

Japan's position and proposal on draft of OBD-gtr

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- ” Definition of color
- ” OBD emission threshold



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&
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Transport and Tourism (MLIT), Japan**

OBD emission thresholds

Japan's OBD-I concept

- . The purpose of OBD is to prevent air pollution by detecting the failure relevant to gaseous emissions , warning the vehicle operator, and repairing promptly.
- . Although various technical methods for detecting malfunction are possible, we consider it appropriate to mandate the diagnosis which meets the following points as the first step.
 - To detect the failure without false detection.
 - To introduce OBD-I at an early stage as soon as possible.
 - To keep down the cost of OBD and to encourage to be introduced into more number of motorcycles.

Japan's definition of color for EPPR-05-09

- “ Torque Reduction and/or Functional Safety Red
 - . Not relevant to gaseous emissions.

- “ Repair and Maintenance Information Under discussion (yellow/red)
 - . It makes no sense to force the way of an information disclosure under various conditions of CPs.
 - “ disclosure method
 - . e.g. website, service manual etc...
 - “ scope of disclosure
 - . e.g. Secure information shouldn't be disclosure from the viewpoint of antitheft.

- “ EV and FCV (Scope) Red
 - . EV and FCV do not emit gaseous air pollutants.

- “ OBD Threshold for OBD-I Red
 - . Japan's OBD-I defines digitally detected (ON/OFF) failures.

***Position on OBD emission
threshold***

***Digitally detected
(On / Off detected)***

OBD Emission Threshold

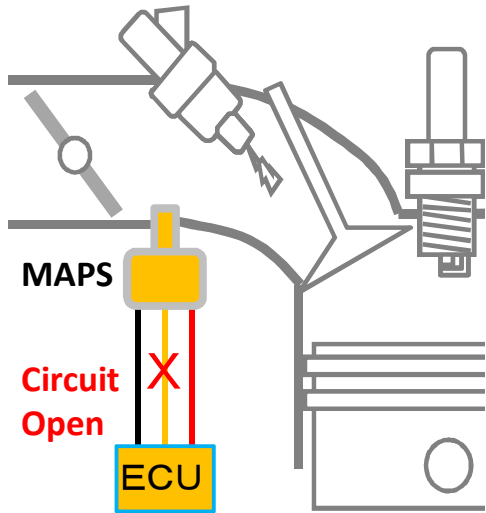
Unnecessary
OBD emission
threshold

OBD-II(gray out)

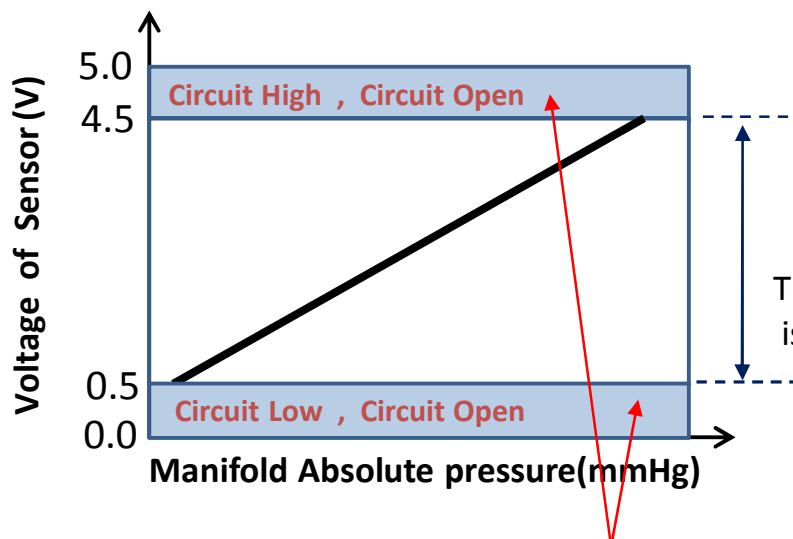
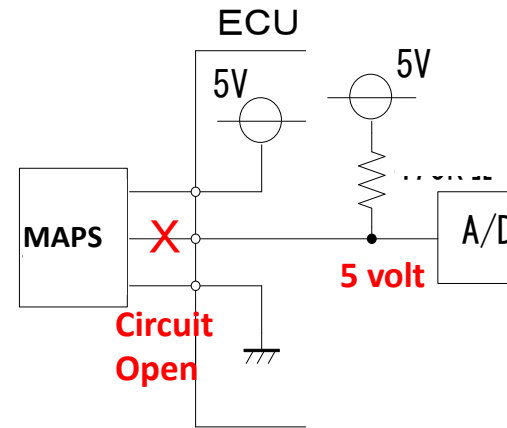
	Digitally detected (open circuit/ short to ground or power)	Analog (interlevel) detected (stuck / drift [characteristic change])	example devices including EPPR-05-09e (table B2.2-1)
Sensors Voltage Input (0-5Volt)	OBD-I	OBD-II	Barometric pressure sensor Accelerator (pedal / handle) position sensor Engine coolant temperature Intake air temperature sensor
Pulse sensor AC pulse Block pulse	OBD-I	OBD-II	Crankshaft position sensor
Actuator	OBD-I	OBD-II	Solenoid(Idle Air Control) Injector O2 sensor heater

Reasons why OBD threshold is unnecessary for digitally detected failures on the next slide.

Circuit Diagnostics <Sensor>



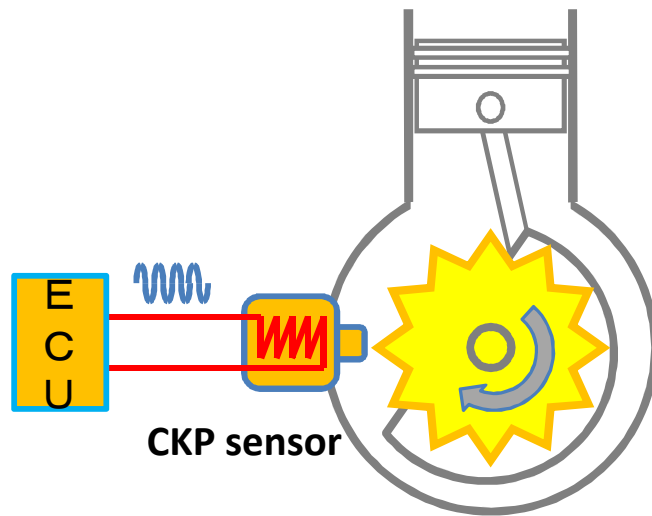
MAPS : Manifold Absolute pressure sensor



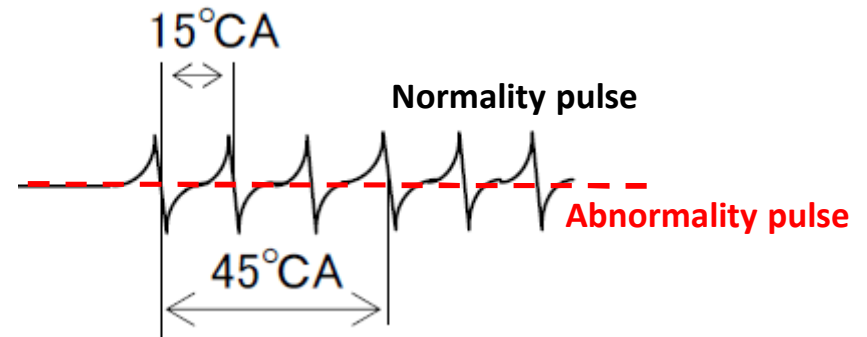
Emission threshold is unnecessary because it is judged by the threshold of circuit diagnostics [example : threshold of circuit diagnostics is over 4.5 volt]

The malfunction of the sensor is detected when the voltage value does not fit within this range.

Circuit Diagnostics <Sensor(pulse output type)>



CKP sensor : Crank Position sensor



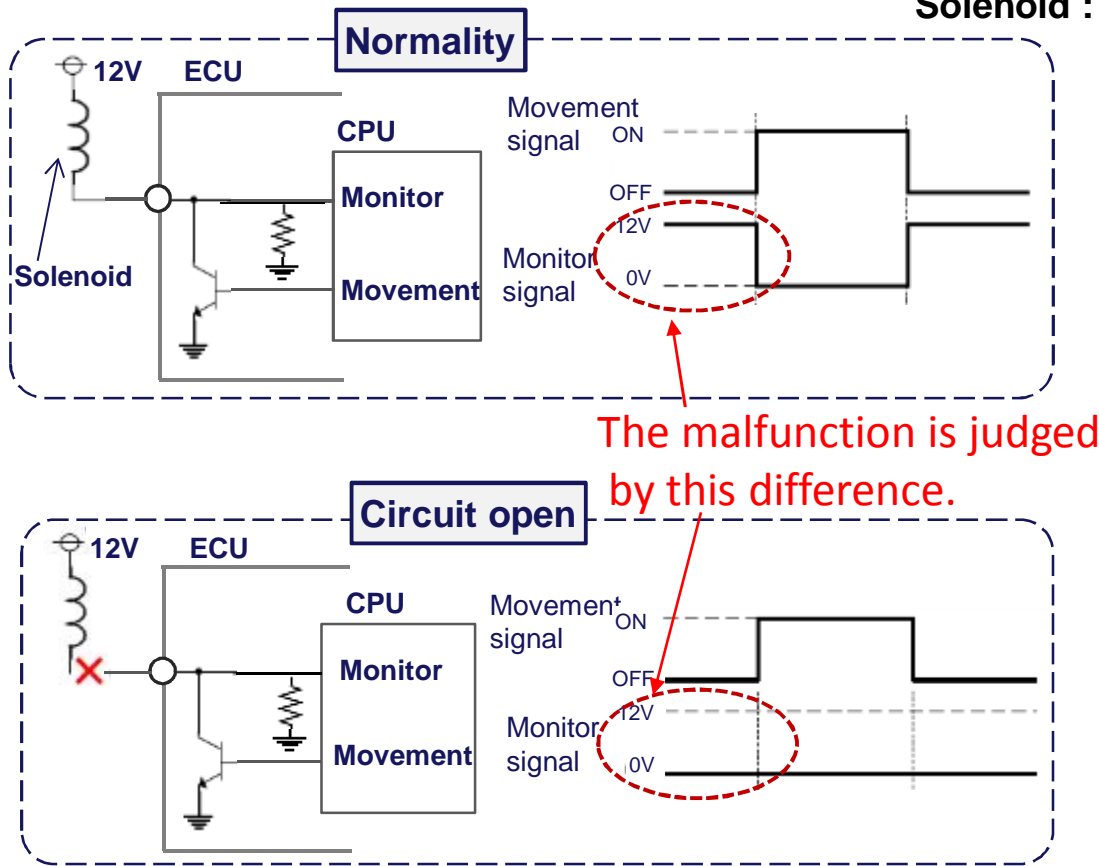
Emission threshold is unnecessary because it can be detected by the absence of the pulse.

The malfunction of the sensor is detected when the pulse signal from the sensor fails. However, this detection requires another condition as well that the crank shaft is rotating, so it is necessary to make judgment by both of information of the pulse and starter signal.

[example of other information : starter signal at the engine start]

Circuit Diagnostics < Solenoid >

Solenoid : Secondary air injection system



The malfunction is judged by the level of monitor signal.

The solenoid to which this diagnostic approach is applied is the following.

- *O2 sensor heater circuit
- *Solenoid of secondary air injection

Emission threshold is unnecessary because it can be judged by the signal condition.

How to detect failure by Fuel System Monitoring

How to Detect Failure by Fuel System Monitoring

❑ No emission threshold (in J-OBD-I)

OBD emission threshold is not used for fuel system monitoring because the malfunction of a component can be detected by monitoring of significant fuel trim value behavior.

❑ How to demonstrate

To be able to detect the fault on a specific test cycle when electrical failure (open / short circuit) of the component is simulated.

