DTC DETECTION LOGIC AND CONDITIONS [SKYACTIV-D 2.2]

id0102s4100300

DTC No.	Condition	Detection condition
B10A2:00	Vehicle collision	• A collision signal from the SAS control module is received.
P0016:00	Camshaft position/ Crankshaft position correlation problem	• CKP sensor and CMP sensor input signal does not match while the crankshaft rotates **15 times** when the following conditions are met: **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — Engine speed: **700—1,000 rpm** — Engine coolant temperature: **-10 °C {14 °F} or more**
P0030:00	A/F sensor heater control circuit range/performance problem	• A/F sensor heater control current is **less than 0.573 A** or **exceeds 6.072 A** on for a continuous **5 s** with the following condition met. **MONITORING CONDITIONS** — Battery voltage: **11 V or more** — A/F sensor heater control duty value: **20—80 %**
P0034:00	Compressor bypass solenoid valve control circuit low input	• If the PCM detects that the compressor bypass solenoid valve voltage at the PCM terminal 1CO is **0.19 V or less** for **1 s** with the following condition met, the PCM determines that the compressor bypass solenoid valve circuit voltage is low. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0035:00	Compressor bypass solenoid valve control circuit high input	• If the PCM detects that the compressor bypass solenoid valve current at the PCM terminal 1CO is **5.9 A or more** for **1 s** with the following condition met, the PCM determines that the compressor bypass solenoid valve circuit voltage is high. **MONITORING CONDITIONS** — Battery voltage: **8.8—16 V**
P0047:00	Regulating solenoid valve control circuit low input	• If the PCM detects that the regulating solenoid valve voltage at the PCM terminal 1CP is **0.19 V or less** for **1 s** with the following condition met, the PCM determines that the regulating solenoid valve circuit voltage is low. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0048:00	Regulating solenoid valve control circuit high input	• If the PCM detects that the regulating solenoid valve current at the PCM terminal 1CP is **5.9 A or more** for **1 s** with the following condition met, the PCM determines that the regulating solenoid valve circuit voltage is high. **MONITORING CONDITIONS** — Battery voltage: **7.2—16 V**
P004C:00	Wastegate solenoid valve control circuit low input	• If the PCM detects that the wastegate solenoid valve voltage at the PCM terminal 1CL is **0.19 V or less** for **1 s** with the following condition met, the PCM determines that the wastegate solenoid valve circuit voltage is low. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P004D:00	Wastegate solenoid valve control circuit high input	• If the PCM detects that the wastegate solenoid valve current at the PCM terminal 1CL is **3.5 A or more** for **1 s** with the following condition met, the PCM determines that the wastegate solenoid valve circuit voltage is high. **MONITORING CONDITIONS** — Battery voltage: **7.2—16 V**
P0072:00*1	Ambient temperature sensor circuit low input	• The PCM monitors the input signal from the ambient temperature sensor. If the voltage from the ambient temperature sensor is **below 0.2 V** for **5 s**, the PCM determines that the ambient temperature sensor circuit has a malfunction.
P0073:00*1	Ambient temperature sensor circuit high input	• The PCM monitors the input signal from the ambient temperature sensor. If the voltage from the ambient temperature sensor is **above 4.8 V** for **5 s**, the PCM determines that the ambient temperature sensor circuit has a malfunction.
P0079:00	OCV circuit low input	• If the PCM detects that the OCV voltage at the PCM terminal 1CK is **0.19 V or less** for **1 s** with the following condition met, the PCM determines that the OCV circuit voltage is low. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P007B:00	Boost air temperature sensor circuit range/ performance problem	• The difference between the intake air temperature measured by IAT sensor No.1 and boost air temperature sensor **exceeds 50 °C {90 °F}**. • The difference between the intake air temperature measured by IAT sensor No.2 and boost air temperature sensor **exceeds 50 °C {90 °F}**.

DTC No.	Condition	Detection condition
P007C:00	Boost air temperature sensor circuit low input	• If the PCM detects that the boost air temperature sensor voltage at the PCM terminal 1CM is **0.10 V or less** for **1 s** with the following condition met, the PCM determines that the boost air temperature sensor circuit voltage is low. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P007D:00	Boost air temperature sensor circuit high input	• The PCM monitors the input signal from the boost air temperature sensor. If the voltage from the boost air temperature sensor is **above 4.90 V** for **1 s**, the PCM determines that the boost air temperature sensor circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0080:00	OCV control circuit high input	• If the PCM detects that the OCV current at the PCM terminal 1CK is **5.9 A or more** for **1 s** with the following condition met, the PCM determines that the OCV circuit voltage is high. **MONITORING CONDITIONS** — Battery voltage: **7.2—16 V**
P0087:00	Low pressure malfunction in common rail fuel pressure control system	• After **6 s** have elapsed from the following conditions being met, the actual fuel pressure is lower than the target fuel pressure for a continuous specified period of time: **MONITORING CONDITIONS** — Amount of change in target fuel pressure value: within **3 MPa {31 kgf/cm^2, 435 psi}** — Fuel temperature: **-25—70 °C {-13—158 °F}**
P0088:00	High pressure malfunction in common rail fuel pressure control system	• After **6 s** have elapsed from the following conditions being met, the actual fuel pressure is higher than the target fuel pressure for a continuous specified period of time: **MONITORING CONDITIONS** — Amount of change in target fuel pressure value: within **3 MPa {31 kgf/cm^2, 435 psi}** — Fuel temperature: **-25—70 °C {-13—158 °F}**
P0089:00	High pressure malfunction in common rail fuel pressure control system	• When the following conditions are met, the actual fuel pressure **exceeds 217 Mpa {2,213 kgf/cm^2, 31,473 psi}** for a continuous **3 s**: **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0093:00	Fuel leakage from fuel pressure control system	• When the following conditions are met, the PCM detects the amount of fuel leakage as **exceeding 30 mm^3/stroke 3 times**: **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — Engine speed: **600 rpm or more**
P0096:00	IAT sensor No.2 circuit range/performance problem	• The difference between the intake air temperature measured by IAT sensor No.1 and IAT sensor No.2 **exceeds 50 °C {90 °F}**. • The difference between the intake air temperature measured by IAT sensors No. 2 and boost air temperature sensor **exceeds 50 °C {90 °F}**.
P0097:00	IAT sensor No.2 circuit low input	• If the PCM detects that the IAT sensor No.2 voltage at the PCM terminal 2N is **0.10 V or less** for **1 s** with the following condition met, the PCM determines that the IAT sensor No.2 circuit voltage is low. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0098:00	IAT sensor No.2 circuit high input	• The PCM monitors the input signal from the IAT sensor No.2. If the voltage from the IAT sensor No.2 is **above 4.90 V** for **1 s**, the PCM determines that the IAT sensor No.2 circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P009B:00	Fuel pressure relief valve signal circuit problem	• The operation amount of the fuel pressure relief valve is the specified value or more when the following conditions are met: **MONITORING CONDITIONS** — Battery voltage: **10—16 V**
P009F:00	Fuel pressure relief valve malfunction (stuck close)	• When the following condition is met, the pressure reduction amount during the fuel pressure relief valve operation is insufficient for several seconds continuously: **MONITORING CONDITIONS** — Battery voltage: **10—16 V**

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P0101:00	MAF sensor circuit range/ performance problem	• When the following conditions are met, the intake air amount is the specification or less (fluctuates with engine speed) for a continuous **7 s**. **MONITORING CONDITIONS** — Battery voltage: **above 8 V** — Engine speed: **1,000—4,000 rpm** • When the following conditions are met, the intake air amount is the specification or more (fluctuates with engine speed) for a continuous **7 s**. **MONITORING CONDITIONS** — Intake air temperature: **60 °C {140 °F} or less** — Desired EGR valve position: **below 1 %** — Desired intake shutter valve position: **above 60 %**
P0102:00	MAF sensor circuit low input	• If the PCM detects that the MAF sensor voltage at the PCM terminal 2U is **0.10 V or less** for **5 s** with the following condition met, the PCM determines that the MAF sensor circuit voltage is low. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0103:00	MAF sensor circuit high input	• The PCM monitors the input voltage from the MAF sensor when the engine is running. If the input voltage at the PCM terminal 2U is **above 4.70 V** for **5 s**, the PCM determines that the MAF sensor circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0106:00	MAP sensor No.2 circuit range/performance problem	• The following conditions remain for a continuous specified time when the battery voltage is **8 V or more**: — Difference between air charging pressure and barometric pressure: Specified value (kPa {kgf/cm^2, psi}) or more — Difference between air charging pressure and intake air pressure: Specified value (kPa {kgf/cm^2, psi}) or more — Difference between air charging pressure and exhaust gas pressure: Specified value (kPa {kgf/cm^2, psi}) or more
P0107:00	MAP sensor No.2 circuit low input	• The PCM monitors the input voltage from the MAP sensor No.2. If the input voltage at the PCM terminal 1CQ is **below 0.33 V** for **4 s**, the PCM determines that the MAP sensor No.2 circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — Intake shutter valve opening angle: **above 8 °**
P0108:00	MAP sensor No.2 circuit high input	• The PCM monitors the input voltage from the MAP sensor No.2. If the input voltage at the PCM terminal 1CQ is **above 4.20 V** for **10 s**, the PCM determines that the MAP sensor No.2 circuit has a malfunction.
P0111:00	IAT sensor No.1 circuit range/performance problem	• The difference between the intake air temperature measured by IAT sensor No.1 and IAT sensor No.2 **exceeds 50 °C {90 °F}**. • The difference between the intake air temperature measured by IAT sensor No.1 and boost air temperature sensor **exceeds 50 °C {90 °F}**.
P0112:00	IAT sensor No.1 circuit low input	• The PCM monitors the IAT sensor No.1 signal. If the PCM detects that the IAT sensor No.1 voltage at the PCM terminal 2Y is **below 0.10 V** for **1 s**, the PCM determines that the IAT sensor No.1 circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0113:00	IAT sensor No.1 circuit high input	• The PCM monitors the IAT sensor No.1 signal. If the PCM detects that the IAT sensor No.1 voltage at the PCM terminal 2Y is **above 4.90 V** for **1 s**, the PCM determines that the IAT sensor No.1 circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0116:00	ECT sensor circuit range/ performance problem	• The PCM monitors the maximum value and minimum value of engine coolant temperature when the engine is started and **5 min** have been passed after leaving the vehicle **6 h or more**. If difference between maximum and minimum values of engine coolant temperature is **below 6 °C {43 °F}** the PCM determines that there is an ECT sensor circuit range/performance problem. **MONITORING CONDITIONS** — Battery voltage: **above 8 V**

DTC No.	Condition	Detection condition
P0117:00	ECT sensor circuit low input	• The PCM monitors the ECT sensor signal. If the PCM detects that the ECT sensor voltage at the PCM terminal 1DC is **below 0.13 V** for **1 s**, the PCM determines that the ECT sensor circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0118:00	ECT sensor circuit high input	• The PCM monitors the ECT sensor signal. If the PCM detects that the ECT sensor voltage at the PCM terminal 1DC is **above 4.93 V** for **1 s**, the PCM determines that the ECT sensor circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0121:00	APP sensor No.1/No.2 correlation problem	• With the following conditions met, the output voltage of APP sensors No.1 and No. 2 is compared, and the difference in the voltage is **0.5 V or more** for a continuous **5 s**: **MONITORING CONDITIONS** — Battery voltage: **above 8 V**
P0122:00	APP sensor No.1 circuit low input	• The PCM monitors the input voltage from APP sensor No.1 when the engine is running. If the input voltage at the PCM terminal 2AN is **below 0.30 V** for **0.5 s**, the PCM determines that the APP sensor No.1 circuit input voltage is low. **MONITORING CONDITIONS** — Battery voltage: 8—20 V
P0123:00	APP sensor No.1 circuit high input	• The PCM monitors the input voltage from APP sensor No.1 when the engine is running. If the input voltage at the PCM terminal 2AN is **above 4.70 V** for **0.5 s**, the PCM determines that the APP sensor No.1 circuit input voltage is high. **MONITORING CONDITIONS** — Battery voltage: 8—20 V
P0131:00	A/F sensor circuit low input	• The PCM monitors the input voltage from the A/F sensor when the engine is running. If the following PCM terminal voltage is below specified for **3 s**, the PCM determines that the A/F sensor circuit voltage is low. — PCM terminal 1H: **0.40 V** — PCM terminal 1I: **0.40 V** **MONITORING CONDITIONS** — Battery voltage: **11—16 V**
P0132:00	A/F sensor circuit high input	• The PCM monitors the input voltage from the A/F sensor when the engine is running. If the following PCM terminal voltage is above specified for **3 s**, the PCM determines that the A/F sensor circuit voltage is high. — PCM terminal 1H: **4.40 V** — PCM terminal 1I: **4.40 V** **MONITORING CONDITIONS** — Battery voltage: **11—16 V**
P0133:00	A/F sensor circuit no activity detected	• The PCM monitors the A/F sensor impedance when the following conditions are met. If the impedance is more than threshold (**40 Ω** (cold), **100 Ω** (hot)) for **5 s**, the PCM determines that A/F sensor is not activated. **MONITORING CONDITIONS** — Battery voltage: **11—16 V** — A/F sensor feedback correction is actuated
P0134:00	A/F sensor circuit problem	• If the PCM detects the A/F sensor voltage is **below 0.10 V** for **5 s** with the following condition met, the PCM determines that the A/F sensor circuit has problem. **MONITORING CONDITIONS** — A/F sensor terminal A voltage: **4.7 V or more** — A/F sensor terminal B voltage: **1.8 V or less** — Battery voltage: **11—16 V**
P0154:00	Atmosphere learning malfunction in A/F sensor circuit	• The difference in the oxygen concentration between atmosphere and the A/F sensor output value is **35 % or more** for a continuous **7 s**. **MONITORING CONDITIONS** — Battery voltage: **8—20** — Engine speed: **800 rpm or more** — A/F sensor feedback correction is actuated
P0181:00	Fuel temperature sensor circuit range/performance problem	• The difference between the fuel temperature minimum value and maximum value is **1 °C {2 °F} or less** for a continuous **3 s** when the following conditions are met: **MONITORING CONDITIONS** — Battery voltage: **8 V or more** — Engine coolant temperature after engine start: **-25—60 °C {-13—140 °F}**

DTC No.	Condition	Detection condition
P0182:00	Fuel temperature sensor circuit low input	• The PCM monitors the fuel temperature sensor signal. If the PCM detects that the fuel temperature sensor voltage at the PCM terminal 1CU is **below 0.09 V** for **1 s**, the PCM determines that the fuel temperature sensor circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0183:00	Fuel temperature sensor circuit high input	• The PCM monitors the fuel temperature sensor signal. If the PCM detects that the fuel temperature sensor voltage at the PCM terminal 1CU is **above 4.90 V** for **1 s**, the PCM determines that the fuel temperature sensor circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0191:00	Fuel pressure sensor circuit range/performance problem	• The PCM monitors the fuel pressure in the common rail and input signal from the fuel pressure sensor. If all of the following conditions is met for **20 s**, the PCM determines that there is malfunction in the fuel pressure sensor range/performance malfunction. — The PCM calculates the difference between actual fuel pressure and target fuel pressure. If the pressure difference is **more than 5 MPa {51 kgf/cm^2, 725 psi}**. — The PCM monitors the input signal from the fuel pressure sensor. If the difference between the maximum and minimum voltage of the fuel pressure sensor is **less than 0.0025 V** **MONITORING CONDITIONS** • Engine speed: **5,200 rpm or less** • Fuel temperature: **90 °C {194 °F} or less** • Target fuel pressure: **more than 20 MPa {204 kgf/cm^2, 2,901 psi}** • When the following conditions are met, the fuel pressure **exceeds 240 MPa {2,447 kgf/cm^2, 34,809 psi}**: **MONITORING CONDITIONS** — Engine speed: **6,000 rpm or less** — Fuel temperature: **20—60 °C {68—140 °F}** — Engine coolant temperature: **80—100 °C {176—212 °F}** — Intake air temperature: **20—40 °C {68—104 °F}** — Barometric pressure: **above 95 kPa {0.97 kgf/cm^2, 14 psi}** — Battery voltage: **above 8 V**
P0192:00	Fuel pressure sensor circuit low input	• If the input voltage at the PCM terminal 1AL is **less than 0.57 V** for **0.7 s**, the PCM determines that the fuel pressure sensor circuit is low. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0193:00	Fuel pressure sensor circuit high input	• If the input voltage at the PCM terminal 1AL is **more than 4.74 V** for **0.7 s**, the PCM determines that the fuel pressure sensor circuit is high. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0196:00	Engine oil temperature sensor circuit range/ performance problem	• When the following conditions are met, the engine oil temperature is **20 °C {68 °F} or more** for a continuous **1 s**: **MONITORING CONDITIONS** — **6 h or more** has passed since the ignition was switched off. — Battery voltage: **8 V or more**
P0197:00	Engine oil temperature sensor circuit low input	• The PCM monitors the input signal from the engine oil temperature sensor. If the voltage from the engine oil temperature sensor is **below 0.1 V** for **1 s**, the PCM determines that the engine oil temperature sensor circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0198:00	Engine oil temperature sensor circuit high input	• The PCM monitors the engine oil temperature sensor signal. If the PCM detects that the engine oil temperature sensor voltage at the PCM terminal 1DI is **above 4.9 V** for **1 s**, the PCM determines that the engine oil temperature sensor circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0201:00	Fuel injector No.1 circuit operating abnormally	• The injection verification signal is not detected during the fuel injector No.1 operation when the following conditions are met: **MONITORING CONDITIONS** — Battery voltage: **8 V or more**

DTC No.	Condition	Detection condition
P0202:00	Fuel injector No.2 circuit operating abnormally	• The injection verification signal is not detected during the fuel injector No.2 operation when the following conditions are met: **MONITORING CONDITIONS** — Battery voltage: **8 V or more**
P0203:00	Fuel injector No.3 circuit operating abnormally	• The injection verification signal is not detected during the fuel injector No.3 operation when the following conditions are met: **MONITORING CONDITIONS** — Battery voltage: **8 V or more**
P0204:00	Fuel injector No.4 circuit operating abnormally	• The injection verification signal is not detected during the fuel injector No.4 operation when the following conditions are met: **MONITORING CONDITIONS** — Battery voltage: **8 V or more**
P0219:00	Engine overspeed condition	• PCM detects that the engine speed is **5,670 rpm or more**.
P0222:00	APP sensor No.2 circuit low input	• The PCM monitors the input voltage from APP sensor No.2 when the engine is running. If the input voltage at the PCM terminal 2AS is **less than 0.20 V** for **0.5 s**, the PCM determines that the APP sensor No.2 circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0223:00	APP sensor No.2 circuit high input	• The PCM monitors the input voltage from APP sensor No.2 when the engine is running. If the input voltage at the PCM terminal 2AS is **more than 4.7 V** for **0.5 s**, the PCM determines that the APP sensor No.2 circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0234:00	Small-type turbocharger overboost condition	• The difference between the target intake air pressure and the actual intake air pressure in the range of the small-type turbocharger less than the specified value for a continuous **7 s** when the following conditions are met. **MONITORING CONDITIONS** — Small-type turbocharger is operating — Diesel particulate filter regeneration control is not performed — Engine speed: **2,000 rpm or more** — Fuel injection amount: **25 mm^3/stroke or more**
P0236:00	MAP sensor No.1 circuit range/performance problem	• The following conditions remain for a continuous specified time when the battery voltage is **8 V or more**: — Difference between barometric pressure and intake air pressure: Specified value (kPa {kgf/cm^2, psi}) or more — Difference between air charging pressure and intake air pressure: Specified value (kPa {kgf/cm^2, psi}) or more — Difference between exhaust gas pressure and intake air pressure: Specified value (kPa {kgf/cm^2, psi}) or more
P0237:00	MAP sensor No.1 circuit low input	• The PCM monitors the input voltage from the MAP sensor No.1. If the input voltage at the PCM terminal 1BK is **below 0.33 V** for **4 s**, the PCM determines that the MAP sensor No.1 circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0238:00	MAP sensor No.1 circuit high input	• The PCM monitors the input voltage from the MAP sensor No.1. If the input voltage at the PCM terminal 1BK is **above 4.20 V** for **10 s**, the PCM determines that the MAP sensor No.1 circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0299:00	Small-type turbocharger underboost condition	• The difference between the target intake air pressure and the actual intake air pressure in the range of the small-type turbocharger exceeds the specified value for a continuous **7 s** when the following conditions are met: **MONITORING CONDITIONS** — Small-type turbocharger is operating — Diesel particulate filter regeneration control is not performed — Engine speed: **2,000 rpm or more** — Fuel injection amount: **25 mm^3/stroke or more**

DTC No.	Condition	Detection condition
P02CA:00	Large-type turbocharger overboost condition	• The difference between the target intake air pressure and the actual intake air pressure in the range of the large-type turbocharger less than the specified value for a continuous **7 s** when the following conditions are met. **MONITORING CONDITIONS** — Small-type turbocharger does not operate — Diesel particulate filter regeneration control is not performed — Engine speed: **2,000 rpm or more** — Fuel injection amount: **25 mm^3/stroke or more**
P02CB:00	Large-type turbocharger underboost condition	• The difference between the target intake air pressure and the actual intake air pressure in the range of the large-type turbocharger exceeds the specified value for a continuous **7 s** when the following conditions are met. **MONITORING CONDITIONS** — Large-type turbocharger does not operate — Diesel particulate filter regeneration control is not performed — Engine speed: **2,000 rpm or more** — Fuel injection amount: **25 mm^3/stroke or more**
P0301:00	Cylinder No.1 misfire detected	• The misfire rate of specific cylinders for the crankshaft speed exceeds the specification for a continuous **16 s** when the following conditions are met: **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — Engine speed: **1,200 rpm or less** — Fuel injection amount: **25 mm^3/stroke or less** — Engine coolant temperature: **above 60 °C {140 °F}** — Diesel particulate filter regeneration control is not performed
P0302:00	Cylinder No.2 misfire detected	
P0303:00	Cylinder No.3 misfire detected	
P0304:00	Cylinder No.4 misfire detected	
P0313:00	Misfire detected with low fuel	• “Injection amount cumulative value after lowering point E”, which is calculated by the PCM, exceeds the threshold value (larger than DTC P115A:00).
P0336:00	CKP sensor circuit range/ performance problem	• CKP sensor signal is not input **56 times** while the crankshaft rotates **20 times** with the following conditions met: **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — Engine speed: **700 rpm or more**
P0337:00	CKP sensor circuit problem	• There is no CKP sensor signal input while the crankshaft rotates **12 times**. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0339:00	CKP sensor circuit range/ performance problem	• When any of the following conditions is met: — The calculated value of the crank angle from the CKP sensor is compared with the crank angle while a cylinder identification is performed when the engine is restarted, and the PCM cannot detect the reverse rotation directly before the engine stalls during i-stop operation. — The PCM detects the reverse rotation pulse while the crankshaft is rotated clockwise.
P0341:00	CMP sensor circuit range/ performance problem	• CMP sensor signal is not input **5 times** while the crankshaft rotates **10 times** with the following conditions met: **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — Engine speed: **700 rpm or more**
P0342:00	CMP sensor circuit problem	• There is no CMP sensor signal input while the crankshaft rotates **5 and a half times** when the following conditions are met: **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0383:00	Glow control module circuit low input	• The PCM monitors the input voltage from the glow control module. If the input voltage is **below 0.19 V** for **1 s**, the PCM determines that the glow control module circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0384:00	Glow control module circuit high input	• The PCM monitors the input current from the glow control module. If the input current is **above 5.9 A** for **1 s**, the PCM determines that the glow control module circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **9—16 V**

DTC No.	Condition	Detection condition
P0401:00	EGR flow insufficient detected	• When the following condition is met, the EGR volume is lower than the specification for the target value for a continuous **8 s**: **MONITORING CONDITIONS** — During EGR control — Engine speed: **1,300—2,000 rpm** — Fuel injection amount: **15—45 mm^3/stroke**
P0402:00	EGR flow excessive detected	• When the following condition is met, the EGR volume is higher than the specification for the target value for a continuous **8 s**: **MONITORING CONDITIONS** — During EGR control — Engine speed: **1,300—2,000 rpm** — Fuel injection amount: **15—45 mm^3/stroke**
P0404:00	Circuit malfunction in EGR valve DC motor control system	• The EGR valve DC motor drive current exceeds the specification for a continuous **3 s** when the following condition is met: **MONITORING CONDITIONS** — DC motor drive circuit temperature: **175 °C {347 °F} or more**
P0405:00	EGR valve position sensor circuit low input	• If the input voltage at the PCM terminal 1AQ is **less than 0.2 V** for **5 s**, the PCM determines that the EGR valve position sensor circuit is low.
P0406:00	EGR valve position sensor circuit high input	• If the input voltage at the PCM terminal 1AQ is **more than 4.9 V** for **1 s**, the PCM determines that the EGR valve position sensor circuit is high. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0421:00	Warm up catalyst system efficiency below threshold	• The difference between the exhaust gas temperature before and after passing the catalytic converter is specified value or less for a continuous **60 to 80 s** when the following conditions are met: **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — Exhaust gas temperature after passing catalytic converter after engine start: **below 200 °C {392 °F}** — Ambient temperature: **above −10 °C {14 °F}** — Engine coolant temperature: **above 60 °C {140 °F}** — Vehicle speed: **20—140 km/h {13.0—86.9 mph}** — Engine speed: **1,200—2,000 rpm** — Fuel injection amount: **10—25 mm^3/stroke** — Accumulated PM calculated from fuel: **0.8—4.0 g/l {0.05—0.25 lb/ft^3}** — Accumulated PM calculated from pressure applied to diesel particulate filter: **0.06—4.0 g/l {0.004—0.25 lb/ft^3}** — Traveled distance after diesel particulate filter regeneration: **36—400 km {23—248 mile}** — Catalytic converter monitor is not completed after diesel particulate filter regeneration — After **60 s** have elapsed since start the engine — Exhaust gas temperature before passing catalytic converter: **140—200 °C {284—392 °F}** — Exhaust gas temperature after passing catalytic converter: **135—240 °C {275—464 °F}** (if the exhaust gas temperature after passing the catalytic converter exceeds **240 °C {464 °F}**, the temperature decreases to **140 °C {284 °F} or less** one time)
P0471:00	Exhaust gas pressure sensor No.1 circuit range/ performance problem	• The following conditions remain for a continuous specified time when the battery voltage is **8 V or more**: — Difference between barometric pressure and exhaust gas pressure: Specified value (kPa {kgf/cm^2, psi}) or more — Difference between air charging pressure and exhaust gas pressure: Specified value (kPa {kgf/cm^2, psi}) or more — Difference between manifold absolute pressure and exhaust gas pressure: Specified value (kPa {kgf/cm^2, psi}) or more
P0472:00	Exhaust gas pressure sensor No.1 circuit low input	• If the input voltage at the PCM terminal 1CE is **less than 0.33 V** for **4 s**, the PCM determines that the exhaust gas pressure sensor No.1 circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**

DTC No.	Condition	Detection condition
P0473:00	Exhaust gas pressure sensor No.1 circuit high input	• If the input voltage at the PCM terminal 1CE is **more than 4.2 V** for **10 s**, the PCM determines that the exhaust gas pressure sensor No.1 circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0480:00	Fan control module No.1 control circuit problem	• The PCM monitors the input voltage from the fan control module No.1. If the voltage at the PCM terminal 2BG remains low or high for **5 s**, the PCM determines that the fan control circuit has a malfunction.
P0481:00	Fan control module No.2 control circuit problem	• The PCM monitors the input voltage from the fan control module No.2. If the voltage at the PCM terminal 2AW remains low or high for **5 s**, the PCM determines that the fan control circuit has a malfunction.
P0488:00	Duty signal error in EGR valve (cooler side) control system	• When the following conditions are met, the EGR valve control duty value is **90 % or more** for a continuous **2 s**: **MONITORING CONDITIONS** — EGR valve is operating
P0500:00	VSS circuit problem	• The vehicle speed signal input from the DSC HU/CM is incorrect for a continuous **5 s** when the following condition is met: **MONITORING CONDITIONS** — Battery voltage: **above 10 V**
P0522:00	Engine oil pressure sensor circuit low input	• If the input voltage at the PCM terminal 1DM is **less than 0.33 V** for **4 s**, the PCM determines that the engine oil pressure sensor circuit is low. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0523:00	Engine oil pressure sensor circuit high input	• If the input voltage at the PCM terminal 1DM is **more than 4.2 V** for **10 s**, the PCM determines that the engine oil temperature sensor circuit is high. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0524:00	Engine oil pressure too low	• If the engine oil pressure is **below 30 kPa {0.31 kgf/cm^2, 4.4 psi}**, the PCM determines that the engine oil pressure control circuit problem.
P0532:00*1	Refrigerant pressure sensor circuit low input	• The PCM monitors input voltage from the refrigerant pressure sensor when the ignition switch is ON. If the input voltage at the PCM terminal 2BH is **below 0.15 V**, the PCM determines that the refrigerant pressure sensor circuit has a malfunction.
P0533:00*1	Refrigerant pressure sensor circuit high input	• The PCM monitors the input voltage from the refrigerant pressure sensor when the ignition switch is ON. If the input voltage at the PCM terminal 2BH is **above 4.9 V**, the PCM determines that the refrigerant pressure sensor circuit has a malfunction.
P053B:00	Blow-by heater relay control circuit low input	• The PCM monitors input voltage from the blow-by heater relay. If the input voltage is **below 0.19 V** for **1 s**, the PCM determines that the blow-by heater relay circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P053C:00	Blow-by heater relay control circuit high input	• The PCM monitors input current from the blow-by heater relay. If the input current is **above 1.5 A** for **1 s**, the PCM determines that the blow-by heater relay circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8.8—16 V**
P0545:00	Exhaust gas temperature sensor No.1 circuit low input	• The PCM monitors the exhaust gas temperature sensor No.1 signal. If the PCM detects that the exhaust gas temperature sensor No.1 voltage at the PCM terminal 1CI is **below 0.24 V** for **1 s**, the PCM determines that the exhaust gas temperature sensor No.1 circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**

DTC No.	Condition	Detection condition
P0546:00	Exhaust gas temperature sensor No.1 circuit high input	• The PCM monitors the exhaust gas temperature sensor No.1 signal. If the PCM detects that the exhaust gas temperature sensor No.1 voltage at the PCM terminal 1CI is **above 4.96 V** for **3 s**, the PCM determines that the exhaust gas temperature sensor No.1 circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — Between the elapsed time of 18 to 70 min. after the ignition is switched on (engine on). — Engine speed: **above 700 rpm** — Engine coolant temperature: **above 60 °C {140 °F}** — Intake air temperature: **above 5 °C {41 °F}** — Vehicle speed: **above 25 km/h {16 mph}** continues for **10 min or more**
P0555:00	Power brake unit vacuum sensor circuit problem	• The PCM monitors the power brake unit vacuum sensor signal voltage while the ignition switch is ON. If the PCM detects the power brake unit vacuum sensor voltage is **below 0.15 V** or **above 4.8 V**, the PCM determines that the power brake unit vacuum sensor circuit has problem.
P055F:00	Engine oil pressure control circuit low oil pressure	• The engine oil pressure is the specified value or less after the specified time has elapsed since the engine was started. — Engine speed is **2,000 rpm or less**: **80 kPa {0.82 kgf/cm^2, 12 psi}** — Engine speed is **2,000 to 3,500 rpm**: **120 kPa {1.22 kgf/cm^2, 17.4 psi}** — Engine speed is **3,500 rpm or more**: **180 kPa {1.84 kgf/cm^2, 26.1 psi}**
P0571:00	Brake switch circuit problem	• Any of the following conditions is detected **5 times** continuously: — Brake switch No.2 signal does not change for **3 s or more** even though brake switch No.1 signal switches on and off — Brake switch No.1 signal does not change for **3 s or more** even though brake switch No.2 signal switches on and off
P057F:00	Power system: Battery deterioration	• The battery charge/discharge flow exceeds the specification.
P058A:00	Current sensor: Function malfunction	• Error signal from the current sensor is received.
P0601:00	PCM memory check sum error	• The PCM detects the internal malfunction.
P0602:00	PCM programming error	• No configuration data in the PCM.
P0605:00	PCM memory check sum error	• The PCM detects the internal malfunction for a continuous **5 s**.
P0606:00	PCM processor error	• PCM internal CPU malfunction. **MONITORING CONDITIONS** — Battery voltage: **above 10 V**
P0607:00	Control module performance problem	• PCM internal malfunction. **MONITORING CONDITIONS** — Battery voltage: **above 10 V**
P0610:00	PCM vehicle configuration error	• PCM data configuration error.
P0615:00	Starter relay circuit problem	• The PCM records DTCs when the number of times the engine has been started reaches the warrantied performance frequency for the starter or starter relay.
P062A:00	Suction control valve circuit problem	• Any of following conditions occurs: — When the following conditions are met, the suction control valve control current **1.0 A or less** for a continuous **1 s**: **MONITORING CONDITIONS** • Battery voltage: **8—20 V** • Engine running • Suction control valve control duty value: **100 %** — When the following conditions are met, the suction control valve control current **exceeds 1.0 A** for a continuous **1 s**: **MONITORING CONDITIONS** • Battery voltage: **8—20 V** • Engine running • Suction control valve control duty value: **0 %**
P062B:00	PCM internal malfunction	• PCM detects malfunction in internal processor with the following conditions met: **MONITORING CONDITIONS** — Battery voltage: **above 8 V**

DTC No.	Condition	Detection condition
P0642:00	Constant voltage power supply circuit low input	• When the following condition is met, the output voltage of the **5 V** power supply terminal **3.9 V or less** for a continuous **1 s**: **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0643:00	Constant voltage power supply circuit high input	• When the following condition is met, the output voltage of the **5 V** power supply terminal **exceeds 4.1 V** for a continuous **1 s**: **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0646:00*1	A/C relay circuit low input	• When the following conditions are met, PCM detects that the A/C relay voltage is **approx. 0 V** for a continuous **5 s**: **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0647:00*1	A/C relay circuit high input	• When the following conditions are met, PCM detects that the A/C relay voltage is **approx. 5 V** for a continuous **5 s**: **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0652:00	Constant voltage power supply control circuit low input	• When the following condition is met, the output voltage of the **5 V** power supply terminal is **3.9 V or less** for a continuous **1 s**: **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0653:00	Constant voltage power supply control circuit high input	• When the following condition is met, the output voltage of the **5 V** power supply terminal **exceeds 4.1 V** for a continuous **1 s**: **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P0668:00	PCM internal temperature sensor circuit low input	• PCM internal temperature sensor malfunction.
P0669:00	PCM internal temperature sensor circuit high input	• PCM internal temperature sensor malfunction.
P0670:00	Glow control module control circuit problem	• When the following conditions are met, the glow control module circuit malfunctions for a continuous **5 s**: **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — Detects that the output duty value of the glow plug is **10 to 90 %** for **1 s or more**.
P0671:00	Glow plug No.1 control circuit problem	• If the input voltage is **below 5 V** for **5 s**, the PCM determines that the glow plug No.1 circuit problem. **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — Detects that the output duty value of the glow plug is **10 to 90 %** for **1 s or more**.
P0672:00	Glow plug No.2 control circuit problem	• If the input voltage is **below 5 V** for **5 s**, the PCM determines that the glow plug No.2 circuit problem. **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — Detects that the output duty value of the glow plug is **10 to 90 %** for **1 s or more**.
P0673:00	Glow plug No.3 control circuit problem	• If the input voltage is **below 5 V** for **5 s**, the PCM determines that the glow plug No.3 circuit problem. **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — Detects that the output duty value of the glow plug is **10 to 90 %** for **1 s or more**.
P0674:00	Glow plug No.4 control circuit problem	• If the input voltage is **below 5 V** for **5 s**, the PCM determines that the glow plug No.4 circuit problem. **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — Detects that the output duty value of the glow plug is **10 to 90 %** for **1 s or more**.

DTC No.	Condition	Detection condition
P0683:00	Glow control module control circuit problem	• If the following conditions are met, the PCM determines that there is the glow control module control circuit problem. — The voltage of the glow control module control signal remains low for **5 s**. (**approx. 0 V**) — The voltage of the glow control module control signal remains high for **5 s**. (**approx. 5 V**) **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — Detects that the output duty value of the glow plug is **10 to 90 %** for **1 s or more**.
P0684:00	Glow control module control circuit communication error	• When the following conditions are met, the input signal pattern of the glow control module is incorrect for a continuous **5 s**: **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — Detects that the output duty value of the glow plug is **10 to 90 %** for **1 s or more**.
P06B8:00	Internal control module non-volatile RAM error	• PCM internal EEPROM malfunction.
P06DB:00	Engine oil solenoid valve circuit low input	• If the PCM detects that the engine oil solenoid valve voltage at the PCM terminal 1CH is **0.19 V or less** for **1 s** with the following condition met, the PCM determines that the engine oil solenoid valve circuit voltage is low. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P06DC:00	Engine oil solenoid valve control circuit high input	• If the PCM detects that the engine oil solenoid valve current at the PCM terminal 1CH is **5.9 A or more** for **1 s** with the following condition met, the PCM determines that the engine oil solenoid valve circuit voltage is high. **MONITORING CONDITIONS** — Battery voltage: **6.6—16 V**
P06DD:00	Engine oil pressure switch control circuit high input	• When the following condition is met, the engine oil pressure is **exceeds 250 kPa {2.55 kgf/cm^2, 36.3 psi}**: **MONITORING CONDITIONS** — During low hydraulic pressure control (during engine oil solenoid valve operation) — Engine speed is specified value or more. • Idle speed or more when engine oil temperature is **40 °C {104 °F} or less** (when cold) • **1,800 rpm or more** when engine oil temperature is **90 °C {194 °F}** (when hot) • **4,000 rpm or more** when engine oil temperature is **135 °C {275 °F} or more** (when hot)
P06DE:00	Engine oil pressure switch control circuit low input	• When the following condition is met, the engine oil pressure is **250 kPa {2.55 kgf/cm^2, 36.3 psi} or less**: **MONITORING CONDITIONS** — During high hydraulic pressure control (during engine oil solenoid valve operation) — Engine speed is specified value or more. • Idle speed or more when engine oil temperature is **40 °C {104 °F} or less** (when cold) • **1,800 rpm or more** when engine oil temperature is **90 °C {194 °F}** (when hot) • **4,000 rpm or more** when engine oil temperature is **135 °C {275 °F} or more** (when hot)
P0703:00	Brake switch input circuit problem	• The PCM monitors the input signal from the brake switch No.1. If the input signal does not change while following decelerating **8 times**, the PCM determines that there is a brake switch No.1 input circuit problem. **MONITORING CONDITIONS** — Vehicle speed: from **above 30 km/h {19 mph}** to **30 km/h {19 mph} or less** — Deceleration rate: **exceeds 2.4 km/h {1.5 mph} per sec**
P0704:00*2	CPP switch input circuit problem	• The PCM monitors changes in input voltage from the CPP switch. If the PCM does not detect a voltage change while the vehicle runs with vehicle speed **above 30 km/h {19 mph}** and stops **10 times** alternately, the PCM determines that the CPP switch circuit has a malfunction.

DTC No.	Condition	Detection condition
P07BE:00*2	Transmission indeterminate failure (failed to neutral)	• Correlation malfunction between neutral switches No.1 and No.2.
P0850:00*2	Neutral switch No.1 input circuit problem	• The PCM monitors changes in input voltage from the neutral switch No.1. If the PCM does not detect a voltage change while driving the vehicle at a vehicle speed **above 30 km/h {19 mph}** and clutch pedal is pressed and released **10 times** repeatedly, the PCM determines that the neutral switch No.1 circuit has a malfunction.
P0A0F:00	Engine failed to restart	• Any of following conditions occurs: — When the engine should restart after it is stopped by the i-stop control, it does not start even though it is cranked for **3 s or more**. — When the engine should restart after it is stopped by the i-stop control, it does not cranked.
P0A8D:00	Power supply system circuit low input	• Any one of the following conditions is met: — Battery voltage is **7.25 V or less** when engine restarts from i-stop. — DC-DC converter terminal voltage is **6 V or less** when engine restarts from i-stop. — PCM terminal voltage is **6.2 V or less** when engine starts. — Battery internal resistance is specified value or more.
P0A94:00	DC-DC converter: control circuit signal error	• Internal malfunction signal from DC-DC converter via front body control module (FBCM) is received.(CAN/LIN communication). • Input signal from the DC-DC converter limits the pressure increase time. • Input signal from the DC-DC converter does not implement pressure increase after a pressure increase command to the DC-DC converter.
P111A:00	Engine coolant temperature is high	• The engine coolant temperature is **110 °C {230 °F} or more** for **2.5 s**.
P1140:00	Sedimentor switch control circuit range/performance problem	• The level of accumulated water in the fuel filter exceeds the specification (sedimentor switch turns on in this case).
P115A:00	Lack of remaining fuel (output restriction)	• “Injection amount cumulative value after lowering point E”, which is calculated by the PCM, exceeds the threshold value.
P115B:00	Lack of remaining fuel (fuel injection pause)	• “Injection amount cumulative value after lowering point E”, which is calculated by the PCM, exceeds the threshold value (larger than DTC P0313:00).
P117A:00	Record of torque restriction for piston protection	• The engine oil pressure is the specified value or less for a continuous **8 s**.
P1196:00	Main relay control circuit problem	• Main relay control voltage is **10 V or less** while the ignition switch is off.
P1200:00	Fuel injection amount learning not completed	• Fuel injector injection amount correction is not completed correctly.
P1260:00	Immobilizer system problem	• The start stop unit detects an immobilizer system malfunction.
P1282:00	Common rail control system problem	• When the following conditions are met, the common rail fuel pressure value **exceeds 250 MPa {2,549 kgf/cm^2, 36,260 psi}** or the fuel pressure value exceeds the value calculated by the PCM based on the engine speed for a continuous **1 s**. **MONITORING CONDITIONS** — Engine speed: **above 500 rpm** — Battery voltage: **8—20 V**
P1303:00	EGR cooler bypass valve full closing angle malfunction	• EGR cooler bypass valve position sensor signal voltage is **1.2 V or more**, or **0.65 V or less** with the ignition switched off and EGR cooler bypass valve fully closed.

DTC No.	Condition	Detection condition
P1329:00	Common rail pressure higher than desired (engine running)	• When the following conditions are met, the common rail fuel pressure value **exceeds 250 MPa {2,549 kgf/cm^2, 36,260 psi}** or the fuel pressure value exceeds the value calculated by the PCM based on the engine speed for a continuous **60 s**. **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — During engine running • When the following conditions are met, the common rail fuel pressure value **exceeds 217 MPa {2,213 kgf/cm^2, 31,473 psi}** or the fuel pressure value exceeds the value calculated by the PCM based on the engine speed for a continuous **60 s**. **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — During engine running
P1336:00	CKP sensor/CMP sensor malfunction	• If the phase difference between the CKP sensor and CMP sensor exceeds the specified value, the PCM determines that the timing chain is stretched and stores DTC P1336:00.
P1378:00	Fuel injector circuit low input	• When the following conditions are met, the DC-DC converter output voltage **120 V or less**: **MONITORING CONDITIONS** — Battery voltage: **above 8 V**
P1379:00	Fuel injector circuit high input	• When the following conditions are met, the DC-DC converter output voltage **exceeds 250 V**: **MONITORING CONDITIONS** — Battery voltage: **above 8 V**
P1589:00	Intake shutter valve control duty signal error	• Intake shutter valve actuator control duty value is **90 %** for a continuous **2 s**.
P1675:00	Fuel injector code not programmed	• Fuel injector code has not been programmed to the PCM.
P1676:00	Fuel injector code mistakenly programmed	• Fuel injector code is not programmed correctly to the PCM.
P167B:00	Fuel injection amount learning not completed in fuel injection system	• Fuel injector injection amount correction is not completed.
P176E:00*2	Clutch stroke sensor/ starter interlock switch correlation problem	• Correlation malfunction between clutch stroke sensor and starter interlock switch. — If the clutch stroke sensor circuit voltage **above 4.9 V** or **below 0.1 V** for **10 s**, the PCM determines that the clutch stroke sensor circuit has a malfunction. — CPP switch stuck ON or OFF. — Starter interlock switch stuck ON.
P1905:00	Check connector circuit low input	• PCM detects that the check connector voltage is **approx. 0 V** for a continuous **5 s**.
P2002:00	Diesel particulate filter function decreased	• When the following conditions are met, a difference in the pressure before and after passing the diesel particulate filter of less than the specified value is detected: **MONITORING CONDITIONS** — Drive at a constant speed for **2 s or more** under the following conditions: • Engine speed: **1,700—3,500 rpm** • Amount of change in engine speed: **40 rpm or less** for **1 s** • Amount of exhaust gas: **1.1 m^3/min or more** • Amount of change in exhaust gas: **1.8 m^3/min or more** for **1 s** • Barometric pressure: **70—105 kPa {0.72—1.07 kgf/cm^2, 11.0—15.2 psi}** • Engine coolant temperature after engine start: **40—110 °C {104—230 °F}** • Intake air temperature: **-10 °C {14 °F} or more** • Amount of change in pressure applied to diesel particulate filter: **0.62 kPa {0.0063 kgf/cm^2, 0.090 psi} or less** for **1 s** • Estimated PM accumulation is **2.25 g/l {0.14 lb/ft^3} or more** • Diesel particulate filter regeneration control is not performed
P2032:00	Exhaust gas temperature sensor No.2 circuit low input	• The PCM monitors the exhaust gas temperature sensor No.2 signal. If the PCM detects that the exhaust gas temperature sensor No.2 voltage at the PCM terminal 1CA is **below 0.24 V** for **1 s**, the PCM determines that the exhaust gas temperature sensor No.2 circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**

DTC No.	Condition	Detection condition
P2033:00	Exhaust gas temperature sensor No.2 circuit high input	• The PCM monitors the exhaust gas temperature sensor No.2 signal. If the PCM detects that the exhaust gas temperature sensor No.2 voltage at the PCM terminal 1CA is **above 4.96 V** for **3 s**, the PCM determines that the exhaust gas temperature sensor No.2 circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — Between the elapsed time of 18 to 70 min. after the ignition is switched on (engine on). — Engine speed: **above 700 rpm** — Engine coolant temperature: **above 60 °C {140 °F}** — Intake air temperature: **above 5 °C {41 °F}** — Vehicle speed: **above 25 km/h {16 mph}** continues for **10 min or more**
P2101:00	Intake shutter valve control circuit overcurrent	• The intake air shutter valve drive current exceeds the specification for a continuous **3 s** when the following condition is met: **MONITORING CONDITIONS** — Drive circuit temperature: **175 °C {347 °F} or more**
P2105:00	Intake air shutter valve actuator control system malfunction (forced engine shutdown)	• After switching the ignition off, the PCM detects that the engine speed has not decreased for a specified time.
P2118:00	Intake shutter valve control duty signal error	• The intake air shutter valve control duty value is **90 %** for a continuous **2 s**.
P2146:00	Fuel injector No.1 and No.4 circuit abnormal operation	• When the following condition is met, the PCM detects the control current at fuel injectors No.1 and No.4 as less than the specified value **6 times**: **MONITORING CONDITIONS** — Battery voltage: **more than 8 V**
P2147:00	Fuel injector No.1 and No.4 circuit low input	• When the following condition is met, the PCM detects the control current at fuel injectors No.1 and No.4 as **exceeding 35 A 4 times** or control voltage at fuel injectors No.1 and No.4 as **40 V or less 4 times**: **MONITORING CONDITIONS** — Battery voltage: **more than 8 V**
P2148:00	Fuel injector No.1 and No.4 circuit high input	• When the following condition is met, the PCM detects the control current at fuel injectors No.1 and No.4 as **exceeding 10 A 4 times**: **MONITORING CONDITIONS** — Battery voltage: **more than 8 V**
P2149:00	Fuel injector No.2 and No.3 circuit abnormal operation	• When the following condition is met, the PCM detects the control current at fuel injectors No.2 and No.3 as less than the specified value **6 times**: **MONITORING CONDITIONS** — Battery voltage: **more than 8 V**
P2150:00	Fuel injector No.2 and No.3 circuit low input	• When the following condition is met, the PCM detects the control current at fuel injectors No.2 and No.3 as **exceeding 35 A 4 times** or control voltage at fuel injectors No.2 and No.3 as **40 V or less 4 times**: **MONITORING CONDITIONS** — Battery voltage: **more than 8 V**
P2151:00	Fuel injector No.2 and No.3 circuit high input	• When the following condition is met, the PCM detects the control current at fuel injectors No.2 and No.3 as **exceeding 10 A 4 times**: **MONITORING CONDITIONS** — Battery voltage: **more than 8 V**
P2227:00	BARO sensor circuit range/ performance problem	• The following conditions remain for a continuous specified time when the battery voltage is **8 V or more**: — Difference between air charging pressure and barometric pressure: Specified value (kPa {kgf/cm^2, psi}) or more — Difference between intake air pressure and barometric pressure: Specified value (kPa {kgf/cm^2, psi}) or more — Difference between exhaust gas pressure and barometric pressure: Specified value (kPa {kgf/cm^2, psi}) or more
P2228:00	BARO sensor circuit low input	• The PCM monitors input voltage from the BARO sensor. If the input voltage is below **1.3 V** for **3 s**, the PCM determines that the BARO sensor circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**

DTC No.	Condition	Detection condition
P2229:00	BARO sensor circuit high input	• The PCM monitors input voltage from the BARO sensor. If the input voltage is above **4.7 V** for **3 s**, the PCM determines that the BARO sensor circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P2263:00	Regulating valve control circuit range/performance problem	• The following conditions are met, the difference between the target regulating valve opening angle and the actual regulating valve opening angle is **10 mm {0.39 in} or more** for a continuous **3 s**: — Engine speed: **above 700 rpm** — Wastegate solenoid valve control duty value: **90 % or more** • The following conditions are met, the difference between the target regulating valve opening angle and the actual regulating valve opening angle is **-10 mm {-0.39 in} or less** for a continuous **3 s**: — Engine speed: **above 700 rpm** — Wastegate solenoid valve control duty value: **−90 % or less**
P2299:00	Accelerator pedal: spring back malfunction	• When under the following conditions it is detected that the brake pedal is depressed during driving for the specified time*. — Racing — Engine speed: 875 rpm or more *: Specified time is **0.6—10 s** according to braking force calculated in PCM.
P242C:00	Exhaust gas temperature sensor No.3 circuit low input	• The PCM monitors the exhaust gas temperature sensor No.3 signal. If the PCM detects that the exhaust gas temperature sensor No.3 voltage at the PCM terminal 1BW is **below 0.24 V** for **1 s**, the PCM determines that the exhaust gas temperature sensor No.3 circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P242D:00	Exhaust gas temperature sensor No.3 circuit high input	• The PCM monitors the exhaust gas temperature sensor No.3 signal. If the PCM detects that the exhaust gas temperature sensor No.3 voltage at the PCM terminal 1BW is **above 4.96 V** for **3 s**, the PCM determines that the exhaust gas temperature sensor No.3 circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — Between the elapsed time of 18 to 70 min. after the ignition is switched on (engine on). — Engine speed: **above 700 rpm** — Engine coolant temperature: **above 60 °C {140 °F}** — Intake air temperature: **above 5 °C {41 °F}** — Vehicle speed: **above 25 km/h {16 mph}** continues for **10 min or more**
P242F:00	Diesel particulate filter excess accumulation (exceeded acceptable amount)	• Amount of accumulated soot **exceeds 17 g/l {1.06 lb/ft^3}** for **125 s** because of diesel particulate filter clogging.
P244A:00	Exhaust gas pressure sensor No.2 range/ performance problem	• When the following conditions are met, a difference in the pressure before and after passing the diesel particulate filter of **0.2 kPa {0.002 kgf/cm^2, 0.03 psi} or less** is detected for a continuous **10 s**: **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — Engine speed: **825 rpm or more** — Exhaust gas temperature: **500 °C {932 °F} or less**
P2452:00	Signal malfunction in exhaust gas pressure sensor No.2	• Difference in pressure is **±5 kPa {±0.05 kgf/cm^2, ±0.7 psi} or more** while the engine is stopped.
P2453:00	Pressure malfunction in exhaust gas pressure sensor No.2	• Difference in pressure is **100 kPa {1.02 kgf/cm^2, 14.5 psi} or more** while the engine is running.
P2454:00	Exhaust gas pressure sensor No.2 circuit low input	• If the input voltage at the PCM terminal 1Z is **less than 0.52 V** for **30 s**, the PCM determines that the exhaust gas pressure sensor No.2 circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P2455:00	Exhaust gas pressure sensor No.2 circuit high input	• If the input voltage at the PCM terminal 1Z is **more than 4.81 V** for **30 s**, the PCM determines that the exhaust gas pressure sensor No.2 circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**

DTC No.	Condition	Detection condition
P2456:00	Characteristic malfunction in exhaust gas pressure sensor No.2	• When the following conditions are met, a difference in the pressure before and after passing the diesel particulate filter of less than **0.1 kPa {0.001 kgf/cm^2, 0.01 psi}** is detected for **16 times**: **MONITORING CONDITIONS** — Battery voltage: **8—20 V** — During engine running — Amount of exhaust gas: **2.0 m^3/min or more**, or **0.85 m^3/min or less**
P2458:00	Diesel particulate filter excess accumulation (mid)	• PCM detects that the soot accumulation amount **above 10 g/l {0.6 lb/ft^3}**.
P245A:00	EGR cooler bypass valve control: Drive circuit malfunction	• The EGR cooler bypass valve drive current exceeds the specification for a continuous 3 s when the following condition is met: **MONITORING CONDITIONS** — Drive circuit temperature: 175 °C {347 °F} or more
P245B:00	EGR cooler bypass valve control: duty signal malfunction	• If the duty value is **95 %** for **2 s**, the PCM determines that there is a EGR cooler bypass valve actuator control system range/performance problem.
P2463:00	Diesel particulate filter excess accumulation (large)	• PCM detects that the soot accumulation amount **above 13 g/l {0.8 lb/ft^3}** for a continuous **125 s**.
P246C:00	Engine oil dilution, oil pressure decreased	• The amount of engine oil dilution exceeds the specified value (fluctuates by ambient temperature).
P2494:00	EGR cooler bypass valve position sensor circuit low input	• If the input voltage at the PCM terminal 1AV is **less than 0.2 V** for **1 s**, the PCM determines that the EGR cooler bypass valve position sensor circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P2495:00	EGR cooler bypass valve position sensor circuit high input	• If the input voltage at the PCM terminal 1AV is **more than 4.9 V** for **1 s**, the PCM determines that the EGR cooler bypass valve position sensor circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P24A5:00	EGR cooler bypass valve control: EGR cooler bypass valve (stuck)	• When all of the following conditions are met, the EGR cooler bypass valve operation does not conform to the target value. — EGR cooler bypass valve is operating. — Battery voltage: **8—20 V** • When the EGR cooler bypass valve fully closes from the open condition, the EGR cooler bypass valve position sensor output value is not that for the fully closed condition.
P2502:00	Generator system: Malfunction in voltage generated by generator	• The voltage generated by the generator is **17 V or higher** and the battery voltage is **11 V or less** for a continuous specified time.
P2503:00	Generator system: Voltage generated by generator is low	• The target current generated by the generator, which the PCM outputs, is **20 A or higher** and the voltage generated by the generator is **8.5 V or less** for a continuous specified time.
P2504:00	Generator system: Voltage generated by generator is high	• The voltage generated by the generator is **18.5 V or higher** or the battery voltage is **16 V or higher** for a continuous specified time.
P2507:00	PCM battery voltage low input	• The PCM monitors the voltage of backup battery positive terminal. If the PCM detects that the battery positive terminal voltage is **below 6 V** for **5 s**, the PCM determines that the backup voltage circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8 V or more**
P252F:00	Engine oil level too high	• The amount of engine oil dilution **exceeds 1,661 g {58.59 oz}** during the diesel particulate filter regeneration control.
P253F:00	Engine oil deteriorated	• The amount of engine oil dilution **exceeds 2,236 g {78.87 oz}** during the diesel particulate filter regeneration control. • The amount of engine oil dilution exceeds the specified value (fluctuates by ambient temperature). • With the following driving conditions met, the engine oil pressure decreases **50 kPa {0.51 kgf/cm^2, 7.3 psi} or more** compared to when the engine oil was replaced: **MONITORING CONDITIONS** — Engine speed: **1,825—1,875 rpm** — Engine oil temperature: **88—92 °C {191—197 °F}**

DTC No.	Condition	Detection condition
P2564:00	Regulating valve position sensor circuit low input	• If the input voltage at the PCM terminal 1BP is **less than 0.2 V** for **1 s**, the PCM determines that the regulating valve position sensor circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P2565:00	Regulating valve position sensor circuit high input	• If the input voltage at the PCM terminal 1BP is **more than 4.9 V** for **1 s**, the PCM determines that the regulating valve position sensor circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P2610:00	Instrument cluster internal engine off timer performance problem	• Instrument cluster internal engine off timer is damaged.
P2621:00	Intake shutter valve position sensor circuit low input	• If the input voltage at the PCM terminal 1BA is **less than 0.2 V** for **1 s**, the PCM determines that the intake shutter valve position sensor circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
P2622:00	Intake shutter valve position sensor circuit high input	• If the input voltage at the PCM terminal 1BA is **more than 4.82 V** for **1 s**, the PCM determines that the intake shutter valve position sensor circuit has a malfunction. **MONITORING CONDITIONS** — Battery voltage: **8—20 V**
U0073:00	CAN system communication error (HS CAN)	• Malfunction in CAN bus communication line.
U0074:00*3	CAN system communication error (local CAN between PCM and TCM)	• Malfunction in CAN bus communication line.
U0101:00*3	CAN communication: communication error to TCM	• Communication error between the PCM and TCM continues for **5 s or more**.
U0121:00	CAN communication: communication error to DSC HU/CM	• Communication error between the PCM and DSC HU/CM continues for **5 s or more**.
U0131:00	CAN communication: communication error to EPS control module	• Communication error between the PCM and EPS control module continues for **5 s or more**.
U0140:00	CAN communication: communication error to front body control module (FBCM)	• Communication error between the PCM and front body control module (FBCM) continues for **5 s or more**.
U0151:00	CAN communication: communication error to SAS control module	• Communication error between the PCM and SAS control module continues for **5 s or more**.
U0155:00	CAN communication: communication error to instrument cluster	• Communication error between the PCM and instrument cluster continues for **5 s or more**.
U0214:00	CAN communication: communication error to start stop unit	• Communication error between the PCM and start stop unit continues for **5 s or more**.
U0235:00	CAN communication: communication error to laser sensor	• Communication error between the PCM and laser sensor continues for **5 s or more**.
U0298:00	CAN/LIN communication system: DC-DC converter information communication error with front body control module (FBCM)	• PCM detects a DC-DC converter information communication error from front body control module (FBCM).
U0302:00*3	TCM processor error	• When any of the following conditions is met: — CAN communication line malfunction between PCM and TCM — TCM internal malfunction
U0315:00	DSC HU/CM error	• When any of the following conditions is met: — CAN communication line malfunction between PCM and DSC HU/CM — DSC HU/CM internal malfunction

DTC No.	Condition	Detection condition
U0320:00	EPS control module error	• When any of the following conditions is met: — CAN communication line malfunction between PCM and EPS control module — EPS control module internal malfunction
U0323:00	Instrument cluster error	• When any of the following conditions is met: — CAN communication line malfunction between PCM and instrument cluster — Instrument cluster internal malfunction
U0336:00	SAS control module error	• When any of the following conditions is met: — CAN communication line malfunction between PCM and SAS control module — SAS control module internal malfunction
U0338:00	Start stop unit error	• When any of the following conditions is met: — CAN communication line malfunction between PCM and start stop unit — Start stop unit internal malfunction
U0433:00	Abnormal message from rear body control module (RBCM)	• Correct data cannot be received from rear body control module (RBCM).
U2300:00	Global central configuration error	• Any of following conditions occurs: — No configuration of instrument cluster — The configuration signal with the estimated CAN ID is not sent from the instrument cluster. — The configuration signal value sent via CAN from the instrument cluster is unknown or invalid. — The configuration signal value sent via CAN from the instrument cluster is a value other than the estimated value. — The configuration signal value sent via CAN from the instrument cluster does not match the PCM value.
U3000:41	PCM processor error	• The following conditions are met: — Switch the ignition ON (engine off). — Data related to the immobilizer system fails to write to the non-volatile memory in the PCM. — The code related to the immobilizer system stored in the non-volatile memory cannot be read normally.

*1 : With air conditioner
*2 : MTX
*3 : ATX