Japanôposition 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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OBD emission thresholds

Japanês 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
  - 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 don't throw off air pollution gaseous.

- OBD Threshold for OBD-I　Red
  - Japan's OBD-I is defined about failures of digitally（On/ Off）detected.

Position about OBD emission threshold

Digitally detected (On / Off detected)

OBD Emission Threshold

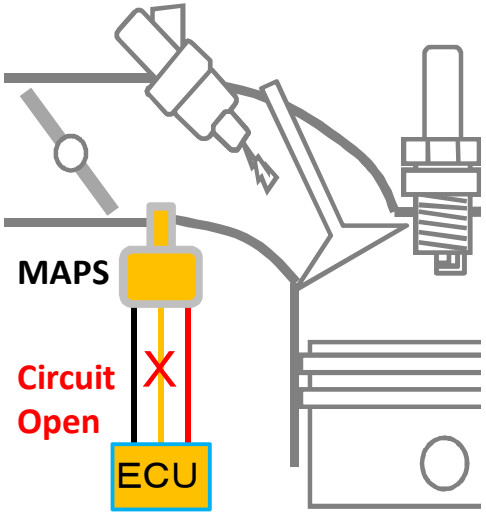
Unnecessary OBD emission threshold

OBD-II(gray out)

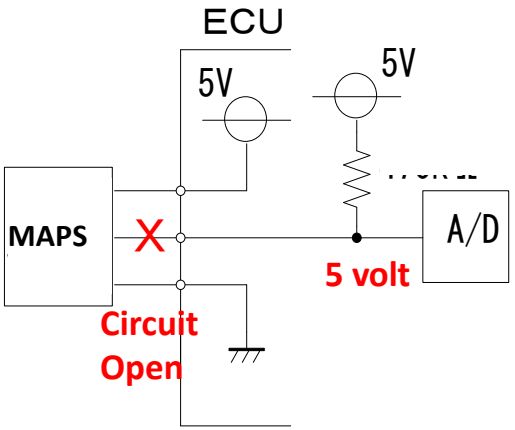
	Digitally detected（open circuit/ short to ground or power）	Analog (interlevel) detected（stuck / drift [characteristic change]）	example devices including EPPR-05-09e (table B2.2-1)
Sensors Voltage Input (0-5Volt)	OBD-I	OBD-II	Barometric pressure sensor Accelerator (pedal / handle) position sensor Engine 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

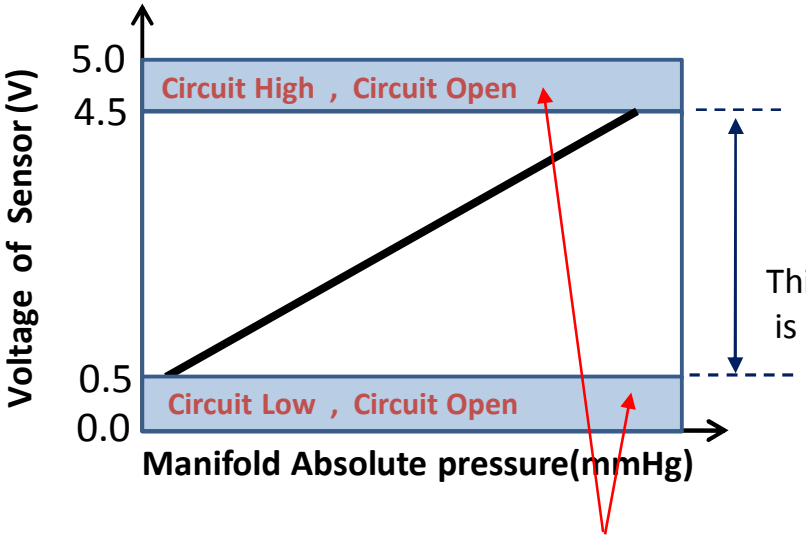
to next page, Reasons why OBD threshold is unnecessary for digitally detected failures.

Circuit Diagnostics ＜Sensor＞



MAPS : Manifold Absolute pressure sensor



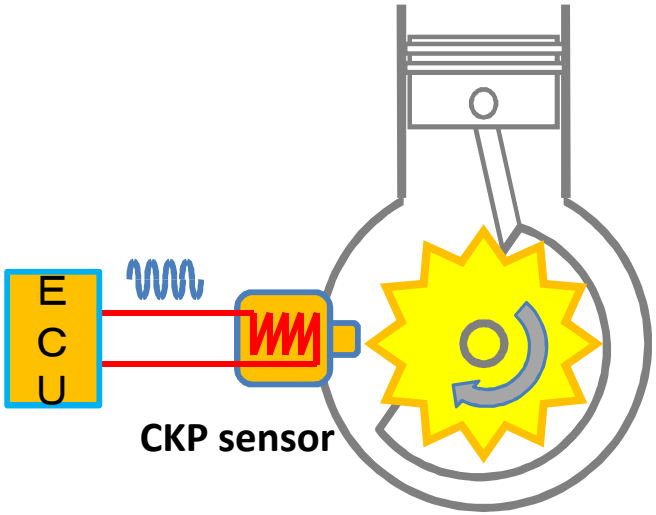


This voltage range
is correct in design

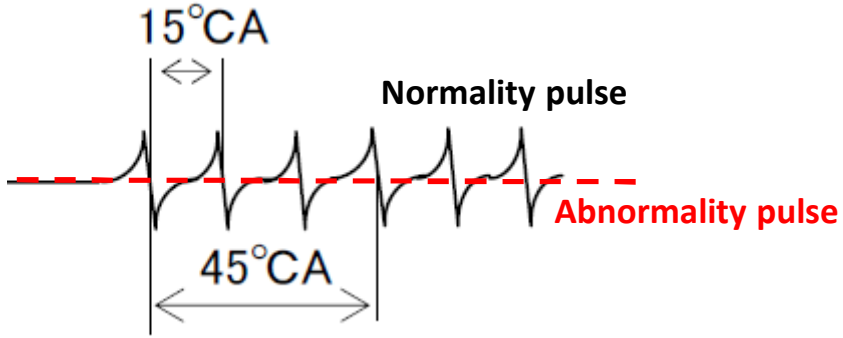
Emission threshold is unnecessary because the threshold of circuit diagnostics is judged [example : threshold of circuit diagnostics is over 4.5 volt]

The sensor is judged the malfunction when this voltage range.

Circuit Diagnostics ＜Sensor(pulse output type)＞



CKP sensor : Crank Position sensor



Emission threshold is unnecessary because of the judgment from the existence of the pulse.

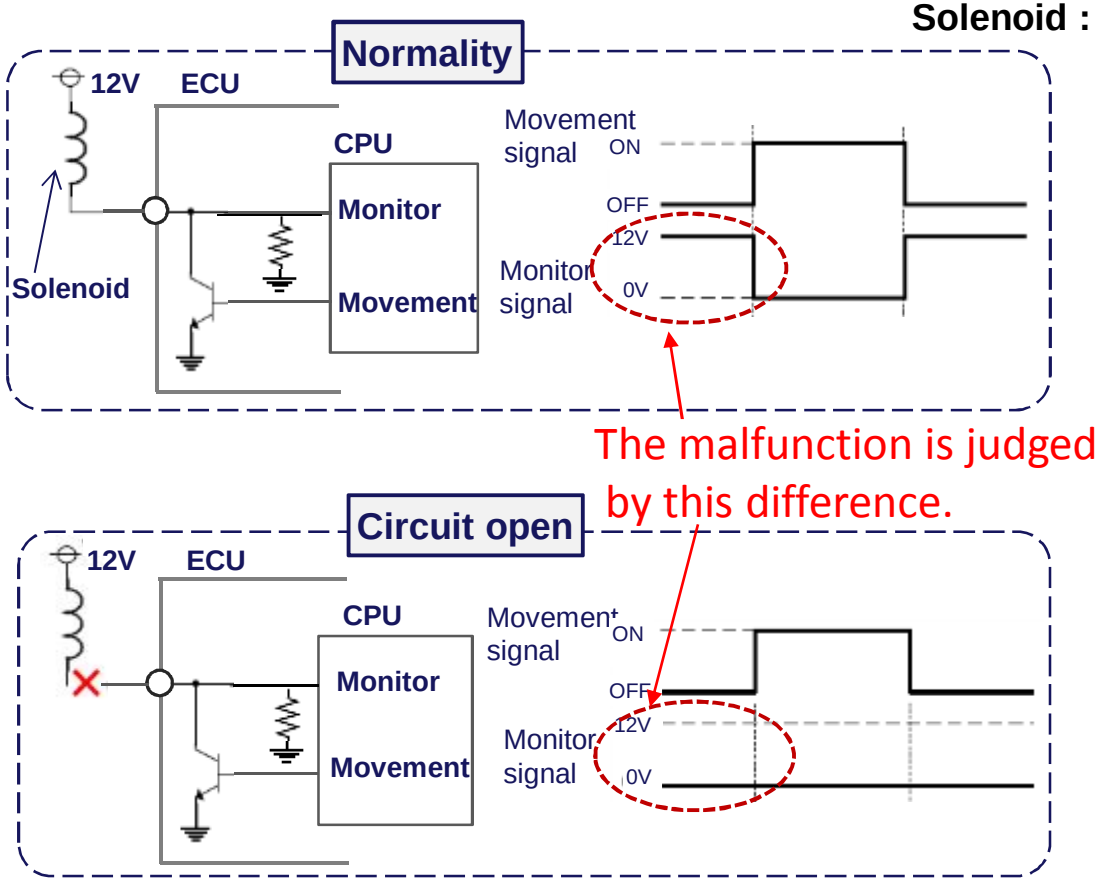
The sensor is judged the malfunction when the pulse of sensor is not detect.

But, this malfunction judgment should combine other information because the state of the crankshaft rotation is necessary.

[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 of the judgment from the signal condition.

Position about fault criteria on Fuel System Monitoring

Method about fault criteria on Fuel System Monitoring

❑No emission threshold (in J-OBD-I)

OBD emission threshold is not used for fuel system monitoring because the malfunction of 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.