection (b)(1.0) to address manufacturers' concerns arising from evolving catalyst and monitoring technologies. Staff also proposed amendments to subsection (b)(4.0) to address issues raised by a few vehicle manufacturers regarding the evaporative system monitoring requirements. Specifically, the manufacturers contended that the requirements should be amended in light of new data on the emission impact of evaporative system leaks, and feasibility concerns associated with certain fuel tank designs. In response to implementation concerns raised regarding the tamper resistance requirements for electronically reprogrammable on-board computer designs, staff proposed that those requirements be deleted from section 1968.1(d).

The industry also expressed concerns regarding OBD II compliance on alternate fueled vehicles as required by section 1968.1(m)(5.1) and the provisions for certification of alternate fuel retrofit systems for OBD II-equipped vehicles as set forth at Title 13, CCR, sections 2030-2031. The staff did not propose amending the above sections to address these particular concerns. Similarly, several vehicle manufacturers requested that the provisions for deficiency allowances (section 1968.1(m)(6.0), et seq.) be broadened. As with the alternate fueled vehicle requirements, staff did not propose any specific amendments to this section. However, the Board, after further consideration, directed the staff to modify these sections per the manufacturers' proposals.

Apart from addressing manufacturer issues regarding the existing requirements, the staff also proposed new or modified requirements to further increase the effectiveness of OBD II systems in detecting emission-related malfunctions. Specifically, new monitoring requirements were proposed to address emissions resulting from positive crankcase ventilation (PCV) system malfunctions (section 1968.1(b)(10)), and also malfunctioning engine coolant thermostats (section 1968.1(b)(11.0)). In addition, the staff proposed revisions to the diagnostic and service information requirements contained in sections 1968.1(k) and (l). These amendments would update industry documents incorporated by reference, provide for access to more comprehensive on-board data, and enable better access to vehicle service information, including a requirement for service information to be made available in a standardized electronic format. Finally, staff proposed several minor amendments and clarifications to existing requirements of section 1968.1.

<u>Adoption of Amendments:</u> The Board approved amendments to the regulation to address manufacturers' implementation concerns, including additional lead time to facilitate implementation of enhanced misfire and catalyst monitoring strategies, and amendments providing greater flexibility to manufacturers in meeting the misfire and evaporative system monitoring

requirements. Further, amendments were approved to remove the tamper resistance requirements for reprogrammable on-board computers.

The Board also approved amendments to improve the effectiveness of the regulations for future model year vehicles. New monitoring requirements were adopted for PCV systems and thermostats. Additionally, revisions to the diagnostic and repair information requirements were adopted to increase the standardization and availability of service information for independent service technicians.

In addition to the amendments proposed by staff and approved by the Board, as mentioned previously, the Board adopted amendments that expand the existing provisions for deficiency allowances and provide additional lead time for compliance on alternate fuel vehicles. Regarding alternate fuel vehicles, for purposes of consistency, the Board approved an amendment to the certification procedures for alternate fuel retrofit systems with respect to OBD II system performance. These test procedures are referenced in sections 2030 and 2031 of Title 13, CCR.

Finally, the Board approved a number of amendments to address minor implementation concerns that have been identified through the experience gained during the first few years of production of OBD II-equipped vehicles, and to further clarify the regulatory requirements.