regarding these issues, but will address them if and when it adopts such requirements.

ÈPA Decision: Due to various factors, SAE did not adopt J2008 in time to be incorporated into this final action. EPA had anticipated that SAE would adopt J2008 by mid-1994. If SAE finally adopts J2008 in a form that meets the needs of EPA, EPA would likely propose to incorporate J2008 into the service information regulations after further notice and comment. If J2008 is not finally adopted by SAE, or if the final version of J2008 does not meet the needs of EPA, EPA may propose to adopt its own format that manufacturers would be required to follow. EPA believes that adoption of an EPAdesigned format may be necessary to prevent delays in the conversion of service information to an electronic format.

This rule contains no requirements regarding the media or format of emission-related information, including J1930 and J2187. EPA believes media and format issues should be addressed at the same time J2008 (or an EPAadopted format) is required. This will allow an opportunity for changes, as may be necessary, to be made in any of these documents, as J2008 is being finalized. EPA may address the media and format requirements of emissionrelated service information in a future proposed rulemaking.

## H. Enhanced Diagnostic Information

EPA Proposal: To eliminate confusion that existed in the industry regarding the definitions of certain key terms (data stream information, functional control strategies, bi-directional control, and indirect information) and whether such information must be provided under section 202(m)(5), EPA held a workshop in July 1993, to provide an opportunity for comment on proposed descriptions and/or definitions for these terms to ensure that there is a uniform understanding throughout the automotive industry as to the information that manufacturers will be required to make available. The definitions proposed by EPA were as follows:

Data stream information are messages transmitted between a network of modules and/or intelligent sensors (i.e., a sensor that contains and is controlled by its own module) connected in parallel with either one or two communication wires. Messages on the communication wires can be broadcast by any module or intelligent sensor. Such information generally consists of messages and parameters originated within the vehicle by a module or intelligent sensors. The information is broadcast over the communication wires for use by other modules (e.g., chassis, transmission, etc.) to conduct normal vehicle operation or for use by diagnostic tools. Data stream information does not include engine calibration-related information.

Functional control strategies are descriptions of how and when various engine systems operate. Typically, they are written explanations or flow diagrams that describe the interaction of the module and the various sensors and actuators as proscribed by the engine calibration. An example of a functional control strategy would be that for a particular fuel system. For example, the fuel system may not go into closed-loop operation until: (1) The engine coolant temperature has reached 180 °F; (2) the module observes an active oxygen sensor signal; and (3) 30 seconds has elapsed after reaching that temperature.

Bi-directional control is the capability of a diagnostic tool to send messages on the data bus that temporarily overrides the module's control over a sensor or actuator and gives control to the diagnostic tool operator. An example of bi-directional control is the ability to increase or decrease the idle speed by using the diagnostic tool to vary the idle by-pass motor. This allows a technician to quickly verify that the idle by-pass motor responds to commands from the module. Bi-directional controls do not create permanent changes to engine or component calibrations.

Indirect information is any information that is not specifically contained in the service literature, but is contained in items such as parts or other equipment provided to franchised dealers (or others).

In addition, the NPRM discussed providing service technicians with the information needed to determine that a component or system is correctly operating. EPA proposed that manufacturers include information on the normal operating conditions for properly functioning emission-related components or systems. EPA requested comment on the need to adopt this requirement as part of these rules, the best way to accomplish this, and any difficulties (for example, significant burden to the manufacturer) that could arise.

Summary of Comments: Manufacturers commented that the release of information needed to perform bi-directional control is restricted since product damage could result if control is improperly applied. GM asserted that if required to release this information, it would need to redesign systems to include safeguards to prevent damage from improper use of control messages, or diagnose components using some other method.

Regarding the definition of data stream information, several manufacturers suggested that EPA's definition be modified, such that data stream information (1) include only emission-related information, (2) include only emission-related diagnostic information rather than information to conduct diagnosis and repair of normal vehicle operation, and (3) not include any recalibration or reprogramming information. GM commented that if data stream information is defined to include reprogramming software, it will be easy for aftermarket performance companies to build equipment to install unauthorized calibrations.

As to functional control strategies, Ford commented that it considers them to be proprietary information, because they are part of the engine calibration. Other manufacturers stated that such strategies are proprietary and they are not provided to dealers. GM asserted that any attempt by EPA to require manufacturers to divulge control strategies would exceed EPA's authority under section 202(m)(5) of the Act. The American Automobile Manufacturer's Association (AAMA) stated that numerous manufacturers already provide functional control strategies to the extent necessary for allowing effective repair of vehicles without divulging proprietary information. AAMA and Ford commented that since there are so many different engine configurations and vehicle models, it would be confusing for independent technicians to try and understand the multitude of control strategies and that this could lead to incorrect diagnosis and repair.

Regarding the proposed definition of indirect information, Ford recommended that it be modified to include only indirect information necessary to make emission-related diagnosis and repair. Other manufacturers commented that EPA's definition of indirect information should be modified to delete the phrase "contained in items such as parts or other equipment" and to read as follows: "Indirect information is any information that is not specifically contained in the service literature, but is provided to franchised dealers (or others) as a requirement for emissionrelated diagnosis and repair. It shall not include calibration, recalibration or reprogramming related information which is neither visible to the technician nor consciously used in diagnosis and repair of vehicles.'