

V3800-CR-T-E4, V3307-CR-T-E4, V2607-CR-T-E4 12V-SYSTEM
DTC Code LIST

DTC	ISO 14229 P-Code	J1939-73		SPN Name SAE J1939	Detection item	DTC Set Preconditions	DTC set parameter	Time to action or number of error detection	Limp Home Action by engine ECU (system action)	Remark	HMI behavior (Recommendation)	Engine Warning Light	Behaviour During Malfunction	Recovery from error	Delay time for recovery
		SPN	FMI												
NE-G phase shift NE: Crankshaft position sensor G: Camshaft position sensor	P0016	636	7	Engine Position Sensor	Large phase shift between NE pulse and G pulse	- Engine is operating low idle speed or more - Battery voltage is normal - Sensor supply voltage VCC# is normal - NE signal is normal - G signal is normal - Coolant temperature is 10 degC (50 degF) or more	(Approximately) Phase difference between NE pulse and G pulse is within +/- 15 degree	10 times or more	Output limitation: Approximately 75% of normal condition		Yellow	ON	(Invalid G signal) - Engine hesitates at start-up	Diagnostic counter = zero	Delay time varies with engine speed in proportional relation 30 sec at 800 rpm 15 sec at 1600 rpm
Pressure limiter emergency open	P0087	633	7	Engine Fuel Actuator 1 Control Command	Pressure limiter emergency open	- Rail pressure sensor is normal - Sensor supply voltage VCC# is normal	Combination of below A and B A: Fuel leak (P0093) is detected B: Condition (1) or (2) is fulfilled; (1) Rail pressure exceeds 191 MPa (1950 kgf/cm2, 27700 psi) (2) Within 1 sec, after the rail pressure goes 191 MPa (1950 kgf/cm2, 27700 psi) or less [Before the pressure decrease, the rail pressure is 191 MPa (1950 kgf/cm2, 27700 psi) or more]	one time or more	Output limitation: Approximately 50% of normal condition Speed limitation (Accelerator limitation: 50%) EGR stop Intake throttle 100% open	To minimize PM emission to DPF Engine speed may go down due to lack of fuel pressure, regardless limp home de-rating	Red	ON	- Insufficient output - Worsening exhaust gas emissions	Key switch turn OFF	—
High rail pressure	P0088	157	0	Engine Injector Metering Rail 1 Pressure	Actual pressure exceeds the command pressure	- Rail pressure sensor is normal - Sensor supply voltage VCC# is normal	Actual pressure is 197 MPa (2010 kgf/cm2, 28600 psi) or more	one sec or more	Output limitation: Approximately 50% of normal condition Speed limitation (Accelerator limitation: 50%) EGR stop Intake throttle 100% open	To minimize PM emission to DPF	Yellow	ON	- Insufficient output - Worsening exhaust gas emissions	Diagnostic counter = zero	30 sec
SCV stuck	P0089	1347	7	Engine Fuel Pump Pressurizing Assembly #1	SCV stuck at open position (Actual rail pressure continuously exceeds the command rail pressure)	- Supply pump is normal and pump calibration has been executed - Engine is operating (Q: 4 mm3/st or more) - Injector is normal - Battery voltage is normal - Sensor supply voltage VCC# is normal - Rail pressure sensor is normal	Discharge request of supply pump goes 0 mm3/st or less and the actual rail pressure is 10 MPa (100 kgf/cm2, 1400 psi) more than command pressure Above state continues for 26 seconds or more	one time or more	Output limitation: Approximately 50% of normal condition Speed limitation (Accelerator limitation: 50%) EGR stop Intake throttle 100% open	To minimize PM emission to DPF	Red	ON	- Insufficient output - Worsening exhaust gas emissions - Engine stops in some cases	Key switch turn OFF	—
Fuel leak (in high pressured fuel system)	P0093	1239	1	Engine Fuel Leakage 1	Fuel leak from high pressured fuel system (Fuel consumption is calculated from the difference of fuel pressure of before and after the injection, and the error will be detected when excess fuel consumption is found)	- Battery voltage is normal - Sensor supply voltage VCC# is normal - Rail pressure sensor is normal - Supply pump (SCV) is normal - Injector and injector drive circuit are normal - NE signal is active [Engine is operating (700 rpm or more)] - No DTC of P0087, P0088, P0089	(a) the flow volume which is calculated from the difference of rail pressure (decrease) (b) total volume of injection and leakage Fuel leak is judged with following conditions: In case, engine speed is more than 1200 rpm: when the difference of (a) and (b) is 120 mm3/st or more, (a) is more than (b), and fuel leak is not from opening pressure limiter In case, engine speed is 1200 rpm or less: when the difference of (a) and (b) is 400 mm3/st or more, (a) is more than (b), and fuel leak is not from opening pressure limiter	one time or more	Output limitation: Approximately 50% of normal condition Speed limitation (Accelerator limitation: 50%) EGR stop Intake throttle 100% open	To minimize PM emission to DPF	Red	ON	- Insufficient output - Worsening exhaust gas emissions - Engine stops in some cases	Key switch turn OFF	—
Intake air temp. error: Low	P0112	172	4	Engine Air Inlet Temperature	Ground short circuit of sensor or harness	- Battery voltage is normal	Voltage of intake air temperature sensor is 0.05 V or less	2.8 sec or more	During start-up = -20 degC (-4 degF) [default value] Under other conditions = 40 degC (104 degF) [default value]		Blue	ON	- White smoke increases at low temperature	Diagnostic counter = zero	30 sec
Intake air temp. error: High	P0113	172	3	Engine Air Inlet Temperature	Open circuit or +B short circuit of sensor or harness	- Battery voltage is normal	Voltage of intake air temperature sensor is 4.9 V or more	2.8 sec or more	During start-up = -20 degC (-4 degF) [default value] Under other conditions = 40 degC (104 degF) [default value]		Blue	ON	- White smoke increases at low temperature	Diagnostic counter = zero	30 sec

HMI behavior (Recommendation)	Warning	Caution	Engine stop
	Blue	Yellow	Red

Coolant temperature sensor: Low	P0117	110	4	Engine Coolant Temperature	Ground short circuit of sensor or harness	- Battery voltage is normal	Voltage of coolant temperature sensor is 0.1 V or less	2.8 sec or more	During start-up = -25 degC (-13 degF) [default value] Under other conditions = 80 degC (176 degF) [default value] Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open		ON	- White smoke increases at low temperature - Insufficient output - Worsening exhaust gas emissions	Key switch turn OFF	—
Coolant temperature sensor: High	P0118	110	3	Engine Coolant Temperature	Open circuit or +B short circuit of sensor or harness	- Battery voltage is normal	Voltage of coolant temperature sensor is 4.9 V or more	2.8 sec or more	During start-up = -25 degC (-13 degF) [default value] Under other conditions = 80 degC (176 degF) [default value] Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open		ON	- White smoke increases at low temperature - Insufficient output - Worsening exhaust gas emissions	Key switch turn OFF	—
Fuel temperature sensor: Low	P0182	174	4	Engine Fuel Temperature 1	Ground short circuit of sensor or harness	- Battery voltage is normal	Voltage of temperature sensor in supply pump is 0.1 V or less	2.8 sec or more	During start-up = -20 degC (-4 degF) [default value] Under other conditions = 45 degC (113 degF) [default value] Output limitation: Approximately 75% of normal condition		ON	-	Diagnostic counter = zero	30 sec
Fuel temperature sensor: High	P0183	174	3	Engine Fuel Temperature 1	Open circuit or +B short circuit of sensor or harness	- Battery voltage is normal	Voltage of temperature sensor in supply pump is 4.9 V or more	2.8 sec or more	During start-up = -20 degC (-4 degF) [default value] Under other conditions = 45 degC (113 degF) [default value] Output limitation: Approximately 75% of normal condition		ON	-	Diagnostic counter = zero	30 sec
Rail pressure sensor: Low	P0192	157	4	Engine Injector Metering Rail 1 Pressure	Ground short circuit of sensor or harness Failure of sensor	- Battery voltage is normal - Sensor supply voltage VCC# is normal	Voltage of rail pressure sensor is 0.7 V or less	transient	Output limitation: Approximately 50% of normal condition Speed limitation (Accelerator limitation: 50%) EGR stop Intake throttle 100% open Engine forcibly stopped 60 sec later	To minimize PM emission to DPF	ON	- Insufficient output - Worsening exhaust gas emissions - Engine running noise increases - White smoke increases - Engine stops	Key switch turn OFF	—
Rail pressure sensor: High	P0193	157	3	Engine Injector Metering Rail 1 Pressure	Open circuit or +B short circuit of sensor or harness Failure of sensor	- Battery voltage is normal - Sensor supply voltage VCC# is normal	Voltage of rail pressure sensor is 4.9 V or more	transient	Output limitation: Approximately 50% of normal condition Speed limitation (Accelerator limitation: 50%) EGR stop Intake throttle 100% open Engine forcibly stopped 60 sec later	To minimize PM emission to DPF	ON	- Insufficient output - Worsening exhaust gas emissions - Engine running noise increases - White smoke increases - Engine stops	Key switch turn OFF	—
Injector charge voltage: High	P0200	523535	0	proprietary	Injector charge voltage: High	- Battery voltage is normal - CPU is normal	Injector charge voltage: High	10 sec or more	Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open Engine forcibly stopped 60 sec later		ON	- Insufficient output - Worsening exhaust gas emissions - Engine stops	Key switch turn OFF	—

Open circuit of harness or coil in 1st cylinder injector	P0201	651	3	Engine Injector Cylinder #01	Open circuit of harness Open circuit of injector coil	- Engine is operating - Battery voltage is normal - During injection - CPU is normal	Open circuit of harness or Open circuit of injector coil	8 times or more	Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open	To minimize PM emission to DPF Injectors which have no error are operated	ON	- Insufficient output - Engine vibration increases - Worsening exhaust gas emissions	Key switch turn OFF	—
Open circuit of harness or coil in 3rd cylinder injector	P0202	653	3	Engine Injector Cylinder #03	Open circuit of harness Open circuit of injector coil	- Engine is operating - Battery voltage is normal - During injection - CPU is normal	Open circuit of harness or Open circuit of injector coil	8 times or more	Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open	To minimize PM emission to DPF Injectors which have no error are operated	ON	- Insufficient output - Engine vibration increases - Worsening exhaust gas emissions	Key switch turn OFF	—
Open circuit of harness or coil in 4th cylinder injector	P0203	654	3	Engine Injector Cylinder #04	Open circuit of harness Open circuit of injector coil	- Engine is operating - Battery voltage is normal - During injection - CPU is normal	Open circuit of harness or Open circuit of injector coil	8 times or more	Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open	To minimize PM emission to DPF Injectors which have no error are operated	ON	- Insufficient output - Engine vibration increases - Worsening exhaust gas emissions	Key switch turn OFF	—
Open circuit of harness or coil in 2nd cylinder injector	P0204	652	3	Engine Injector Cylinder #02	Open circuit of harness Open circuit of injector coil	- Engine is operating - Battery voltage is normal - During injection - CPU is normal	Open circuit of harness or Open circuit of injector coil	8 times or more	Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open	To minimize PM emission to DPF Injectors which have no error are operated	ON	- Insufficient output - Engine vibration increases - Worsening exhaust gas emissions	Key switch turn OFF	—
Engine overheat	P0217	110	0	Engine Coolant Temperature	Overheat of engine coolant temperature	- Coolant temperature sensor is normal	Engine coolant temperature is 120 degC (248 degF) or more	5 sec or more	Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open		ON	- Insufficient output - Overheat	Diagnostic counter = zero	30 sec
Engine overrun	P0219	190	0	Engine Speed	Engine speed exceeds threshold speed	- Key switch is ON	Engine speed is 3500 rpm or more	3 revolutions or more	Stop injection (Q = 0 mm3/st)		ON	- Overrun	Diagnostic counter = zero	Immediately
Boost pressure sensor: Low	P0237	102	4	Engine Intake Manifold #1 Pressure	Ground short circuit of sensor or harness Failure of sensor	- Battery voltage is normal - Sensor supply voltage VCC# is normal	Voltage of boost pressure sensor is 0.2 V or less	2.8 sec or more	65 kPa (0.663 kgf/cm2, 9.43 psi) [default value]	Default value is set in consideration with high altitude usage	ON	- Insufficient output	Key switch turn OFF	—
Boost pressure sensor: High	P0238	102	3	Engine Intake Manifold #1 Pressure	Open circuit or +B short circuit of sensor or harness Failure of sensor	- Battery voltage is normal - Sensor supply voltage VCC# is normal	Voltage of boost pressure sensor is 4.9 V or more	2.8 sec or more	65 kPa (0.663 kgf/cm2, 9.43 psi) [default value]	Default value is set in consideration with high altitude usage	ON	- Insufficient output	Key switch turn OFF	—
No input of NE sensor (Crank position sensor) pulse	P0335	636	8	Engine Position Sensor	Open circuit or short circuit of sensor or harness Failure of sensor	- Battery voltage is normal - Sensor supply voltage VCC# is normal - Engine is not stalled	No recognition of Ne sensor pulse	10 times or more	Output limitation: Approximately 75% of normal condition		ON	(Running only with G signal) - Faulty starting - Engine Vibration increases slightly - Insufficient output	Diagnostic counter = zero	Delay time varies with engine speed in proportional relation 30 sec at 800 rpm 15 sec at 1600 rpm
NE sensor (Crank position sensor) pulse number error	P0336	636	2	Engine Position Sensor	Open circuit or short circuit of sensor or harness Failure of sensor	- Battery voltage is normal - Sensor supply voltage VCC# is normal - Engine speed is 350 rpm or more	Pulse count per rotation is not 56 teeth	10 times or more	Output limitation: Approximately 75% of normal condition		ON	(Running only with G signal) - Faulty starting - Engine Vibration increases slightly - Insufficient output	Diagnostic counter = zero	Delay time varies with engine speed in proportional relation 30 sec at 800 rpm 15 sec at 1600 rpm
No input of G sensor (Camshaft position sensor) pulse	P0340	723	8	Engine Speed 2	Open circuit or short circuit of sensor or harness Failure of sensor	- Battery voltage is normal - Sensor supply voltage VCC# is normal - Engine is not stalled	No recognition of G sensor pulse	10 times or more	None		ON	(Invalid G signal) - Engine hesitates at start-up	Diagnostic counter = zero	Delay time varies with engine speed in proportional relation 30 sec at 800 rpm 15 sec at 1600 rpm

G-sensor (Camshaft position sensor) pulse number error	P0341	723	2	Engine Speed 2	Open circuit or short circuit of sensor or harness Failure of sensor	- Battery voltage is normal - Sensor supply voltage VCC# is normal - Engine speed is 350 rpm or more	Pulse count per rotation is not 5 teeth	10 times or more	None				ON	(Invalid G signal) - Engine hesitates at start-up	Diagnostic counter = zero	Delay time varies with engine speed in proportional relation 30 sec at 800 rpm 15 sec at 1600 rpm
+B short of air heater relay driving circuit	P0380	523544	3	proprietary	+B short of air heater relay driving circuit	- Battery voltage is normal - During air heater relay drive command is activated	+B short circuit of harness	one sec or more	None				ON	(At low temperature) - Faulty starting - White smoke increases	Key switch turn OFF	—
Ground short of air heater relay driving circuit	P0380	523544	4	proprietary	Ground short or open circuit of air heater relay driving circuit	- Battery voltage is normal - Other than during air heater relay drive command is activated	Ground short or open circuit of harness	one sec or more	None				ON	(At low temperature) - Faulty starting - White smoke increases	Key switch turn OFF	—
Oil pressure error	P0524	100	1	Engine Oil Pressure	Oil pressure switch	- Battery voltage is normal - Key switch turn ON - Starter switch signal (ECU: V12 terminal) is not activated - 10 sec or more after engine start [700 rpm or more]	Oil pressure switch ON: continues one sec or more	transient	None				ON	- Engine stops	Key switch turn OFF	—
Battery voltage: Low	P0562	168	4	Battery Potential / Power Input 1	Open circuit, short circuit or damage of harness Failure of battery	- Key switch is ON - Starter switch signal (ECU: V12 terminal) is not activated	ECU recognition of battery voltage is 8 V or less Not monitored during cranking	one sec or more	Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open				ON	- Faulty starting - Insufficient output - Worsening exhaust gas emissions - Engine stops in some cases	Diagnostic counter = zero	30 sec
Battery voltage: High	P0563	168	3	Battery Potential / Power Input 1	Open circuit, short circuit or damage of harness Failure of battery	- Key switch is ON - Starter switch signal (ECU: V12 terminal) is not activated	ECU recognition of battery voltage is 16 V or more	one sec or more	Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open				ON	- Faulty starting - Insufficient output - Worsening exhaust gas emissions	Key switch turn OFF	—
QR data error	P0602	523538	2	proprietary	QR data read error	- Key switch is ON	QR data read error from EEPROM	transient	Nozzle correction is not executed Output limitation: Approximately 75% of normal condition	To cover each injector dispersion			ON	- Insufficient output	Key switch turn OFF	—
No QR data	P0602	523538	7	proprietary	QR data is unwritten	- Key switch is ON	Area of QR data on EEPROM is vacant	transient	Nozzle correction factor = 0 [default value] Output limitation: Approximately 75% of normal condition				ON	- Insufficient output	Key switch turn OFF	—
ECU FLASH ROM error	P0605	628	2	Program Memory	FLASH ROM error	- Key switch is ON	Check-sum error	one time or more	Engine stops without delay				ON	- Engine stops	Key switch turn OFF	—
ECU CPU (Main IC) error	P0606	1077	2	Engine Fuel Injection Pump Controller	Failure of CPU	- Key switch is ON - Battery voltage is 10 V or more - Starter switch signal (ECU: V12 terminal) is not activated	CPU fatal error	one time or more	Engine stop				ON	- Engine stops	Key switch turn OFF	—
ECU CPU (Monitoring IC) error	P0606	523527	2	proprietary	Failure of monitoring IC of CPU	- Key switch is ON - Battery voltage is 10 V or more - Starter switch signal (ECU: V12 terminal) is not activated	Failure of monitoring IC of CPU	one time or more	Engine stop				ON	- Engine stops	Key switch turn OFF	—
Injector charge voltage: Low	P0611	523525	1	proprietary	Injector charge voltage: Low Failure of charge circuit of ECU	- Battery voltage is normal - CPU is normal	Injector charge voltage: Low Failure of charge circuit of ECU	transient	Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open	To minimize PM emission to DPF			ON	- Insufficient output - Worsening exhaust gas emissions - Engine stops in some cases	Key switch turn OFF	—

SCV drive system error	P0628	1347	4	Engine Fuel Pump Pressurizing Assembly #1	Open circuit or ground short circuit of SCV	- Battery voltage is normal - Key switch is ON - Starter switch signal (ECU: V12 terminal) is not activated	Open circuit or ground short of SCV	2.6 sec or more	Output limitation: Approximately 50% of normal condition Speed limitation (Accelerator limitation: 50%) EGR stop Intake throttle 100% open Engine forcibly stopped 60 sec later		ON	- Insufficient output - Worsening exhaust gas emissions	Key switch turn OFF	—
+B short circuit of SCV	P0629	1347	3	Engine Fuel Pump Pressurizing Assembly #1	+B short circuit of SCV	- Battery voltage is normal - Key switch is ON - Starter switch signal (ECU: V12 terminal) is not activated	+B short circuit of SCV	2.6 sec or more	Output limitation: Approximately 50% of normal condition Speed limitation (Accelerator limitation: 50%) EGR stop Intake throttle 100% open Engine forcibly stopped 60 sec later	Engine speed may go down due to low fuel pressure regardless limp home de-rating Engine may stop automatically before stopped forcibly by ECU	ON	- Insufficient output - Worsening exhaust gas emissions	Key switch turn OFF	—
Sensor supply voltage 1: Low	P0642	3509	4	Sensor supply voltage 1	Sensor supply voltage 1 error or recognition error	- Battery voltage is normal - Key switch turn ON - Starter Switch signal (ECU: V12 terminal) is not activated	Voltage to sensor is 4.375 V or less	transient	Output limitation: Approximately 50% of normal condition Speed limitation (Accelerator limitation: 50%) EGR stop Intake throttle 100% open	Emission related	ON	- Faulty starting - Insufficient output - Worsening exhaust gas emissions - Engine stops in some cases	Key switch turn OFF	—
Sensor supply voltage 1: High	P0643	3509	3	Sensor supply voltage 1	Sensor supply voltage 1 error or recognition error	- Battery voltage is normal - Key switch turn ON - Starter switch signal (ECU: V12 terminal) is not activated	Voltage to sensor is 5.625 V or more	transient	Output limitation: Approximately 50% of normal condition Speed limitation (Accelerator limitation: 50%) EGR stop Intake throttle 100% open	Emission related	ON	- Faulty starting - Insufficient output - Worsening exhaust gas emissions - Engine stops in some cases	Key switch turn OFF	—
Sensor supply voltage 2: Low	P0652	3510	4	Sensor supply voltage 2	Sensor supply voltage 2 error or recognition error	- Battery voltage is normal - Key switch turn ON - Starter switch signal (ECU: V12 terminal) is not activated	Voltage to sensor is 4.375 V or less	transient	Output limitation: Approximately 75% of normal condition	Emission related	ON	- Faulty starting - Insufficient output - Worsening exhaust gas emissions	Key switch turn OFF	—
Sensor supply voltage 2: High	P0653	3510	3	Sensor supply voltage 2	Sensor supply voltage 2 error or recognition error	- Battery voltage is normal - Key switch turn ON - Starter switch signal (ECU: V12 terminal) is not activated	Voltage to sensor is 5.625 V or more	transient	Output limitation: Approximately 75% of normal condition	Emission related	ON	- Faulty starting - Insufficient output - Worsening exhaust gas emissions	Key switch turn OFF	—
Main relay is locked in closed position	P0687	1485	2	ECM Main Relay	Failure of main relay	- Key switch turn OFF - Engine stops	Main relay stays active longer than 1 sec without command	2 times or more	None		ON	- Battery goes dead	Diagnostic counter = zero	5.3 sec
Pump seizing 1	P1274	523539	2	proprietary	High pressure 1 error	- Sensor supply voltage VCC# is normal - Rail pressure sensor is normal	(Approximate parameter) Rail pressure of 230 MPa (2350 kgf/cm2, 33400 psi) or more continues 1 sec under the condition of 800 rpm or more Rail pressure of 220 MPa (2250 kgf/cm2, 31900 psi) or more continues 1 sec under the condition of less than 800 rpm [Threshold changes depending on the engine speed. 700 rpm should be used as a reference]	one time or more	Output limitation: Approximately 50% of normal condition Speed limitation (Accelerator limitation:50%) EGR stop Intake throttle 100% open	To minimize PM emission to DPF To avoid extremely high pressure in injection system	ON	- Insufficient output - Worsening exhaust gas emissions	Key switch turn OFF	—

Pump seizing 2	P1275	523540	2	proprietary	High pressure 2 error	- Sensor supply voltage VCC# is normal - Rail pressure sensor is normal	(Approximate parameter) Rail pressure of more than 197 MPa (2010 kgf/cm2, 28600 psi), and less than 230 MPa (2350 kgf/cm2, 33400 psi) continues total time for 35 seconds under condition of 800 rpm or more [Threshold changes depending on the engine speed. 2000 rpm should be used as a reference] Or, rail pressure of more than 220 MPa (2250 kgf/cm2, 31900 psi) continues total time for 1.7 second under condition of less than 800 rpm [Threshold changes depending on the engine speed. 700 rpm should be used as a reference]	one time or more	Output limitation: Approximately 50% of normal condition Speed limitation (Accelerator limitation: 50%) EGR stop Intake throttle 100% open	To minimize PM emission to DPF To avoid extremely high pressure in injection system		ON	- Insufficient output - Worsening exhaust gas emissions	Key switch turn OFF	—
Accelerator position sensor 1: Low	P2122	91	4	Accelerator Pedal Position 1	Ground short circuit or open circuit of sensor or harness	- Battery voltage is normal - Sensor supply voltage VCC2 is normal	Voltage of accelerator position sensor 1 is 0.3 V or less	transient	Forced Idle (Accelerator = 0%)			ON	- Insufficient output	Diagnostic counter = zero	3 sec
Accelerator position sensor 1: High	P2123	91	3	Accelerator Pedal Position 1	+B short circuit of sensor or harness	- Battery voltage is normal - Sensor supply voltage VCC2 is normal	Voltage of accelerator position sensor 1 is 4.8 V or more	transient	Forced Idle (Accelerator = 0%)			ON	- Insufficient output	Diagnostic counter = zero	3 sec
Accelerator position sensor 2: Low	P2127	29	4	Accelerator Pedal Position 2	Ground short circuit or open circuit of sensor or harness	- Battery voltage is normal - Sensor supply voltage VCC1 is normal	Voltage of accelerator position sensor 2 is 0.3 V or less	transient	Forced Idle (Accelerator = 0%)			ON	- Insufficient output	Diagnostic counter = zero	3 sec
Accelerator position sensor 2: High	P2128	29	3	Accelerator Pedal Position 2	+B short circuit of sensor or harness	- Battery voltage is normal - Sensor supply voltage VCC1 is normal	Voltage of accelerator position sensor 2 is 4.8 V or more	transient	Forced Idle (Accelerator = 0%)			ON	- Insufficient output	Diagnostic counter = zero	3 sec
Accelerator position sensor error (CAN)	P2131	523543	2	proprietary	Accelerator position sensor signal error (sensor or harness open circuit, ground short circuit etc.)	- Battery voltage is normal - Key switch turn ON - Starter switch signal (ECU: V12 terminal) is not activated	Accelerator position sensor error signal received by CAN	transient	Not applicable			ON	- Insufficient output	Diagnostic counter = zero (CAN signal recovers)	Immediately
Injector drive circuit open in No.1 & 4 cylinder simultaneously	P2146	523523	2	proprietary	Wiring harness open circuit	- Engine is operating - Battery voltage is normal - During injection - CPU is normal	Wiring harness open circuit	8 times or more	Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open	To minimize PM emission to DPF Injectors which have no error are operated		ON	- Insufficient output - Engine vibration increases - Worsening exhaust gas emissions - Engine stops in some cases	Key switch turn OFF	—
No. 1 & 4 cylinder injector short to ground at power supply side, or all cylinder injector short to ground	P2147	523523	4	proprietary	Wiring harness short to ground	- Engine is operating - Battery voltage is normal	Wiring harness short to ground	8 times or more	Injectors which have error stop injection Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open	To minimize PM emission to DPF Injectors which have no error are operated		ON	- Insufficient output - Engine vibration increases - Worsening exhaust gas emissions - Engine stops in some cases	Key switch turn OFF	—
No. 1 & 4 cylinder injector short to +B at power supply side, or all cylinder injector short to +B	P2148	523523	3	proprietary	Wiring harness short to +B	- Engine is operating - Battery voltage is normal	Wiring harness short to +B	8 times or more	Injectors which have error stop injection Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open	To minimize PM emission to DPF Injectors which have no error are operated		ON	- Insufficient output - Engine vibration increases - Worsening exhaust gas emissions - Engine stops in some cases	Key switch turn OFF	—
Injector drive circuit open in No.2 & 3 cylinder simultaneously	P2149	523524	2	proprietary	Wiring harness open circuit	- Engine is operating - Battery voltage is normal - During injection - CPU is normal	Wiring harness open circuit	8 times or more	Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open	To minimize PM emission to DPF Injectors which have no error are operated		ON	- Insufficient output - Engine vibration increases - Worsening exhaust gas emissions - Engine stops in some cases	Key switch turn OFF	—

No. 2 & 3cylinder injector short to ground at power supply side, or all cylinder injector short to ground	P2150	523524	4	proprietary	Wiring harness short to ground	- Engine is operating - Battery voltage is normal	Wiring harness short to ground	8 times or more	Injectors which have error stop injection Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open	To minimize PM emission to DPF Injectors which have no error are operated	ON	- Insufficient output - Engine vibration increases - Worsening exhaust gas emissions - Engine stops in some cases	Key switch turn OFF	—
No. 2 & 3cylinder injector short to +B at power supply side, or all cylinder injector short to +B	P2151	523524	3	proprietary	Wiring harness short to +B	- Engine is operating - Battery voltage is normal	Wiring harness short to +B	8 times or more	Injectors which have error stop injection Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open	To minimize PM emission to DPF Injectors which have no error are operated	ON	- Insufficient output - Engine vibration increases - Worsening exhaust gas emissions - Engine stops in some cases	Key switch turn OFF	—
Barometric pressure sensor error (Low side)	P2228	108	4	Barometric Pressure	Sensor or ECU internal circuit short to ground	- Battery voltage is normal	Barometric pressure sensor voltage: 1.6 V or less	2.8 sec or more	65 kPa (0.663 kgf/cm2, 9.43 psi) [default value]	Default value is set in consideration with high altitude usage	ON	- Insufficient output	Diagnostic counter = zero	Immediately
Barometric pressure sensor error (High side)	P2229	108	3	Barometric Pressure	Sensor or ECU internal circuit short to +B	- Battery voltage is normal	Barometric pressure sensor voltage: 4.4 V or more	2.8 sec or more	65 kPa (0.663 kgf/cm2, 9.43 psi) [default value]	Default value is set in consideration with high altitude usage	ON	- Insufficient output	Diagnostic counter = zero	Immediately
CAN1 Bus off	U0077	523604	2	proprietary	CAN1 +B or GND short circuit or high traffic error	- Battery voltage is normal - Key switch is ON	CAN1 Bus off	2 sec or more	Output limitation: Approximately 75% of normal condition EGR stop		ON	- Insufficient output - Transmitted CAN data are invalid	Key switch turn OFF	—
CAN2 Bus off	U0075	523547	2	proprietary	CAN2 +B or GND short circuit or high traffic error	- Battery voltage is normal - Key switch is ON	CAN2 Bus off	2 sec or more	Forced Idle (Accelerator = 0%)		ON	- Insufficient output - Transmitted CAN data are invalid	Key switch turn OFF	—
CAN-KBT Frame error	U0081	523548	2	proprietary	CAN-KBT original frame open circuit error	- Battery voltage is normal - Key switch turn OFF to ON - Starter switch signal (ECU: V12 terminal) is not activated - NO error of "CAN2 Bus off"	CAN2 KBT Frame open circuit error	transient	Forced Idle (Accelerator = 0%)		ON	- Insufficient output	Key switch turn OFF	—

DTC Code LIST (After treatment related)

Intake air temp. built-in MAF sensor: Low	P0072	171	4	Ambient Air Temperature	Ground short circuit of sensor or harness	- Battery voltage is normal	Intake air temp. built-in MAF sensor voltage: 0.1 V or less	2.8 sec or more	25 degC (77 degF) [default value]		ON	-	Diagnostic counter = zero	Immediately
Intake air temp. built-in MAF sensor: High	P0073	171	3	Ambient Air Temperature	Open circuit or +B short circuit of sensor or harness	- Battery voltage is normal	Intake air temp. built-in MAF sensor voltage: 4.9 V or more	2.8 sec or more	25 degC (77 degF) [default value]		ON	-	Diagnostic counter = zero	Immediately
Intake air volume: Low	P0101	132	1	Engine Inlet Air Mass Flow Rate	Engine inlet air mass flow rate lacking (Disconnect turbo blower intake hose)	- Engine is operating 1000 rpm or more - Coolant temp. is 15 degC (59 degF) or more (Coolant temp. sensor is normal) - MAF sensor is normal - EGR valve is normal - Intake throttle valve is normal - Battery voltage is normal	Engine Inlet Air Mass Flow Rate: less than half of target value	10.0 sec or more	Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open		ON	- Insufficient output	Key switch turn OFF	—
MAF sensor: Low	P0102	132	4	Engine Inlet Air Mass Flow Rate	Open circuit or ground short circuit of sensor or harness	- Battery voltage is normal - Starter switch signal (ECU: V12 terminal) is not activated - Sensor supply voltage is normal	Mass air flow sensor voltage: 0.1 V or less	2.8 sec or more	Sensor output: 0.7 times of target value at normal condition [default value] Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open	Engine is not stopped forcibly by ECU However KUBOTA strongly recommends operator to stop engine as soon as possible	ON	- Insufficient output - Worsening exhaust gas emissions	Key switch turn OFF	—
MAF sensor: High	P0103	132	3	Engine Inlet Air Mass Flow Rate	+B short circuit of sensor or harness	- Battery voltage is normal - Engine speed is between 700 rpm and 2800 rpm - Target intake mass air flow is 460 or less and it continues for 3 sec - Sensor supply voltage is normal	Mass air flow sensor voltage: 4.9 V or more at normal operation condition	2.8 sec or more	Sensor output: 0.7 times of target value at normal condition [default value] Output limitation: Approximately 75% of normal condition EGR stop Intake throttle 100% open	Engine is not stopped forcibly by ECU However KUBOTA strongly recommends operator to stop engine as soon as possible	ON	- Insufficient output - Worsening exhaust gas emissions	Key switch turn OFF	—

Intake air temp: High Intercooler model only	P0111	172	0	Air Inlet Temperature	Intake air temp too high	- Battery voltage is normal - Key switch is ON	Intake air temp, more than amb. temp +60 degC	10 sec or more	Output limitation: Approximately 75% of normal condition	Intercooler model only	ON	-	Key switch turn OFF	—	
Fuel high temp.	P0181	174	0	Fuel Temperature	Fuel temp high	- Passed 300 sec after cranking - Engine speed is 800 rpm or more - Fuel temp. sensor is normal	Fuel temp more than 90 degC	10 sec or more	Output limitation: Approximately 75% of normal condition		ON	-	Diagnostic counter = zero	30 sec	
EGR actuator open circuit	P0403	523574	3	proprietary	EGR actuator open circuit	- Battery voltage is normal - NO DTC of U0077 "CAN1 Bus off" - EGR control line is normal	EGR actuator open error signal received via CAN	2.8 sec or more	Output limitation: Approximately 75% of normal condition EGR stop		ON	-	- Insufficient output - Worsening exhaust gas emissions	Key switch turn OFF	—
EGR actuator coil short	P0404	523574	4	proprietary	EGR actuator coil short	- Battery voltage is normal - NO DTC of U0077 "CAN1 Bus off" - EGR control line is normal	EGR actuator coil short error signal received via CAN	2.8 sec or more	Output limitation: Approximately 75% of normal condition EGR stop		ON	-	- Insufficient output - Worsening exhaust gas emissions	Key switch turn OFF	—
EGR position sensor failure	P0409	523572	4	proprietary	EGR position sensor failure	- Battery voltage is normal - NO DTC of U0077 "CAN1 Bus off" - EGR control line is normal	EGR position sensor error signal received via CAN	2.8 sec or more	Output limitation: Approximately 75% of normal condition EGR stop		ON	-	- Insufficient output - Worsening exhaust gas emissions	Key switch turn OFF	—
Exhaust gas temperature sensor 1: Low	P0543	3242	4	After treatment 1 Diesel Particulate Filter Intake Gas Temperature	Ground short circuit of sensor or harness	- Battery voltage is normal	DPF inlet temp. sensor (T1) voltage: 0.08 V or less	5 sec or more	0 degC (32 degC) [default value] Output limitation: Approximately 75% of normal condition		ON	-	Key switch turn OFF	—	
Exhaust gas temperature sensor 1: High	P0544	3242	3	After treatment 1 Diesel Particulate Filter Intake Gas Temperature	Open circuit or +B short circuit of sensor or harness	- Battery voltage is normal - Coolant temp. is 65 degC (149 degF) or more continues longer than 10 min after engine starting - T0 is between 100 degC (212 degF) and 800 degC (1472 degF): continues longer than 10 sec or - T2 is between 100 degC (212 degF) and 800 degC (1472 degF): continues longer than 10 sec	DPF inlet temp. sensor (T1) voltage: 4.92 V or more	120 sec or more	0 degC (32 degF) [default value] Output limitation: Approximately 75% of normal condition		ON	-	Key switch turn OFF	—	
Exhaust gas temperature sensor 0: Low	P0546	4765	4	After treatment 1 Diesel Oxidation Catalyst Intake Gas Temperature	Ground short circuit of sensor or harness	- Battery voltage is normal	DOC inlet temp. sensor (T0) voltage: 0.08 V or less	5 sec or more	0 degC (32 degF) [default value] Output limitation: Approximately 75% of normal condition		ON	-	Key switch turn OFF	—	
Exhaust gas temperature sensor 0: High	P0547	4765	3	After treatment 1 Diesel Oxidation Catalyst Intake Gas Temperature	Open circuit or +B short circuit of sensor or harness	- Battery voltage is normal - Coolant temp. is 65 degC (149 degF) or more continues longer than 5 min after engine starting - T1 is between 100 degC (212 degF) and 800 degC (1472 degF): continues longer than 10 sec or - T2 is between 100 degC (212 degF) and 800 degC (1472 degF): continues longer than 10 sec	DOC inlet temp. sensor (T0) voltage: 4.92 V or more	120 sec or more	0 degC (32 degF) [default value] Output limitation: Approximately 75% of normal condition		ON	-	Key switch turn OFF	—	
EEPROM check sum error	P1990	523700	13	proprietary	KBT-EEPROM check sum error	- Battery voltage is normal	EEPROM check sum error	transient	None		ON	-	Key switch turn OFF	—	
Intake throttle feedback error	P2108	523580	2	proprietary	Intake throttle feedback error	- Battery voltage is normal	(Approximate parameter) Deviation of throttle position is not corrected in 20 times of duty error recovery action	5 sec or more	Output limitation: Approximately 75% of normal condition Intake throttle 100% open		ON	-	Key switch turn OFF	—	
Accelerator position sensor correlation error	P2135	91	2	Accel Pedal Sensor 1	Deviation from designed correlation in two sensors	- Battery voltage is normal - Accelerator position sensor 1 is normal - Accelerator position sensor 2 is normal	Deviation from designed correlation in two sensors	transient	Forced Idle (Accelerator = 0%)		ON	-	- Insufficient output	Diagnostic counter = zero	3 sec
EGR actuator valve stuck	P2413	523575	7	proprietary	EGR actuator valve stuck	- Battery voltage is normal - NO DTC of U0077 "CAN1 Bus off" - EGR control line is normal	EGR actuator valve stuck error signal received via CAN	2.8 sec or more	Output limitation: Approximately 75% of normal condition EGR stop		ON	-	- Insufficient output - Worsening exhaust gas emissions	Key switch turn OFF	—

EGR (DC motor) overheat	P2414	523576	2	proprietary	EGR (DC motor) overheat	- Battery voltage is normal - NO DTC of U0077 "CAN1 Bus off" - EGR control line is normal	EGR (DC motor) temp. error signal (thermistor: 125 degC or more) received via CAN	2.8 sec or more	Output limitation: Approximately 75% of normal condition EGR stop		ON	- Insufficient output - Worsening exhaust gas emissions	Key switch turn OFF	—
EGR (DC motor) temp. sensor failure	P2415	523577	2	proprietary	EGR (DC motor) temp. sensor failure	- Battery voltage is normal - NO DTC of U0077 "CAN1 Bus off" - EGR control line is normal	EGR (DC motor) temp. sensor error signal received via CAN	2.8 sec or more	Output limitation: Approximately 75% of normal condition EGR stop		ON	- Insufficient output - Worsening exhaust gas emissions	Key switch turn OFF	—
Exhaust gas temperature sensor 2: Low	P242C	3246	4	After treatment 1 Diesel Particulate Filter Outlet Gas Temperature	Ground short circuit of sensor or harness	- Battery voltage is normal	DPF outlet temp. sensor (T2) voltage: 0.08 V or less	5 sec or more	0 degC (32 degC) [default value] Output limitation: Approximately 75% of normal condition		ON	-	Key switch turn OFF	—
Exhaust gas temperature sensor 2: High	P242D	3246	3	After treatment 1 Diesel Particulate Filter Outlet Gas Temperature	Open circuit or +B short circuit of sensor or harness	- Battery voltage is normal - Coolant temp. is 65 degC (149 degF) or more: continues longer than 10 min after engine starting - T0 is between 100 degC (212 degF) and 800 degC (1472 degF): continues longer than 10 sec or - T1 is between 100 degC (212 degF) and 800 degC (1472 degF): continues longer than 10 sec	DPF outlet temp. sensor (T2) voltage: 4.92 V or more	120 sec or more	0 degC (32 degF) [default value] Output limitation: Approximately 75% of normal condition		ON	-	Key switch turn OFF	—
Differential pressure sensor 1: Low	P2454	3251	4	After treatment 1 Diesel Particulate Filter Differential Pressure	Ground short circuit of sensor or harness	- Battery voltage is normal - Sensor supply voltage VCC# is normal - Starter switch signal (ECU: V12 terminal) is not activated	DPF differential pressure sensor voltage: 0.21 V or less	2.8 sec or more	0 kPa (0.0 kgf/cm2, 0.0 psi) [default value] Output limitation: Approximately 75% of normal condition		ON	-	Key switch turn OFF	—
Differential pressure sensor 1: High	P2455	3251	3	After treatment 1 Diesel Particulate Filter Differential Pressure	Open circuit or +B short circuit of sensor or harness	- Battery voltage is normal - Sensor supply voltage VCC# is normal - Starter switch signal (ECU: V12 terminal) is not activated	DPF differential pressure sensor voltage: 4.7 V or more	2.8 sec or more	0 kPa (0.0 kgf/cm2, 0.0 psi) [default value] Output limitation: Approximately 75% of normal condition		ON	-	Key switch turn OFF	—
Intake throttle lift sensor: Low	P2621	523582	4	proprietary	Intake throttle lift sensor: Low	- Battery voltage is normal - Sensor supply voltage VCC# is normal	Intake throttle lift sensor voltage: 0.1 V or less	2.8 sec or more	Output limitation: Approximately 75% of normal condition Intake throttle 100% open		ON	-	Key switch turn OFF	—
Intake throttle lift sensor: High	P2622	523582	3	proprietary	Intake throttle lift sensor: High	- Battery voltage is normal - Sensor supply voltage VCC# is normal	Intake throttle lift sensor voltage: 4.89 V or more	2.8 sec or more	Output limitation: Approximately 75% of normal condition Intake throttle 100% open		ON	-	Key switch turn OFF	—
Emission deterioration	P3001	3252	0	After treatment 1 Exhaust Gas Temperature 2 Preliminary FMI	DOC is heated up due to unburned fuel	- Other than during regeneration mode - Coolant temp. is 65 degC (149 degF) or more continues longer than 5min after engine starting	T1 - T0 is 250 degC (482 degF) or more	60 sec or more	Output limitation: Approximately 50% of normal condition Speed limitation (Accelerator limitation: 50%) EGR stop Intake throttle 100% open	To minimize PM emission to DPF	ON	- Insufficient output	Key switch turn OFF	—
Emergency Exhaust gas temperature sensor 0: High	P3002	4765	0	After treatment 1 Exhaust Gas Temperature 1 Preliminary FMI	DOC inlet temp. (T0): High	- Exhaust gas temp. sensor T0, T1 and T2 are normal - Battery voltage is normal	DOC inlet temp. (T0): 700 degC (1292 degF) or more	2.0 sec or more	Stop injection (Q = 0 mm3/st) Engine stop Inhibit starter relay activation until exhaust temp. reduces down to 300 degC (572 degF)	In case engine ECU is not involved to drive starter, starter activation should be inhibited by other way until exhaust temp. reduces down to 300 degC (572 degF)	ON	- Engine stops - Inhibited cranking until down to 300 degC (572 degF)	Under 300 degC & Key switch turn OFF	—

Emergency Exhaust gas temperature sensor 1: High	P3003	3242	0	After treatment 1 Exhaust Gas Temperature 2 Preliminary FMI	DPF inlet temp. (T1): High	- Exhaust gas temp. sensor T0, T1 and T2 are normal - Battery voltage is normal	DPF inlet temp. (T1): 715 degC (1319 degF) or more	9.0 min or more	Stop injection (Q = 0 mm3/st) Engine stop Inhibit starter relay activation until exhaust temp. reduces down to 300 degC (572 degF)	In case engine ECU is not involved to drive starter, starter activation should be inhibited by other way until exhaust temp. reduces down to 300 degC (572 degF)	ON	- Engine stops - Inhibited cranking until down to 300 degC (572 degF)	Under 300 degC & Key switch turn OFF	—
Emergency Exhaust gas temperature sensor 2: High	P3004	3246	0	After treatment 1 Exhaust Gas Temperature 3 Preliminary FMI	DPF outlet temp. (T2): High	- Exhaust gas temp. sensor T0, T1 and T2 are normal - Battery voltage is normal	DPF outlet temp. (T2): 820 degC (1508 degF) or more	2.0 sec or more	Stop injection (Q = 0 mm3/st) Engine stop EGR stop Intake throttle 0% open (Close) Inhibit starter relay activation until exhaust temp. reduces down to 300 degC (572 degF)	In case engine ECU is not involved to drive starter, starter activation should be inhibited by other way until exhaust temp. reduces down to 300 degC (572 degF)	ON	- Engine stops - Inhibited cranking until down to 300 degC (572 degF)	Under 300 degC & Key switch turn OFF	—
Excessive PM3	P3006	3701	15	Diesel Particulate Filter Status	PM accumulation level 3	- Battery voltage is normal	PM accumulation more than trigger level Regeneration level = 3	transient	Output limitation: Approximately 50% of normal condition	To minimize PM emission	ON	- Insufficient output	Diagnostic counter = zero	Immediately
Excessive PM4	P3007	3701	16	Diesel Particulate Filter Status	PM accumulation level 4	- Battery voltage is normal	PM accumulation more than trigger level Regeneration level = 4	transient	Output limitation: Approximately 50% of normal condition	To minimize PM emission	ON	- Insufficient output	Diagnostic counter = zero	Immediately
Excessive PM5	P3008	3701	0	Diesel Particulate Filter Status	PM accumulation level 5	- Battery voltage is normal	PM accumulation more than trigger level Regeneration level = 5	transient	Output limitation: Approximately 50% of normal condition	Engine is not stopped forcibly by ECU However KUBOTA strongly recommends operator to stop engine as soon as possible	ON	- Insufficient output	Key switch turn OFF (Reset by Service tool)	—
Boost pressure low	P3011	132	15	Engine Inlet Air Mass Flow Rate	Disconnect the hose between the turbo blower out and intake flange	- Other than during regeneration mode - Engine speed is 1600 rpm or more - Target intake air flow value is 950 mg/cyl or more - MAF sensor is normal - EGR valve is normal - Intake throttle valve is normal - Boost pressure sensor is normal - Barometric pressure sensor is normal - Coolant temp. sensor is normal	Boost pressure sensor output is less than target level in high air flow operating condition	10 sec or more	Output limitation: Approximately 50% of normal condition Speed limitation (Accelerator limitation:50%) EGR stop Intake throttle 100% open	Engine power is restricted by boost pressure signal accordingly To minimize PM emission to DPF	ON	- Insufficient output	Key switch turn OFF	—
Low coolant temp. in parked regeneration	P3012	523589	17	proprietary	During regeneration mode, Engine warm-up condition is not satisfied (coolant temp. is low)	- During parked active regeneration mode	Engine coolant temp. stays less than 65 degC (149 degF) for 1500 seconds or more under parked regeneration process	transient	None		ON	-	Diagnostic counter = zero (Leaving from Parked active regeneration status)	Immediately
Parked regeneration time out	P3013	523590	16	proprietary	Time out error: regeneration incomplete due to low temperature of DPF	- During parked active regeneration mode - Coolant temp. is 65 degC (149 degF) or more	Regeneration process is not completed within 2700 sec	transient	None		ON	-	Diagnostic counter = zero (Leaving from Parked active regeneration status)	Immediately
All exhaust temp. sensor failure	P3018	523599	0	proprietary	All exhaust temp. sensor failure simultaneously	- Engine speed is 1400 rpm or more - Quantity of injection is 30 mm3/st or more - Coolant temp. is 65 degC (149 degF) or more: continues longer than 300 sec - Intake air temp. is 0 degC (32 degF) or more - Passed 100 sec after cranking	All exhaust temp. sensor failure (sensor low) simultaneously	100 sec or more	Output limitation: Approximately 75% of normal condition		ON	-	Diagnostic counter = zero	Immediately

initial pump-calibration incomplete	P3019	523600	0	proprietary	Pump-calibration history	- Battery voltage is normal	Initial pump calibration incomplete	transient	None			ON	-	Diagnostic counter = zero	Immediately
High exhaust gas temp. after emergency high temp. DTC	P3023	523601	0	proprietary	Exhaust gas temperature sensor 0, 1, 2 output	- Battery voltage is normal	All exhaust temp. (T0, T1, T2) reduce to 300 degC (572 degF)	transient	Engine stop Inhibit starter relay activation until all exhaust temp. (T0, T1, T2) reduces down to 300 degC (572 degF)			ON	-	Diagnostic counter = zero	Immediately
High frequency of regeneration	P3024	523602	0	proprietary	Time interval from the end time to the start time of the regeneration	- Battery voltage is normal - Key switch is ON	Regeneration time interval within 30 min. occurs three times continuously	transient	Output limitation: Approximately 50% of normal condition EGR stop			ON	-	- Worsening exhaust gas emissions (NOx) Key switch turn OFF (Reset by Service tool)	—
Over heat pre-caution	P3025	523603	15	proprietary	Coolant temp.	- Coolant temp. sensor is normal	Engine coolant temperature is 110 degC (230 degF) or more	transient	None			ON	-	- Worsening exhaust gas emissions (NOx) Diagnostic counter = zero	Immediately
No communication with EGR	U0076	523578	2	proprietary	No communication with EGR	- Battery voltage is normal - Starter switch signal (ECU: V12 terminal) is not activated	Interruption of CAN	1.3 sec or more	Output limitation: Approximately 75% of normal condition EGR stop			ON	-	- Insufficient output - Worsening exhaust gas emissions Key switch turn OFF	—
CAN CCVS (Parking SW and Vehicle speed) frame error	U0082	523591	2	proprietary	CAN_CCVS communication stopping	- Battery voltage is normal - Starter switch signal (ECU: V12 terminal) is not activated	CAN CCVS frame time out error	0.5 sec or more	Parking SW = OFF, Vehicle speed = 0 [default value]			ON	-	Key switch turn OFF	—
CAN CM1 (Regen SW) frame error	U0083	523592	2	proprietary	CAN_CM1 communication stopping	- Battery voltage is normal - Starter switch signal (ECU: V12 terminal) is not activated	CAN CM1 frame time out error	2.0 sec or more	Regeneration inhibit = ON, Parked regeneration SW = OFF [default value]			ON	-	Key switch turn OFF	—
CAN DDC1 (Transmission) frame error	U0084	523593	2	proprietary	CAN_DDC1 communication stopping	- Battery voltage is normal - Starter switch signal (ECU: V12 terminal) is not activated	CAN DDC1 frame time out error	0.5 sec or more	Accelerator non-linear processing flag = 0 [default value] Accelerator non-linear processing invalid			ON	-	Key switch turn OFF	—
CAN ETC2 (Neutral SW) frame error	U0085	523594	2	proprietary	CAN_ETC2 communication stopping	- Battery voltage is normal - Starter switch signal (ECU: V12 terminal) is not activated	CAN ETC2 frame time out error	0.5 sec or more	Neutral SW = OFF [default value]			ON	-	Key switch turn OFF	—
CAN ETC5 (Neutral SW) frame error	U0086	523595	2	proprietary	CAN_ETC5 communication stopping	- Battery voltage is normal - Starter switch signal (ECU: V12 terminal) is not activated	CAN ETC5 frame time out error	0.5 sec or more	Neutral SW = OFF [default value]			ON	-	Key switch turn OFF	—
CAN TSC1 frame error	U0087	523596	2	proprietary	CAN_TSC1 communication stopping	- Battery voltage is normal - Starter switch signal (ECU: V12 terminal) is not activated	No request to "TSC1 buffer" continues 3 times after over-ride control request (other than 0x00)	60 msec or more	Override control mode = Normal mode [default value]			ON	-	Diagnostic counter = zero	Immediately
CAN EBC1 frame error	U0089	523598	2	proprietary	CAN_EBC1 communication stopping	- Battery voltage is normal - Starter switch signal (ECU: V12 terminal) is not activated	CAN EBC1 frame time out error	0.5 sec or more	Non shutdown [default value] Output limitation: Approximately 75% of normal condition			ON	-	Diagnostic counter = zero	Immediately

Note: If any DTC occurred, Automatic active regeneration is inhibited. In case, "Excessive PM3" and "Excessive PM4", "High frequency of regeneration", Parked active regeneration function is allowed.