April 2001

Subject: OBDII Readiness Codes Check During State I/M Program

Applicability: 1996 Model Year Volvo 850 Turbo
1996 & 1997 Model Year Volvo 960

This bulletin provides information about problems identified with Volvo OBDII Readiness Codes and serves as advisory information for state Inspection/Maintenance (I/M) programs. This information has been discussed with the U.S. Environmental Protection Agency (US EPA).

Both the California Air Resources Board and the US EPA have issued regulations requiring manufacturers of passenger cars, light duty trucks and medium duty vehicles to install an enhanced On-Board Diagnostic (OBDII) system for emission control systems on 1994 and later model year vehicles with exemption provisions. Some 1995 and all 1996 and later model year Volvo vehicles are equipped with this type of OBD system.

The US EPA published regulations requiring state I/M programs to perform OBD testing on all 1996 and later model year vehicles beginning January 1998; this has subsequently been delayed until January 2002. However, some states have begun their OBD system checks earlier than the January 2002 regulatory deadline.

Volvo Cars and the automotive industry as a whole believe that it is extremely important that OBD systems are promoted in the best possible light with the motoring public and those states choosing early implementation of the OBD system checks. Accordingly, this bulletin is provided for the proper OBD system inspection of certain 1996 and 1997 model year Volvo vehicles.

This notice is to advise you that:

1. our MY 1996 Volvo 850 Turbo vehicles may experience a “not complete” condition during the readiness code check of the OBD inspection, since this model readiness code is reset at each engine key-off event.

2. our MY 1996 & MY 1997 Volvo 960 vehicles may experience a “not complete” condition during the readiness code check of the OBD inspection, since this model requires two consecutive and extended trips in order to set the readiness code to “complete”. In addition, some of these vehicles (which may include 1998 models) may exhibit a “not complete” condition of all non-continuous monitors during the readiness code check of the OBD inspection since these models use a trip-based readiness code strategy.

We request that these models be exempted from the readiness code check requirements and that state I/M facility inspectors NOT notify the owners of the readiness code condition nor refer these owners to an authorized Volvo dealer because it will only lead to unnecessary confusion and a loss of public confidence in both OBD systems and the I/M program.

Please note that although the readiness codes may indicate “not complete,” this condition will not inhibit the OBDII system from monitoring, detecting, and subsequently storing a corresponding DTC in system memory. Any malfunction will be indicated during a scan for diagnostic trouble codes and/or by MIL illumination.
1. **Background**

Enhanced Inspection/Maintenance (I/M) programs have been implemented in most major US metropolitan areas. This information is provided to you because several I/M programs will perform OBD inspections. Most I/M programs are expected to implement OBD inspections on or about January 2002.

OBD inspections include checking the malfunction indicator lamp (MIL)/Check Engine light, and performing scans for diagnostic trouble codes (DTCs) and OBD II Readiness Codes.

This bulletin addresses characteristics of the 1996 Volvo model 850 and 1996-1997 Volvo model 960. For these vehicles, INCOMPLETE Readiness Codes will not inhibit the OBD II system from monitoring, detecting, and subsequently storing a corresponding DTC in system memory. It can be expected that one of these vehicles exhibiting INCOMPLETE Readiness Codes, but presenting no DTCs, will meet I/M emission standards.

2. **Readiness Code Reset with Key-Off / Key-On Cycle MY 1996 Volvo 850 Turbo**

When interrogated using a generic OBD II scan tool, the MY 1996 Volvo 850 Turbo may experience all of the Readiness Codes changing from COMPLETE to INCOMPLETE when the ignition key is cycled.

Customer complaints regarding the MIL/Check Engine light and diagnostic trouble codes should continue to be addressed using established procedures. Customer complaints regarding Readiness Codes ONLY, for the 1996 850 Turbo ONLY, should be addressed as follows:

- Explain to the customer that this behavior applies to all 1996 850 Turbos, and cannot be corrected. But this behavior will not inhibit the OBD II system from monitoring, detecting, and subsequently storing a corresponding diagnostic trouble code in system memory and, if appropriate, the MIL/Check Engine light will illuminate to alert the customer to any need for a service check.
- Suggest to the customer that they do NOT turn the engine off until after the Enhanced Inspection/Maintenance OBD II check has been completed.
3. **Readiness Code Reset with Modified TRIP**

**MY 1996 and 1997 Volvo 960**

Customer complaints regarding the MIL/Check Engine light and DTCs should continue to be addressed using established procedures. Customer complaints regarding Readiness Codes ONLY, for the 1996-1997 960, should be addressed as follows:

- Explain to the customer that this behavior applies to all 1996-1997 Volvo 960 vehicles, and cannot be corrected. However, this behavior will not inhibit the OBD II system from monitoring, detecting, and subsequently storing a corresponding diagnostic trouble code in system memory and, if appropriate, the MIL/Check Engine light will illuminate to alert the customer to any need for a service check.

The MY 1996 and 1997 Volvo 960 require an extended driving period in order to set the readiness codes.

When verifying an emission-related repair, the TRIP identified in Section VVV of the Engine Management System Service Manual TP 232 1201 may not allow all of the diagnostic monitors to run.

A Modified TRIP has been developed that can be used to exercise all of the diagnostic monitors on these models. The Readiness Codes will be set after completion of two consecutive trips driven according to the instructions provided in Service Bulletin 2-23-00xx, which supersedes TP 2321201 TRIP instructions for MY 1996-1997 model 960 ONLY.

Again: Please note that although the readiness codes may present as INCOMPLETE, this condition will not inhibit the OBDII system from monitoring, detecting, and subsequently storing a corresponding DTC in system memory.