

**Partial Amendment to the Announcement that Prescribes Details of  
Safety Regulations for Road Vehicles**

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Ministry of Land, Infrastructure and Transport

1. Background

In April 2002, The Central Environment Council made a recommendation “Future Policy for Motor Vehicle Exhaust Emission Reduction (Fifth Report)”, which mentioned that the Japanese Government should strengthen the exhaust emission regulations in order to improve air pollution conditions especially in metropolitan areas.

In addition, the recommendation also mentioned advanced On-Board Diagnostic (OBD) system as follows:

“As regard the OBD system, it is appropriate to urgently introduce an advanced OBD system with function capable of automatically detecting any deterioration in performance of the exhaust emission reduction device and alerting the driver. In the future, it is appropriate for the government to conduct repeated technical studies and urgently determine detection items, detection values and assessment techniques. Motor vehicle manufactures, on the other hand, will be required to equip their passenger cars, mini-sized trucks and light- and medium-duty motor vehicles with advanced OBD system in the manufacturing process, from 2008. In that event, as they are obliged to comply with the regulations based on the long-term targets, while also being required to address the new exhaust emission test procedure, it is necessary to see to it that smooth compliance with such regulations take place. Meanwhile, the motor vehicle users are required to constantly confirm the proper functioning of exhaust emission reduction devices using the OBD system and perform inspection and maintenance whenever necessary.”

2. Outline of Amendment

The technical regulations for motor vehicles are prescribed by “Safety Regulations for Road Vehicles (1951 Ministerial Ordinance No. 67)” and “Announcement that Prescribes Details of Safety Regulations for Road Vehicles (2002 Announcement No. 619)”.

According to above mentioned recommendation, “Announcement that Prescribes Details of Safety Regulations for Road Vehicles” will be amended to prescribe technical regulation of advanced On-Board Diagnostic (OBD) system and oblige motor vehicle manufactures or importers to equip motor vehicles (Passenger cars and Trucks & Buses with gross vehicle weight of 3.5 tons or less which are fueled by gasoline or LPG) with advanced OBD system from October 2008 (for domestic new motor vehicles) or September 2010 (for domestic continuously produced vehicles and imported vehicles).

## **The Outline of the Technical Regulation for Advanced On-Board Diagnostic (OBD) System**

### 1. Scope

This Technical Regulation is applied to the advanced On-Board Diagnostic (OBD) system that warns drivers whenever a malfunction occurs to a device for reducing exhaust emission that has been mounted on Passenger cars and Trucks & Buses with gross vehicle weight of 3.5 tons or less which are fueled by gasoline or LPG.

### 2. Malfunction Detection Targets

If there is a possibility that the emission value measured by standard test procedure might exceed the detection level of abnormal emissions, malfunction detection by advanced OBD is mandatory for items stipulated in 3.1.

### 3. Diagnostic Items and Diagnostic Methods

#### 3.1 Diagnostic Items

- (1) Deterioration of the catalyst
- (2) Engine misfire
- (3) Defect in the oxygen sensor or air-fuel ratio sensor (both sensors, if they are installed both upstream and downstream of the catalyst)
- (4) Defect in the exhaust gas recirculation system
- (5) Defect in the fuel supply system (over-rich / over-lean)
- (6) Defect in the exhaust secondary air system
- (7) Defect in the variable valve timing mechanism
- (8) Defect in the evaporation system
- (9) Defect in other emission-related parts connected to the electronic control system

#### 3.2 Diagnostic methods

Malfunctions are diagnosed by circuit diagnostics, function diagnostics, threshold diagnostics or a suitable combination of any of these, depending on the characteristics of the items to be diagnosed.

#### 3.3 Method of diagnosis for each item

For the diagnostic items prescribed in 3.1, it shall be possible to detect malfunctions by the appropriate diagnostic method indicated below for each diagnostic item.

- (1) Deteriorated catalyst

Deterioration of the catalyst is judged by applying threshold diagnostics suited to the characteristics of the catalyst.

(2) Engine misfire

In cases of engine misfire where the emission value exceeds the detection level of abnormal emissions, the misfire shall be detected at an interval of at least once every 1,000 engine revolutions and the threshold diagnostics shall apply. Further, for the engine misfire that may cause damage in the catalyst due to overheating, the misfire shall be detected at an interval of at least once every 200 engine revolutions and function diagnostics shall apply.

(3) Oxygen sensor or air-fuel ratio sensor

The threshold diagnostics is applied, and circuit diagnostics is conducted on the sensor and heater circuits. The threshold diagnostics needs to monitor any abnormalities in sensor output performance such as output variations and response slowdown.

(4) Exhaust gas recirculation system

Threshold diagnostics is conducted, based on the results of function diagnostics for detecting exhaust gas recirculation failures.

(5) Fuel supply system

Threshold diagnostics is conducted, based on the results of function diagnostics for detecting any operation abnormalities in fuel-supply-related parts that would deteriorate emission performance.

(6) Exhaust secondary air system

Threshold diagnostics is conducted, based on the results of function diagnostics for detecting failures in secondary air feed.

(7) Variable valve timing mechanism

Threshold diagnostics is conducted, based on the results of function diagnostics for detecting any abnormalities in variable valve timing operation.

(8) Evaporation system

Circuit diagnostics is applied for cases where purge valve and other parts controlled by the electronic control system are used for the evaporation system. Further, function diagnostics is applied to detect failures to cap the fuel tank, but if a device such as a thither chain for preventing failure to cap the fuel tank is installed, the function diagnostics is not necessary.

(9) Other emission-related parts connected to the electronic control system

Circuit diagnostics is applied for some parts that make up the engine control system or emission control system, if there is a possibility that the value may exceed the detection level of abnormal emissions when a malfunction occurs.