

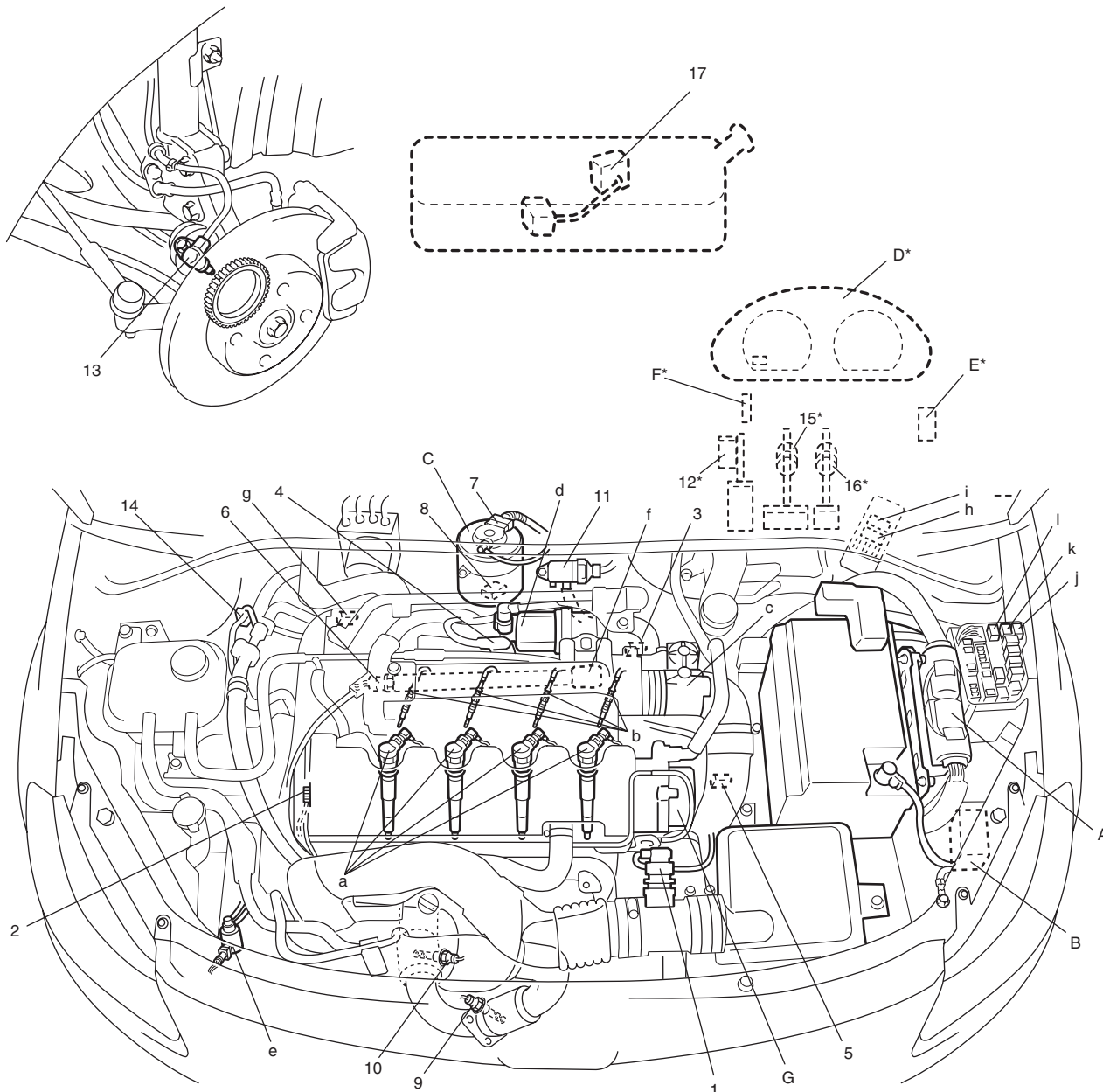
## Component Location

### Electronic Control System Components Location

S5RW0D1103001

**NOTE**

The figure shows LHD vehicle. For RHD vehicle, parts with (\*) are installed at the opposite side.



I5RW0D110009-01

Information sensors	Control devices	Others
1. MAF sensor with IAT sensor-1	a: Fuel injector	A: ECM
2. CMP sensor	b: Glow plug	B: Glow plug control module
3. CKP sensor	c: Inlet throttle valve	C: Fuel filter including fuel heater
4. Boost pressure sensor with IAT sensor-2	d: EGR valve	D: Combination meter
5. ECT sensor	e: Boost pressure control solenoid valve	E: DLC
6. Fuel pressure sensor	f: Fuel pressure regulator valve	F: ICM
7. Fuel temperature sensor	g: Fuel flow actuator	G: Vacuum pump
8. Fuel filter water detection sensor	h: Main relay	
9. Exhaust gas temperature sensor-1	i: Fuel pump relay	
10. Exhaust gas temperature sensor-2	j: Radiator cooling fan relay No.1	
11. Differential pressure sensor	k: Radiator cooling fan relay No.2	
12. APP sensor	l: Radiator cooling fan relay No.3	

Information sensors	Control devices	Others
13. Wheel speed sensor		
14. A/C refrigerant pressure sensor (A/C model)		
15. Brake light switch		
16. CPP switch		
17. Fuel level sensor		

## Diagnostic Information and Procedures

### MIL Check

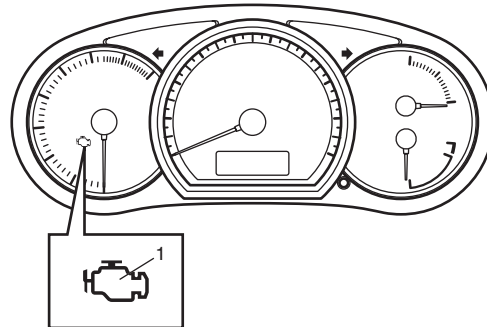
S5RW0D1104001

MIL (1) signals an antipollution system failure.

Check that it lights up for 4 seconds after the ignition switch is turned ON, and then it goes OFF (automatic test procedure).

If light remains ON after an automatic test procedure, go to "DTC Check".

After the ignition switch is turned ON, if light does not light up or remains ON, check that malfunction indicator lamp circuit.



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**Engine and Emission Control System Check**

S5RW0D1104004

Refer to the following items for the details of each step.

Step	Action	Yes	No
1	<p><b>☞ Customer complaint analysis</b></p> <p>1) Perform customer complaint analysis referring to “Step 1: Customer Complaint Analysis: ”.</p> <p><i>Was customer complaint analysis performed?</i></p>	Go to Step 2.	Perform customer complaint analysis.
2	<p><b>☞ Visual inspection</b></p> <p>1) Perform visual inspection referring to “Step 2: Visual Inspection: ”.</p> <p><i>Is there any faulty condition?</i></p>	Repair or replace malfunction part, and go to Step 3.	Go to Step 3.
3	<p><b>☞ DTC check, record and clearance</b></p> <p>1) Check for DTC referring to “Step 3: DTC Check, Record and Clearance: ”.</p> <p><i>Is there any DTC(s)?</i></p>	Record and clear DTC referring to “DTC Clearance” and go to Step 5.	Go to Step 4.
4	<p><b>☞ Engine basic inspection and engine symptom diagnosis</b></p> <p>1) Check and repair according to “Step 4: Engine Basic Inspection and Engine Symptom Diagnosis: ”.</p> <p><i>Is there any faulty condition?</i></p>	Repair or replace malfunction part and then go to Step 8.	Go to Step 8.
5	<p><b>☞ Recheck DTC</b></p> <p>1) Recheck DTC referring to “Step 5: Recheck DTC: ”.</p> <p><i>Is there any DTC(s)?</i></p>	Go to Step 6.	Go to Step 7.
6	<p><b>☞ Troubleshooting for DTC</b></p> <p>1) Check and repair according to applicable DTC diag. flow referring to “Step 6: Troubleshooting for DTC (See each DTC Diag. Flow): ”.</p> <p><i>Is there any faulty condition?</i></p>	Repair or replace malfunction part and then go to Step 8.	Go to Step 7.
7	<p><b>☞ Intermittent problems check</b></p> <p>1) Check for intermittent problems referring to “Step 7: Intermittent Problems Check: ”.</p> <p><i>Is there any faulty condition?</i></p>	Repair or replace malfunction part(s), and go to Step 8.	Go to Step 8.
8	<p><b>☞ Final confirmation test</b></p> <p>1) Clear DTC if any.</p> <p>2) Perform final confirmation test referring to “Step 8: Final Confirmation Test: ”.</p> <p><i>Is there any problem symptom, DTC or abnormal condition?</i></p>	Go to Step 5.	End.

**Step 1: Customer Complaint Analysis**

Record details of the problem (failure, complaint) and how it occurred as described by the customer. For this purpose, use of such an inspection form will facilitate collecting information to the point required for proper analysis and diagnosis.

**Customer problem inspection form (Example)**

User name:	Model:	VIN:	
Date of issue:	Date Reg.	Date of problem:	Mileage:

PROBLEM SYMPTOMS	
<input type="checkbox"/> <b>Difficult Starting</b> <input type="checkbox"/> No cranking <input type="checkbox"/> No initial combustion <input type="checkbox"/> No combustion <input type="checkbox"/> Poor starting at ( <input type="checkbox"/> cold <input type="checkbox"/> warm <input type="checkbox"/> always) <input type="checkbox"/> Other _____	<input type="checkbox"/> <b>Poor Driveability</b> <input type="checkbox"/> Hesitation on acceleration <input type="checkbox"/> Lack of power <input type="checkbox"/> Surging <input type="checkbox"/> abnormal knocking <input type="checkbox"/> Other _____
<input type="checkbox"/> <b>Poor Idling</b> <input type="checkbox"/> Poor fast idle <input type="checkbox"/> Abnormal idling speed ( <input type="checkbox"/> High <input type="checkbox"/> Low ) ( _____ r/min.) <input type="checkbox"/> Unstable <input type="checkbox"/> Hunting ( _____ r/min. to _____ r/min.) <input type="checkbox"/> Other _____	<input type="checkbox"/> <b>Engine Stall when</b> <input type="checkbox"/> Immediately after start <input type="checkbox"/> Accel. pedal is depressed <input type="checkbox"/> Accel. pedal is released <input type="checkbox"/> Load is applied <input type="checkbox"/> A/C <input type="checkbox"/> Electric load <input type="checkbox"/> P/S <input type="checkbox"/> Other _____ <input type="checkbox"/> Other _____
<input type="checkbox"/> OTHERS:	

VEHICLE/ENVIRONMENTAL CONDITION WHEN PROBLEM OCCURS	
Environmental Condition	
Weather	<input type="checkbox"/> Fair <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain <input type="checkbox"/> Snow <input type="checkbox"/> Always <input type="checkbox"/> Other _____
Temperature	<input type="checkbox"/> Hot <input type="checkbox"/> Warm <input type="checkbox"/> Cool <input type="checkbox"/> Cold ( _____ °F/ _____ °C) <input type="checkbox"/> Always
Frequency	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes ( _____ times/ _____ day, month) <input type="checkbox"/> Only once <input type="checkbox"/> Under certain condition
Road	<input type="checkbox"/> Urban <input type="checkbox"/> Suburb <input type="checkbox"/> Highway <input type="checkbox"/> Mountainous ( <input type="checkbox"/> Uphill <input type="checkbox"/> Downhill ) <input type="checkbox"/> Tarmacadam <input type="checkbox"/> Gravel <input type="checkbox"/> Other _____
Vehicle Condition	
Engine condition	<input type="checkbox"/> Cold <input type="checkbox"/> Warming up phase <input type="checkbox"/> Warmed up <input type="checkbox"/> Always <input type="checkbox"/> Other at starting <input type="checkbox"/> Immediately after start <input type="checkbox"/> Racing without load <input type="checkbox"/> Engine speed ( _____ r/min)
Vehicle condition	During driving: <input type="checkbox"/> Constant speed <input type="checkbox"/> Accelerating <input type="checkbox"/> Decelerating <input type="checkbox"/> Right hand corner <input type="checkbox"/> Left hand corner <input type="checkbox"/> When shifting (Lever position _____ ) <input type="checkbox"/> At stop <input type="checkbox"/> Vehicle speed when problem occurs ( _____ km/h, _____ Mile/h) <input type="checkbox"/> Other

Malfunction indicator lamp condition	<input type="checkbox"/> Always ON <input type="checkbox"/> Sometimes ON <input type="checkbox"/> Always OFF <input type="checkbox"/> Good condition
Diagnostic trouble code	First check: <input type="checkbox"/> No code <input type="checkbox"/> Malfunction code ( _____ )
	Second check: <input type="checkbox"/> No code <input type="checkbox"/> Malfunction code ( _____ )

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**NOTE**

The form is a standard sample. It should be modified according to conditions characteristic of each market.

**Step 2: Visual Inspection**

As a preliminary step, be sure to perform visual check of the items that support proper function of the engine referring to "Visual Inspection".

**Step 3: DTC Check, Record and Clearance**

First, check DTC, referring to "DTC Check". If DTC is indicated, record and clear DTC by referring to "DTC Clearance".

Attempt to diagnose a trouble based on DTC in this step only or failure to clear the DTC in this step will lead to incorrect diagnosis, trouble diagnosis of a normal circuit or difficulty in troubleshooting.

**Step 4: Engine Basic Inspection and Engine Symptom Diagnosis**

Perform basic engine check according to "Engine Basic Inspection" first. When the end of the flow table has been reached, check the parts of the system suspected as a possible cause referring to "Engine Symptom Diagnosis" and based on symptoms appearing on the vehicle (symptoms obtained through steps of customer complaint analysis, trouble symptom confirmation and/or basic engine check) and repair or replace faulty parts, if any.

**Step 5: Recheck DTC**

Refer to "DTC Check" for checking procedure.

**Step 6: Troubleshooting for DTC (See each DTC Diag. Flow)**

Based on the DTC indicated in Step 5 and referring to the applicable DTC diag. flow, locate the cause of the trouble, namely in a sensor, switch, wire harness, connector, actuator, ECM or other part and repair or replace faulty parts.

**Step 7: Intermittent Problems Check**

Check parts where an intermittent trouble is easy to occur (e.g., wire harness, connector, etc.), referring to "Intermittent and Poor Connection Inspection in Section 00 in related manual" and related circuit of DTC recorded in Step 2.

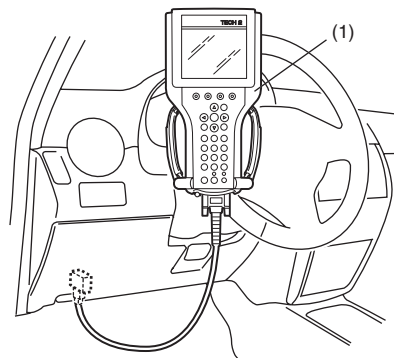
**Step 8: Final Confirmation Test**

Confirm that the problem symptom has gone and the engine is free from any abnormal conditions. If what has been repaired is related to the DTC, clear the DTC once and then recheck DTC and confirm that no DTC is indicated.

**DTC Check**

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- 1) Prepare SUZUKI scan tool or OBD generic scan tool.
- 2) Connect it to DLC (1) located on underside of instrument panel at driver's seat side.

**Special tool****(A): SUZUKI scan tool**

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- 3) Turn ignition switch ON.
- 4) Read DTC, according to instructions displayed on scan tool and print them or write them down. Refer to scan tool operator's manual for further details. If communication between scan tool and ECM is not possible, check if scan tool is communicable by connecting it to ECM in another vehicle. If communication is possible in this case, scan tool is in good condition. Then DLC and serial data line (circuit) in the vehicle with which communication was not possible.
- 5) After completing the check, turn ignition switch OFF and disconnect scan tool from DLC.

**DTC Clearance**

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- 1) Connect SUZUKI scan tool to DLC in the same manner as when making this connection for DTC check.
- 2) Turn ignition switch OFF and then ON (but engine at stop).
- 3) Erase DTC according to instructions displayed on scan tool. Refer to scan tool operator's manual for further details.
- 4) After completing the clearance, turn ignition switch OFF and disconnect scan tool from DLC.



























**DTC Table**

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<b>DTC No. (Generic scan tool)</b>	<b>DTC No. (SUZUKI scan tool)</b>	<b>DTC Name</b>	<b>MIL</b>
P0016	P0016	Crankshaft Position – Camshaft Position Correlation	1 driving cycle
P0045	P0045	Turbo Boost Control Solenoid Circuit/Open	1 driving cycle
P0087	P0087	Fuel Rail Pressure – Too Low	1 driving cycle
P0088	P0088	Fuel Rail Pressure – Too High	1 driving cycle
P0090	P0090	Fuel Pressure Regulator Control Circuit	1 driving cycle
P0091	P0091	Fuel Pressure Regulator Control Circuit Low	1 driving cycle
P0092	P0092	Fuel Pressure Regulator Control Circuit High	1 driving cycle
P0093	P0093	Fuel System Leak Detected – Large Leak	1 driving cycle
P0094	P0094	Fuel System Leak Detected – Small Leak	1 driving cycle
P0095	P0095	Intake Air Temperature Sensor 2 Circuit	3 driving cycles
P0100	P0100	Mass Air Flow Circuit	3 driving cycles
P0101	P0101	Mass Air Flow Circuit Range/Performance	3 driving cycles
P010F	P010F	Mass Air Flow Sensitivity Drift	3 driving cycles
P0110	P0110	Intake Air Temperature Sensor 1 Circuit	3 driving cycles
P0111	P0111	Intake Air Temperature Sensor 1 Circuit Range/ Performance	3 driving cycles
P0115	P0115	Engine Coolant Temperature Circuit	1 driving cycle
P0116	P0116	Engine Coolant Temperature Circuit Range/Performance	1 driving cycle
P0120	P0120	Throttle Position Sensor Circuit	1 driving cycle
P0122	P0122	Throttle Position Sensor Circuit Low	1 driving cycle
P0168	P0168	Fuel Temperature Too High	1 driving cycle
P0180	P0180	Fuel Temperature Sensor Circuit	1 driving cycle
P0190	P0190	Fuel Rail Pressure Sensor Circuit	1 driving cycle
P0201	P0201	Injector Circuit/Open – Cylinder 1	1 driving cycle
P0202	P0202	Injector Circuit/Open – Cylinder 2	1 driving cycle
P0203	P0203	Injector Circuit/Open – Cylinder 3	1 driving cycle
P0204	P0204	Injector Circuit/Open – Cylinder 4	1 driving cycle
P0216	P0216	Injector/Injection Timing Control Circuit	1 driving cycle

**1A-18 Engine General Information and Diagnosis:**

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DTC No. (Generic scan tool)	DTC No. (SUZUKI scan tool)	DTC Name	MIL
–	 P0219	Engine Overspeed Condition	–
 P0220	 P0220	Pedal Position Sensor Circuit	1 driving cycle
 P0230	 P0230	Fuel Pump Primary Circuit	1 driving cycle
 P0235	 P0235	Turbo Boost Sensor Circuit	1 driving cycle
 P0237	 P0237	Turbo Boost Sensor Circuit Low	1 driving cycle
 P0238	 P0238	Turbo Boost Sensor Circuit High	1 driving cycle
 P0262	 P0262	Cylinder 1 Injector Circuit High	1 driving cycle
 P0265	 P0265	Cylinder 2 Injector Circuit High	1 driving cycle
 P0268	 P0268	Cylinder 3 Injector Circuit High	1 driving cycle
 P0271	 P0271	Cylinder 4 Injector Circuit High	1 driving cycle
 P0335	 P0335	Crankshaft Position Sensor Circuit	1 driving cycle
–	 P0340	Camshaft Position Sensor Circuit	–
–	 P0380	Glow Plug Circuit	–
 P0401	 P0401	Exhaust Gas Recirculation Flow Insufficient Detected	3 driving cycles
 P0402	 P0402	Exhaust Gas Recirculation Flow Excessive Detected	1 driving cycle
 P0403	 P0403	Exhaust Gas Recirculation Control Circuit	1 driving cycle
 P0480	 P0480	Fan 1 Control Circuit	1 driving cycle
 P0481	 P0481	Fan 2 Control Circuit	1 driving cycle
 P0482	 P0482	Fan 3 Control Circuit	1 driving cycle
 P0500	 P0500	Vehicle Speed Sensor	3 driving cycles
 P0503	 P0503	Vehicle Speed Sensor Intermittent/Erratic/High	3 driving cycles
–	 P0504	Brake Switch 1/2 Correlation	–
–	 P0520	Engine Oil Pressure Switch Circuit	–
–	 P0530	A/C Refrigerant Pressure Sensor Circuit	–
–	 P0560	System Voltage	–
 P0601	 P0601	Internal Control Module Memory Check Sum Error	1 driving cycle
 P0606	 P0606	ECM Processor	1 driving cycle
 P060A	 P060A	Shut Off Monitoring During Initialization	1 driving cycle



DTC No. (Generic scan tool)	DTC No. (SUZUKI scan tool)	DTC Name	MIL
P060B	P060B	ADC Monitoring	1 driving cycle
P0611	P0611	ECM Performance	1 driving cycle
P061B	P061B	FMTTC Map Non Strictly Monotonous	1 driving cycle
P061C	P061C	Engine Speed Calculation in Overrun	1 driving cycle
P062D	P062D	Injectors Specific Chip 1	1 driving cycle
P062E	P062E	Injectors Specific Chip 2	1 driving cycle
-	P0638	Throttle Actuator Control Range/Performance	-
P0641	P0641	Sensor Reference Voltage 1 Circuit/Open	1 driving cycle
-	P0645	A/C Clutch Relay Control Circuit	-
P0651	P0651	Sensor Reference Voltage 2 Circuit/Open	1 driving cycle
-	P0683	Glow Plug Control Module to ECM Communication Circuit	-
P0685	P0685	ECM Power Relay Control Circuit/Open	1 driving cycle
P0697	P0697	Sensor Reference Voltage 3 Circuit/Open	1 driving cycle
-	P0704	Clutch Switch Input Circuit Malfunction	-
P0748	P0748	Fuel Flow Actuator Circuit	1 driving cycle
P0778	P0778	Fuel Pressure Regulator Circuit	1 driving cycle
-	P1205	Diesel Particulate Filter Flow Resistance Monitoring Too Low	-
P2002	P1206	Diesel Particulate Filter Flow Resistance Monitoring Too High	1 driving cycle
P0607	P1218	Hard Ware Recovery	1 driving cycle
P2002	P1219	Diesel Particulate Filter Regeneration Not Ended	1 driving cycle
-	P1301	Fuel Injector Calibration Code Classification	Blinks
P0606	P1605	Communication between CY310 and $\mu$ P	1 driving cycle
P0606	P1606	Hard Ware Module Communication	1 driving cycle
-	P1610	Secret Key / Password Not Programed	-
-	P1611	Password is Not Matched	-
-	P1612	No Signal from Immobilizer Control Module	-
-	P1613	Immobilizer System Malfunction	-
-	P1614	Incorrect Signal from Immobilizer Control Module	-
-	P1615	Steering Lock Unit Communication Error (Keyless Start Model)	-
-	P1616	Unregistered Keyless Start Control Module (Keyless Start Model)	-
-	P1617	Keyless Start Control Module CAN Communication Error (Keyless Start Model)	-



DTC No. (Generic scan tool)	DTC No. (SUZUKI scan tool)	DTC Name	MIL
P0607	P1618	Supply Voltage of CJ940 above Limit	1 driving cycle
P0607	P1619	Supply Voltage of CJ940 below Limit	1 driving cycle
P0606	P1623	SPI Communication	1 driving cycle
–	P1667	Fuel Filter Heating	–
P2080	P2080	Exhaust Gas Temperature Sensor-1 Circuit Range/ Performance	1 driving cycle
P2081	P2081	Exhaust Gas Temperature Sensor-1 Circuit Intermittent	1 driving cycle
P2084	P2084	Exhaust Gas Temperature Sensor-2 Circuit Range/ Performance	1 driving cycle
P2085	P2085	Exhaust Gas Temperature Sensor-2 Circuit Intermittent	1 driving cycle
–	P2100	Throttle Actuator Control Motor Circuit/Open	–
–	P2101	Throttle Actuator Control Motor Circuit Range/Performance	–
–	P2107	Throttle Actuator Control Module Processor	–
P2108	P2108	Throttle Actuator Control Module Performance	1 driving cycle
–	P2111	Throttle Actuator Control System – Stuck Open	–
P2112	P2112	Throttle Actuator Control System – Stuck Closed	1 driving cycle
P2135	P2135	Throttle/Pedal Position Sensor Voltage Correlation	1 driving cycle
P2146	P2146	Fuel Injector Group 1 Supply Voltage Circuit/Open	1 driving cycle
P2148	P2148	Fuel Injector Group 1 Supply Voltage Circuit High	1 driving cycle
P2149	P2149	Fuel Injector Group 2 Supply Voltage Circuit/Open	1 driving cycle
P2151	P2151	Fuel Injector Group 2 Supply Voltage Circuit High	1 driving cycle
P2226	P2226	Barometric Pressure Circuit	1 driving cycle
P0069			3 driving cycles
–	P2264	Water in Fuel Sensor Circuit	–
P2293	P2293	Fuel Pressure Regulator Performance	1 driving cycle
P2294	P2294	Fuel Pressure Regulator Control Circuit	1 driving cycle
P2295	P2295	Fuel Pressure Regulator Control Circuit Low	1 driving cycle
–	P2296	Fuel Pressure Regulator Control Circuit High	–
–	P2299	Brake Pedal Position / Accelerator Pedal Position Incompatible	–
P2452	P2452	Differential Pressure Sensor Electrical Failure	1 driving cycle

DTC No. (Generic scan tool)	DTC No. (SUZUKI scan tool)	DTC Name	MIL
P2453	P2453	Differential Pressure Sensor Hose Line Monitoring	1 driving cycle
P2455	P2455	Differential Pressure Sensor Plausibility	1 driving cycle
–	P2505	ECM Power Input Signal	–
P2620	P2620	Throttle Position Output Circuit/Open	1 driving cycle
U1601	U1601	Control Module Communication Bus Off	3 driving cycles
–	U1700	Lost Communication With Body Control Module	–
U1706	U1706	Lost Communication with ABS or ESP® Control Module	3 driving cycles
–	U1711	Lost Communication with 4WD Control Module	–

**NOTE**

“–” marked in above table indicates that does not light.

**Fail-safe Table**

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When any of the following DTC is detected, ECM enters fail-safe mode as long as malfunction continues to exist but that mode is cancelled when ECM detects normal condition after that.

DTC No. (SUZUKI scan tool)	DTC Name	Fail-safe operation
P0045	Turbo Boost Control Solenoid Circuit / Open	<ul style="list-style-type: none"> <li>Quantity of injected fuel is reduced.</li> <li>Forced regeneration is OFF.</li> <li>Boost pressure control solenoid valve is switched off.</li> <li>EGR valve is switched off.</li> </ul>
P0090	Fuel Pressure Regulator Control Circuit	<ul style="list-style-type: none"> <li>Quantity of injected fuel is reduced.</li> </ul>
P0091	Fuel Pressure Regulator Control Circuit Low	<ul style="list-style-type: none"> <li>Driving performance is slightly limited.</li> <li>Fuel pressure in high pressure fuel circuit is reduced.</li> </ul>
P0093	Fuel System Leak Detected – Large Leak	<ul style="list-style-type: none"> <li>Quantity of injected fuel is reduced.</li> </ul>
P0100	Mass Air Flow Circuit	<ul style="list-style-type: none"> <li>Air mass value is derived from boost pressure, intake air temperature and engine speed.</li> <li>EGR valve is switched off.</li> </ul>
P0101	Mass Air Flow Circuit Range / Performance	<ul style="list-style-type: none"> <li>EGR valve is switched off.</li> <li>Driving performance is slightly limited.</li> </ul>
P010F	Mass Air Flow Sensitivity Drift	<ul style="list-style-type: none"> <li>Air mass value is derived from boost pressure, intake air temperature and engine speed.</li> <li>EGR valve is switched off.</li> <li>Quantity of fuel injected is reduced.</li> </ul>
P0110	Intake Air Temperature Sensor 1 Circuit	<ul style="list-style-type: none"> <li>EGR valve is switched off.</li> </ul>
P0111	Intake Air Temperature Sensor 1 Circuit Range / Performance	<ul style="list-style-type: none"> <li>Quantity of injected fuel is reduced.</li> <li>EGR valve is switched off.</li> </ul>
P0115	Engine Coolant Temperature Circuit	<ul style="list-style-type: none"> <li>A/C compressor is switched off.</li> </ul>
P0120	Throttle Position Sensor Circuit	<ul style="list-style-type: none"> <li>Forced regeneration is OFF.</li> <li>A/C compressor is switched off.</li> <li>Quantity of injected fuel is reduced.</li> </ul>
P0122	Throttle Position Sensor Circuit Low	<ul style="list-style-type: none"> <li>Forced regeneration is OFF.</li> </ul>

DTC No. (SUZUKI scan tool)	DTC Name	Fail-safe operation
P0190	Fuel Rail Pressure Sensor Circuit	<ul style="list-style-type: none"> <li>• Quantity of injected fuel is reduced.</li> <li>• Fuel pressure in common rail is derived from the other parameter.</li> </ul>
P0201	Injector Circuit / Open – Cylinder 1	<ul style="list-style-type: none"> <li>• Quantity of injected fuel is reduced.</li> <li>• Forced regeneration is OFF.</li> </ul>
P0202	Injector Circuit / Open – Cylinder 2	<ul style="list-style-type: none"> <li>• Quantity of injected fuel is reduced.</li> <li>• Forced regeneration is OFF.</li> </ul>
P0203	Injector Circuit / Open – Cylinder 3	<ul style="list-style-type: none"> <li>• Quantity of injected fuel is reduced.</li> <li>• Forced regeneration is OFF.</li> </ul>
P0204	Injector Circuit / Open – Cylinder 4	<ul style="list-style-type: none"> <li>• Quantity of injected fuel is reduced.</li> <li>• Forced regeneration is OFF.</li> </ul>
P0220	Pedal Position Sensor Circuit	<ul style="list-style-type: none"> <li>• Forced regeneration is OFF.</li> <li>• A/C compressor is switched off.</li> <li>• Quantity of injected fuel is reduced.</li> </ul>
P0235	Turbo Boost Sensor Circuit	<ul style="list-style-type: none"> <li>• Boost pressure control solenoid valve is switched off.</li> <li>• Quantity of injected fuel is reduced.</li> <li>• Default value is substituted for value detected by boost pressure sensor.</li> <li>• Forced regeneration is OFF.</li> <li>• EGR valve is switched off.</li> </ul>
P0237	Turbo Boost Sensor Circuit Low	<ul style="list-style-type: none"> <li>• Quantity of injected fuel is reduced.</li> <li>• Boost pressure control solenoid valve is switched off.</li> <li>• Forced regeneration is OFF.</li> </ul>
P0401	Exhaust Gas Recirculation Flow Insufficient Detected	<ul style="list-style-type: none"> <li>• EGR valve is switched off.</li> </ul>
P0402	Exhaust Gas Recirculation Flow Excessive Detected	<ul style="list-style-type: none"> <li>• Quantity of injected fuel is reduced.</li> <li>• Forced regeneration is OFF.</li> </ul>
P0403	Exhaust Gas Recirculation Control Circuit	<ul style="list-style-type: none"> <li>• EGR valve is switched off.</li> <li>• Driving performance is slightly limited.</li> <li>• Forced regeneration is OFF.</li> </ul>
P0480	Fan 1 Control Circuit	<ul style="list-style-type: none"> <li>• Forced regeneration is OFF.</li> <li>• Quantity of injected fuel is reduced.</li> </ul>
P0481	Fan 2 Control Circuit	<ul style="list-style-type: none"> <li>• Forced regeneration is OFF.</li> <li>• Quantity of injected fuel is reduced.</li> </ul>
P0482	Fan 3 Control Circuit	<ul style="list-style-type: none"> <li>• Forced regeneration is OFF.</li> <li>• Quantity of injected fuel is reduced.</li> </ul>
P0500	Vehicle Speed Sensor	<ul style="list-style-type: none"> <li>• A/C compressor is switched off.</li> </ul>
P0503	Vehicle Speed Sensor Intermittent / Erratic / High	<ul style="list-style-type: none"> <li>• A/C compressor is switched off.</li> </ul>
P0530	A/C Refrigerant Pressure Sensor Circuit	<ul style="list-style-type: none"> <li>• A/C compressor is switched off.</li> </ul>
P060B	ADC Monitoring	<ul style="list-style-type: none"> <li>• A/C compressor is switched off.</li> <li>• Engine idle speed is increased.</li> <li>• Boost pressure control solenoid valve is switched off.</li> <li>• EGR valve is switched off.</li> <li>• Forced regeneration is OFF.</li> <li>• Quantity of injected fuel is reduced.</li> <li>• Fuel pressure in common rail is derived from the other parameter.</li> <li>• Fuel pressure in common rail is derived from the other parameter.</li> </ul>

DTC No. (SUZUKI scan tool)	DTC Name	Fail-safe operation
P0641	Sensor Reference Voltage 1 Circuit / Open	<ul style="list-style-type: none"> <li>• Engine idle speed is increased.</li> <li>• Forced regeneration is OFF.</li> <li>• Quantity of injected fuel is reduced.</li> </ul>
P0645	A/C Clutch Relay Control Circuit	<ul style="list-style-type: none"> <li>• A/C compressor is switched off.</li> </ul>
P0651	Sensor Reference Voltage 2 Circuit / Open	<ul style="list-style-type: none"> <li>• Boost pressure control solenoid valve is switched off.</li> <li>• Air mass value is derived from Boost pressure, intake Air temperature and engine speed.</li> <li>• Engine idle speed is increased.</li> <li>• Fuel pressure in common rail is derived from the other parameter.</li> <li>• Forced regeneration is off.</li> <li>• EGR valve is switched off.</li> <li>• Quantity of injected fuel is reduced.</li> </ul>
P0697	Sensor Reference Voltage 3 Circuit / Open	<ul style="list-style-type: none"> <li>• A/C compressor is switched off.</li> </ul>
P1206	Diesel Particulate Filter Flow Resistance Monitoring Too High	<ul style="list-style-type: none"> <li>• Quantity of injected fuel is reduced.</li> </ul>
P2084	Exhaust Gas Temperature Sensor-2 Circuit Range/Performance	<ul style="list-style-type: none"> <li>• Post injection control of fuel injector is canceled.</li> </ul>
P2085	Exhaust Gas Temperature Sensor-2 Circuit Intermittent	<ul style="list-style-type: none"> <li>• Post injection control of fuel injector is canceled.</li> </ul>
P2108	Throttle Actuator Control Module Performance	<ul style="list-style-type: none"> <li>• EGR valve is switched off.</li> <li>• Boost pressure control solenoid valve is switched off.</li> <li>• Driving performance is slightly limited.</li> <li>• Forced regeneration is OFF.</li> </ul>
P2112	Throttle Actuator Control System Stuck Closed	<ul style="list-style-type: none"> <li>• EGR valve is switched off.</li> <li>• Boost pressure control solenoid valve is switched off.</li> <li>• Driving performance is slightly limited.</li> <li>• Forced regeneration is OFF.</li> </ul>
P2135	Throttle/Pedal Position Sensor Voltage Correlation	<ul style="list-style-type: none"> <li>• Engine idle speed is increased.</li> <li>• Forced regeneration is OFF.</li> <li>• A/C compressor is switched off.</li> <li>• Quantity of injected fuel is reduced.</li> </ul>
P2226	Barometric Pressure Circuit	<ul style="list-style-type: none"> <li>• EGR valve is switched off.</li> </ul>
P2294	Fuel Pressure Regulator Control Circuit	<ul style="list-style-type: none"> <li>• Driving performance is slightly limited.</li> <li>• Fuel pressure in high pressure fuel circuit is reduced.</li> </ul>
P2295	Fuel Pressure Regulator Control Circuit Low	<ul style="list-style-type: none"> <li>• Quantity of injected fuel is reduced.</li> </ul>
P2620	Throttle Position Output Circuit / Open	<ul style="list-style-type: none"> <li>• EGR valve is switched off.</li> </ul>

## Scan Tool Data

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As the data values below are standard values estimated on the basis of values obtained from the normally operating vehicles by using a SUZUKI scan tool, use them as reference values. Even when the vehicle is in good condition, there may be cases where the checked value does not fall within each specified data range. Therefore, judgment as abnormal should not be made by checking with these data alone. Also, conditions that can be checked by the SUZUKI scan tool are those detected by ECM and output from ECM as commands and there may be cases where the engine or actuator is not operating (in the condition) as indicated by the SUZUKI scan tool.

### NOTE

**When checking the data with the engine running at idle or racing, be sure to shift M/T gear to the neutral position and pull the parking brake fully. Also, if nothing or "no load" is indicated, turn OFF A/C, all electric loads and all the other necessary switches.**

Scan tool data	Vehicle condition		Normal condition / reference value	Reference item
Odo from ECM Sub	Ignition switch ON		Distance from ECM substitution is displayed.	—
Cyl 1 Fuel Correct	At specified idle speed after warming up		-2.0 to 2.0 mm <sup>3</sup> /str	—
Cyl 2 Fuel Correct	At specified idle speed after warming up		-2.0 to 2.0 mm <sup>3</sup> /str	—
Cyl 3 Fuel Correct	At specified idle speed after warming up		-2.0 to 2.0 mm <sup>3</sup> /str	—
Cyl 4 Fuel Correct	At specified idle speed after warming up		-2.0 to 2.0 mm <sup>3</sup> /str	—
Engine Speed	At specified idle speed after warming up		770 to 930 rpm	"Table – 1060GI: Engine Speed Check"
Vehicle Speed	At vehicle stop		0 km/h	—
Accel Position	Ignition switch ON	Accelerator pedal released	0 to 5%	"Table – 1068AC: Accelerator Pedal Check"
		Accelerator pedal depressed fully	90 to 100%	
APP sensor 1 voltage	Ignition switch ON	Accelerator pedal released	> 1,000 mV	
		Accelerator pedal depressed fully	3,000 mV >	
APP sensor 2 voltage	Ignition switch ON	Accelerator pedal released	> 500 mV	
		Accelerator pedal depressed fully	1,500 mV >	
A/C Pressure	Engine running	A/C ON (A/C is operating) Ambient temperature: 30 °C (86 °F) Humidity: 50%	1,600 – 2,040 kPa, 16,000 – 20,400 mbar	For more details, refer to "A/C System Performance Inspection: Manual Type in Section 7B" or "A/C System Performance Inspection: Automatic Type in Section 7B in related manual"
		A/C OFF (A/C is not operating) After longer than 10 minutes from A/C OFF Ambient temperature: 30 °C (86 °F)	600 – 1,000 kPa 6,000 – 10,000 mbar	
Coolant Temp	At specified idle speed after warming up		80 – 100 °C, 176 – 212 °F	"Table – 1060OE: ECT Sensor Operation Check"
ECT sensor Volt	Engine coolant temperature is at 80 °C (176 °F)		Approx. 1,450 mV	
IAT2	At specified idle speed after warming up		10 – 120 °C, 50 – 248 °F	"Table – 1064BD: IAT Sensor 2 Check"
IAT sensor 2 Volt	Intake air temperature is at 55 °C (131 °F)		Approx. 2,400 mV	
Boost Press Valve	At specified idle speed after warming up		Approx. 75%	—

Scan tool data	Vehicle condition	Normal condition / reference value	Reference item
Boost Press target	At specified idle speed after warming up	90 – 120 kPa, 900 – 1,200 mbar	“Table – 1060GF: Boost Pressure Check”
Boost Press measured	At specified idle speed after warming up	90 – 120 kPa, 900 – 1,200 mbar	
Boost Press Sen Volt	Boost pressure is at 100 kPa (1,000 mbar)	Approx. 1,650 mV	
MAF	At specified idle speed after warming up	Approx. 470 mg/str	“Table – 1060GG: Check Measured Air Mass”
IAT 1	At specified idle speed after warming up	Approx. 19 °C, 66.2 °F	—
IAT sensor 1 Sig	Intake air temperature is at 19 °C (66.2 °F)	Approx. 37%	—
Qty of total Inj	At specified idle speed after warming up	Approx. 2.7 mm <sup>3</sup> /str	—
Fuel Temp	At specified idle speed after warming up	10 – 120 °C, 50 – 248 °F	—
Fuel Temp Sen Volt	Fuel temperature is at 31 °C (87.8 °F)	Approx. 3,250 mV	—
Fuel heater	Fuel heater: ON	ON	—
	Fuel heater: OFF	OFF	—
Fuel pump relay	A few seconds after ignition switch ON or engine running	ON	—
	Engine at stop with ignition switch ON	OFF	—
Glow plug status	Glow plug: ON	ON	“Table – 5520CA: Glow Plugs Operation Check”
	Glow plug: OFF	OFF	
Fuel Press measured	At specified idle speed after warming up	20,000 – 50,000 kPa, 200 – 500 bar	—
Fuel Press Sen Volt	Fuel pressure in common rail is at 35,000 kPa (350 bar)	Approx. 1,300 mV	—
Fuel Press target	At specified idle speed after warming up	20,000 – 50,000 kPa, 200 – 500 bar	—
Fuel flow actuator	At specified idle speed after warming up	30 – 50%	—
Fuel flow Act Curre	Opening rate of fuel flow actuator is at 37%	Approx. 1,400 mA	—
Fuel Press Reg valve	At specified idle speed after warming up	20 – 45%	—
Fuel Press Reg Curre	Opening rate of fuel pressure regulator is at 39.5%	Approx. 850 mA	—
EGR valve	At specified idle speed after warming up	Approx. 3%	“Table – 1080CB: EGR Valve Operation Check”
Inlet throttle valve	At specified idle speed after warming up	5 – 95%	—
Barometric Press	—	Barometric pressure is displayed.	—
Battery voltage	Ignition switch ON	10 – 14 V	For more details, refer to “Charging System: in Section 1J”
Pre-cata outlet Temp	At specified idle speed after warming up	30 – 300 °C, 86 – 572 °F	—
Ex Temp Sen 1 Volt	Pre-catalytic converter outlet temperature is at 122 °C (251.6 °F)	Approx. 1,050 mV	—
Diesel PF inlet Temp	At specified idle speed after warming up	30 – 250 °C, 86 – 482 °F	—
Ex Temp Sen 2 Volt	Diesel particulate filter inlet temperature is at 106 °C (222.8 °F)	Approx. 1,050 mV	—
Diesel PF Diff Press	At specified idle speed after warming up	0 – 100 kPa, 0 – 1,000 mbar	—
Diff Press Sen Volt	Differential pressure is at 1,100 Pa (11 mbar)	Approx. 450 mV	—
Diesel PF clogging	At specified idle speed after warming up	0 – 300%	—
Diesel PF status	At specified idle speed after warming up	State of Diesel particulate filter is displayed.	—
Request Regene state	At specified idle speed after warming up	State of regeneration is displayed.	—



Scan tool data	Vehicle condition	Normal condition / reference value	Reference item
Dist from N Diesel PF	Ignition switch ON	Distance from Diesel particulate filter substitution is displayed.	—
Dist from Regenerate	Ignition switch ON	Distance from last regeneration is displayed.	—
Av temp per 5 Regene	Ignition switch ON	Outcom per last 5 regenerations is displayed.	—
Av dist per 5 Regene	Ignition switch ON		—
Av time per 5 Regene	Ignition switch ON		—
Number of oil change	Ignition switch ON	Number of oil change is displayed.	—
Od at last oil change	Ignition switch ON	Odometer from last oil change is displayed.	—
Dist from oil Req	Ignition switch ON	Distance from oil change requested is displayed.	—
Dist to oil change	Ignition switch ON	Distance to next oil change is displayed.	—
Oil degradation	Ignition switch ON	Derogation rate of engine oil is displayed.	—
Odometer	Ignition switch ON	Odometer is displayed.	—

### Scan Tool Data Definitions

**Odo from ECM Sub (Odometer from ECM substitution) (km, mile):** This parameter indicates odometer from ECM substitution.

**Cyl 1, 2, 3, 4 Fuel Correct (Fuel correction in cylinder 1, 2, 3, 4) (mm<sup>3</sup>/str):** This parameter indicates amount of correction for each fuel injector.

**Engine speed (rpm):** This parameter indicates revolutions per minute of engine.

**Vehicle speed (km/h, mile/h):** This parameter indicates vehicle speed.

**Accel position (Accelerator pedal position) (%):** This parameter indicates accelerator pedal opening rate.

**APP sensor 1 voltage (mV):** This parameter indicates output voltage of APP sensor 1.

**APP sensor 2 voltage (mV):** This parameter indicates output voltage of APP sensor 2.

**A/C Pressure (A/C refrigerant pressure) (kPa, mbar):** This parameter indicates A/C refrigerant pressure.

**Coolant Temp (Engine coolant temperature) (°C, °F):** This parameter indicates engine coolant temperature.

**ECT sensor Volt (Engine coolant temperature sensor voltage) (mV):** This parameter indicates output voltage of ECT sensor.

**IAT 2 (Intake air temperature sensor 2) (°C, °F):** This parameter indicates air temperature at intake manifold.

**IAT Sen 2 Volt (Intake air temperature sensor 2 voltage) (mV):** This parameter indicates output voltage of IAT sensor-2.

**Boost Press Valve (Boost pressure control solenoid valve opening) (%):** This parameter indicates opening rate of boost pressure control solenoid valve.

**Boost Press target (Boost pressure target) (kPa, mbar):** This parameter indicates boost pressure targeted by ECM.

**Boost Press measured (Boost pressure measured) (kPa, mbar):** This parameter indicates boost pressure measured by fuel pressure sensor.

**Boost Press Sen Volt (Boost pressure sensor voltage) (mV):** This parameter indicates output voltage of boost pressure sensor.

**MAF (Mass air flow meter) (mg/str):** This parameter indicates mass air flow measured by MAF sensor.

**IAT 1 (Intake air temperature sensor 1) (°C, °F):** This parameter indicates air temperature at air cleaner pipe.

**IAT sensor 1 Sig (Intake air temperature sensor 1 duty signal) (%):** This parameter indicates duty ratio of IAT sensor-1.

**Qty of total Inj (Quantity of total injected fuel) (mm<sup>3</sup>/str):** This parameter indicates quantity of total injected fuel of each cylinder a stroke targeted by ECM.

**Fuel Temp (Fuel temperature) (°C, °F):** This parameter indicates fuel temperature.



- Fuel Temp Sen Volt (Fuel temperature sensor voltage) (mV):** This parameter indicates output voltage of fuel temperature sensor.
- Fuel heater (Fuel heater status) (ON/OFF):** This parameter indicates operating state of additional heater.
- Fuel pump relay (Fuel pump relay status) (ON/OFF):** This parameter indicates operating state of fuel pump relay.
- Glow plug status (ON/OFF):** This parameter indicates operating state of glow plugs.
- Fuel Press measured (Fuel pressure in rail (measured)) (kPa, bar):** This parameter indicates fuel pressure in common rail measured by fuel pressure sensor.
- Fuel Press Sen Volt (Fuel pressure sensor voltage) (mV):** This parameter indicates output voltage of fuel pressure sensor.
- Fuel Press target (Fuel pressure in rail (target)) (kPa, bar):** This parameter indicates fuel pressure in common rail targeted by ECM.
- Fuel flow actuator (Fuel flow actuator opening) (%):** This parameter indicates opening rate of fuel flow actuator.
- Fuel flow Act curre (Fuel flow actuator current) (mA):** This parameter indicates output current of fuel flow actuator.
- Fuel Press Reg valve (Fuel pressure regulator valve opening) (%):** This parameter indicates opening rate of fuel pressure regulator.
- Fuel Press Reg Curre (Fuel pressure regulator current) (mA):** This parameter indicates output current of fuel pressure regulator.
- EGR valve (EGR valve opening) (%):** This parameter indicates valve opening rate of EGR valve targeted by ECM.
- Inlet throttle valve (Inlet throttle valve opening) (%):** This parameter indicates opening rate of inlet throttle valve.
- Barometric Press (Barometric pressure) (kPa, mbar):** This parameter indicates barometric pressure.
- Ex Temp Sen 1 Volt (Exhaust gas temperature sensor 1 voltage) (mV):** This parameter indicates output voltage of exhaust gas temperature sensor-1.
- Diesel PF inlet Temp (Diesel particulate filter inlet temperature) (°C, °F):** This parameter indicates exhaust gas temperature at inlet of diesel particulate filter.
- Ex Temp Sen 2 Volt (Exhaust gas temperature sensor 2 voltage) (mV):** This parameter indicates output voltage of exhaust gas temperature sensor-2.
- Diesel PF Diff Press (Diesel particulate filter differential pressure) (Pa, mbar):** This parameter indicates differential pressure between inlet of diesel particulate filter and barometric pressure.
- Diff Press Sen Volt (Diesel particulate filter differential pressure sensor voltage) (mV):** This parameter indicates output voltage of differential pressure sensor.
- Diesel PF clogging (Diesel particulate filter clogging) (%):** This parameter indicates clogging rate of diesel particulate filter.
- Diesel PF status (Diesel particulate filter status) (Broken, Range 1, Range 2, Range 3, Range 4 – 5, Speed, Af regene):** This parameter indicates state of diesel particulate filter. For details of Diesel PF status, refer to “Diesel Particulate Filter Description”.
- Request Regene state (Request regeneration state) (Range 2, Range 3, Af regene, OFF):** This parameter indicates operating state of regeneration.
- Dist from N Diesel PF (Distance from replacing diesel particulate filter) (km, mile):** This parameter indicates distance after replacing diesel particulate filter.
- Dist from Regenerate (Distance from last diesel particulate filter regeneration) (km, mile):** This parameter indicates distance from last regeneration of diesel particulate filter.
- Av temp per 5 Regene (Average diesel particulate filter inlet temperature per last 5 regenerations) (°C, °F):** This parameter indicates average temperature at inlet of diesel particulate filter per last 5 regenerations.
- Av dist per 5 Regene (Average distance between regenerations per 5 regenerations) (km, mile):** This parameter indicates average distance between regenerations per last 5 regenerations.
- Av time per 5 Regene (Average time for regeneration per 5 regenerations) (sec.):** This parameter indicates average time for regeneration per last 5 regenerations.
- Number of oil change (count):** This parameter indicates number of engine oil change.
- Od at last oil change (Odometer at last oil change) (km, mile):** This parameter indicates distance from last oil change.
- Dist from oil Req (Distance from oil change required) (km, mile):** This parameter indicates distance from oil change requested.
- Dist to oil change (Distance to next oil change) (km, mile):** This parameter indicates distance to next engine oil change.
- Oil degradation (%):** This parameter indicates degradation rate of engine oil.
- Odometer (km, mile):** This parameter indicates odometer.

**Visual Inspection**

S5RW0D1104009

Visually check the following parts and systems.

Inspection item	Referring section
• Engine oil-level, leakage	"Engine Oil and Filter Change in Section 0B"
• Engine coolant-level, leakage	"Coolant Level Check in Section 1F"
• Fuel-level, leakage	"Fuel Lines and Connections Inspection in Section 0B in related manual"
• Air cleaner filter-dirt, clogging	"Air Cleaner Filter Inspection in Section 0B"
• Battery-fluid level, corrosion of terminal	"Battery Description in Section 1J in related manual"
• Water pump belt-tension damage	"Accessory Drive Belt Inspection in Section 0B"
• Vacuum hoses of air intake system-disconnection, looseness, deterioration, bend	—
• Connectors of electric wire harness-disconnection, friction	—
• Fuses-burning	—
• Parts-installation, bolt-looseness	—
• Parts-deformation	—
• Other parts that can be checked visually	—
Also check the following items at engine start, if possible	
• MIL-Operation	"MIL Check"
• Charging light-Operation	"Generator Symptom Diagnosis in Section 1J"
• Oil pressure light-Operation	"Oil Pressure Switch Inspection in Section 9C"
• Engine coolant temperature gauge-Operation	—
• Fuel gauge-Operation	"Fuel Level Sensor Inspection in Section 9C in related manual"
• Tachometer-Operation	—
• Abnormal air being inhaled from air intake system	—
• Exhaust system-leakage of exhaust gas, noise	—
• Other parts that can be checked visually	—

**Engine Basic Inspection**

S5RW0D1104010

This check is very important for troubleshooting when ECM has detected no DTC and no abnormality has been found in "Visual Inspection".

Follow the flow carefully.

Step	Action	Yes	No
1	<b>Check battery voltage</b> <i>Is it 11 V or more?</i>	Go to Step 2.	Charge or replace battery.
2	<i>Is engine cranked?</i>	Go to Step 3	Go to "Cranking System Symptom Diagnosis in Section 1I in related manual".
3	<i>Does engine start?</i>	Go to Step 4.	Go to Step 5.
4	<i>Was the trouble symptom able to be confirmed?</i>	Go to "Engine Symptom Diagnosis".	Go to Step 7 of "Engine and Emission Control System Check".
5	<b>Check immobilizer system</b> Refer to "Immobilizer Control System Check in Section 10C". <i>Is it in good condition?</i>	Go to "Engine Symptom Diagnosis".	Repair malfunction part.

## Engine Symptom Diagnosis

Perform troubleshooting referring to the followings when ECM has detected no DTC and no abnormality has been found in "Visual Inspection" and "Engine Basic Inspection".

Condition	Correction / Reference Item
Engine not running smoothly (irregular operation)	Refer to "Engine Not Running Smoothly (Irregular Operation):".
Engine not running smoothly	Refer to "Engine Not Running Smoothly: ".
Engine does not produce best performance	Refer to "Engine Does Not Produce Best Performance: ".
Engine not feeling accelerator pedal pressure	Refer to "Engine Not Feeling Accelerator Pedal Pressure: ".
Engine idle irregular	Refer to "Engine Idle Irregular: ".
Engine idling high	Refer to "Engine Idling High: ".
Engine idling too low	Refer to "Engine Idling Too Low: ".
Engine going off on idling (then restarting)	Refer to "Engine Going Off on Idling (Then Restarting): ".
Poor change in engine speed on pressing accelerator pedal	Refer to "Poor Change in Engine Speed on Pressing Accelerator Pedal: ".
Engine poor response	Refer to "Engine Poor Response: ".
Engine going off on running (then not restarting)	Refer to "Engine Going Off on Running (Then Not Restarting): ".
Engine cuts out whilst driving	Refer to "Engine Cuts Out Whilst Driving: ".
Engine knocking	Refer to "Engine Knocking: ".
White exhaust fumes	Refer to "White Exhaust Fumes: ".
Black exhaust fumes	Refer to "Black Exhaust Fumes: ".
Excessive exhaust fumes	Refer to "Excessive Exhaust Fumes: ".
Engine oil excessive level	Refer to "Engine Oil Excessive Level: ".
Leaks in fuel feed system	Refer to "Leaks in Fuel Feed System: ".

### Engine Not Running Smoothly (Irregular Operation)

Step	Action	Yes	No
1	<b>Preliminary check</b> 1) Check the following. <ul style="list-style-type: none"> <li>• Check that engine oil level is correct referring to "Engine Oil and Filter Change in Section 0B".</li> <li>• Check that intake air / vacuum circuit is working properly referring to "Table – 1048OA: Air Intake / Vacuum Circuit Check".</li> <li>• Check condition of fuel circuit and make sure that it is working properly referring to "Table – 1040OA: Fuel Supply System Check".</li> <li>• Check that low pressure circuit is working properly referring to "Low Fuel Pressure Circuit Check".</li> <li>• Check fastening of battery ground terminal.</li> </ul>	Go to Step 2.	Repair or replace.

Step	Action	Yes	No
2	<b>Environmental parameters check</b> 1) Connect SUZUKI scan tool to DLC with ignition switch turned OFF. 2) Check value of the following parameters. <ul style="list-style-type: none"> <li>• Battery voltage</li> <li>• Accel Position</li> <li>• APP sensor 1 voltage</li> <li>• APP sensor 2 voltage</li> <li>• Coolant Temp</li> <li>• Fuel Temp</li> <li>• MAF</li> <li>• Engine Speed</li> </ul> 3) Reach a constant speed of around 30 km/h (19 mile/h) and check that "Vehicle Speed" displayed on SUZUKI scan tool coincides more or less with speed shown on combination meter.	Go to Step 4.	The vehicle speed is not measured correctly. Go to Step 3.
3	<b>Vehicle speed signal check</b> 1) Check that vehicle speed signal is correct referring to "Table – 3340AB: Speed Signal Check".	Go to Step 4.	Repair or replace.
4	<b>Air conditioning system check</b> 1) Check that A/C system is working properly referring to "A/C System Performance Inspection: Manual Type in Section 7B" or "Air Conditioning System Check: Automatic Type in Section 7B in related manual".	Go to Step 5.	Repair.
5	<b>Electrical equipment check</b> 1) Check that main and circuit fuses have not blown.	Go to Step 6.	Repair or replace.
6	<b>Glow plug control module and its circuit check</b> 1) Check that glow plugs are working properly referring to "Table – 5520CA: Glow Plugs Operation Check".	End.	Repair or replace.

**Engine Not Running Smoothly**

Step	Action	Yes	No
1	<p><b>Preliminary check</b></p> <p>1) Check the following.</p> <ul style="list-style-type: none"> <li>• Check that engine oil level is correct referring to “Engine Oil and Filter Change in Section 0B”.</li> <li>• Check that intake air / vacuum circuit is working properly referring to “Table – 1048OA: Air Intake / Vacuum Circuit Check”.</li> <li>• Check condition of fuel circuit and make sure that it is working properly referring to “Table – 1040OA: Fuel Supply System Check”.</li> <li>• Check that low pressure circuit is working properly referring to “Low Fuel Pressure Circuit Check”.</li> </ul>	Go to Step 2.	Repair or replace.
2	<p><b>Environmental parameters check</b></p> <p>1) Connect SUZUKI scan tool to DLC with ignition switch turned OFF.</p> <p>2) Check the value of the following parameters.</p> <ul style="list-style-type: none"> <li>• Battery voltage</li> <li>• Accel Position</li> <li>• APP sensor 1 voltage</li> <li>• APP sensor 2 voltage</li> <li>• Barometric Press</li> <li>• Boost Press target</li> <li>• Boost Press measured</li> <li>• MAF</li> <li>• Fuel Temp</li> <li>• Fuel Press target</li> <li>• Fuel Press measured</li> <li>• Engine Speed</li> </ul>	Go to Step 3.	Check that system of faulty parameter.
3	<p><b>A/C system check</b></p> <p>1) Check that A/C system is working properly referring to “A/C System Performance Inspection: Manual Type in Section 7B” or “Air Conditioning System Check: Automatic Type in Section 7B in related manual”.</p>	Go to Step 4.	Repair or replace.
4	<p><b>Electrical equipment check</b></p> <p>1) Check that main and circuit fuses have not blown.</p>	Go to Step 5.	Repair or replace.
5	<p><b>Glow plug control module and its circuit check</b></p> <p>1) Check that glow plugs are working properly referring to “Table – 5520CA: Glow Plugs Operation Check”.</p>	Go to Step 6.	Repair or replace.

Step	Action	Yes	No
6	<b>EGR and turbocharger regulation check</b> 1) Carry out output test of EGR valve. 2) Carry out output test of Boost pressure control solenoid valve. 3) Check operation of variable geometry control actuator.	Go to Step 7.	EGR valve not working. Check wiring continuity. Replace EGR valve if necessary referring to "EGR Valve Removal and Installation in Section 1D". Boost pressure control solenoid valve not working. Check wiring continuity. Replace solenoid valve if necessary referring to "Boost Pressure Control Solenoid Valve Removal and Installation in Section 1C". Actuator not working properly. Check condition of vacuum circuit, if necessary, replace damaged components.
7	<b>Turbocharger check</b> 1) Check operation of turbocharger.	End.	Turbocharger faulty. Replace turbocharger assembly referring to "Turbocharger Included in Exhaust Manifold Removal and Installation in Section 1D".

### Engine Does Not Produce Best Performance

Step	Action	Yes	No
1	<b>Preliminary check</b> 1) Check the following. <ul style="list-style-type: none"> <li>• Check that engine oil level is correct referring to "Engine Oil and Filter Change in Section 0B".</li> <li>• Check that intake air / vacuum circuit is working properly referring to "Table – 1048OA: Air Intake / Vacuum Circuit Check".</li> <li>• Check condition of fuel circuit and make sure that it is working properly referring to "Table – 1040OA: Fuel Supply System Check".</li> <li>• Check that low pressure circuit is working properly referring to "Low Fuel Pressure Circuit Check".</li> </ul>	Go to Step 2.	Repair or replace.

Step	Action	Yes	No
2	<b>Ambient parameters check</b> 1) Connect SUZUKI scan tool to DLC with ignition switch turned OFF. 2) Check the value of the following parameters. <ul style="list-style-type: none"> <li>• Battery voltage</li> <li>• Accel Position</li> <li>• APP sensor 1 voltage</li> <li>• APP sensor 2 voltage</li> <li>• Barometric Press</li> <li>• Boost Press target</li> <li>• Boost Press measured</li> <li>• MAF</li> <li>• IAT 2</li> <li>• Coolant Temp</li> <li>• Fuel Temp</li> <li>• Fuel Press target</li> <li>• Fuel Press measured</li> <li>• Engine speed</li> </ul>	Go to Step 3.	Check that system of faulty parameter.
3	<b>Electrical equipment check</b> 1) Check that main and circuit fuses have not blown.	Go to Step 4.	Repair or replace.
4	<b>Glow plug control module and its circuit check</b> 1) Check that glow plugs are working properly referring to "Table – 5520CA: Glow Plugs Operation Check".	Go to Step 5.	Repair.
5	<b>Turbocharger adjustment check</b> 1) Check the following. <ul style="list-style-type: none"> <li>• Using SUZUKI scan tool carry out output test of boost pressure control solenoid valve.</li> <li>• Check operation of boost pressure control valve actuator.</li> </ul>	Go to Step 6.	Solenoid valve not working. Check wiring continuity. Replace solenoid valve if necessary referring to "Boost Pressure Control Solenoid Valve Removal and Installation in Section 1C". Actuator not working properly. Check condition of vacuum circuit, if necessary, replace damaged components.
6	<b>EGR valve check</b> 1) Using SUZUKI scan tool, carry out output test of EGR valve.	Go to Step 7.	EGR valve not working. Check wiring continuity. Replace EGR valve if necessary referring to "EGR Valve Removal and Installation in Section 1D".



Step	Action	Yes	No
7	<b>Brake light switch check</b> 1) Check that brake light switch is working properly referring to "Brake Light Switch Inspection in Section 9B in related manual".	Go to Step 8.	Brake pedal does not return. Eliminate cause of the sticking.  Switch stuck closed or wiring short circuit. Repair circuit or replace brake light switch.
8	<b>Turbocharger check</b> 1) Check operation of turbocharger.	Go to Step 9.	Turbocharger faulty. Replace turbocharger assembly referring to "Turbocharger Included in Exhaust Manifold Removal and Installation in Section 1D".
9	<b>High pressure check</b> 1) Using SUZUKI scan tool, check that "Fuel Press measured" parameter is correct.	Go to Step 12.	Pressure is not correct. Go to Step 10.
10	<b>Low fuel pressure check</b> 1) Check low fuel pressure circuit referring to "Low Fuel Pressure Circuit Check".	Go to Step 11.	Repair or replace.
11	<b>Low supply pressure check</b> 1) Check that pump supply voltage is equal to 12 V and current is within 2 – 10 A referring to "Table – 1040AA: Check on Supply Voltage and Current Uptake".	Go to Step 12.	Voltage is lower than 12 V. Check electrical wiring.  Current greater than 10 A: pump defective. Replace fuel pump referring to "Fuel Pump Assembly Removal and Installation in Section 1G".  Current less than 2 A: pump obstructed. Replace fuel pump referring to "Fuel Pump Assembly Removal and Installation in Section 1G" and clean fuel tank.
12	<b>Check correct operation</b> 1) Replace fuel pressure regulator valve on common rail referring to "Common Rail, Fuel Pressure Sensor and Fuel Pressure Regulator Valve Removal and Installation in Section 1G" and check that malfunction is not detected.	End.	Go to Step 13.
13	<b>Correct operation check</b> 1) Replace high pressure pump referring to "High Pressure Pump Removal and Installation in Section 1G" and check that fault is no longer present.	End.	Go to Step 14.

Step	Action	Yes	No
14	<b>Timing check</b> 1) Check that valve timing is correct referring to "Installation" under "Timing Belt, Belt tensioner and Idler Removal and Installation in Section 1D".	Go to Step 15.	Valve timing is not correct. Adjust valve timing referring to "Installation" under "Timing Belt, Belt tensioner and Idler Removal and Installation in Section 1D".
15	<b>Valve clearance check</b> 1) Check that valve clearance is correct referring to "Valve Lash (Clearance) Inspection in Section 1D".	Go to Step 16.	Valve clearance not correct. Adjust valve clearance referring to "Valve Lash (Clearance) Adjustment in Section 1D".
16	<b>Cylinder compression check</b> 1) Carry out cylinder compression check referring to "Compression Check in Section 1D".	Go to Step 18.	Cylinder compression insufficient. Go to Step 17.
17	<b>Check on cause of insufficient compression</b> 1) Carry out "Valve and Cylinder Head Assembly Removal and Installation in Section 1D" to check valve seal. Check condition of cylinders/piston rings.	End.	Valve seal insufficient. Overhaul cylinder head referring to "Valve and Cylinder Head Disassembly and Reassembly in Section 1D".

#### Engine Not Feeling Accelerator Pedal Pressure

Step	Action	Yes	No
1	<b>Preliminary check</b> 1) Check the following. <ul style="list-style-type: none"> <li>• Check that engine oil level is correct referring to "Engine Oil and Filter Change in Section 0B".</li> <li>• Check that intake air / vacuum circuit is working properly referring to "Table – 1048OA: Air Intake / Vacuum Circuit Check".</li> <li>• Check condition of fuel circuit and make sure that it is working properly referring to "Table – 1040OA: Fuel Supply System Check".</li> <li>• Check that low pressure circuit is working properly referring to "Low Fuel Pressure Circuit Check".</li> </ul>	Go to Step 2.	Repair or replace.
2	<b>Ambient parameters check</b> 1) Connect SUZUKI scan tool to DLC with ignition switch turned OFF. 2) Check value of the following parameters. <ul style="list-style-type: none"> <li>• Battery voltage</li> <li>• Accel Position</li> <li>• APP sensor 1 voltage</li> <li>• APP sensor 2 voltage</li> <li>• Fuel Press target</li> <li>• Fuel Press measured</li> </ul>	Go to Step 3.	Check that system of faulty parameter.

Step	Action	Yes	No
3	<b>Electrical system check</b> 1) Check that main and circuit fuses have not blown.	Go to Step 4.	Repair or replace.
4	<b>Glow plug control module and its circuit check</b> 1) Check that glow plugs are working properly referring to "Table – 5520CA: Glow Plugs Operation Check".	End.	Repair or replace.

**Engine Idle Irregular**

Step	Action	Yes	No
1	<b>Preliminary check</b> 1) Check the following. <ul style="list-style-type: none"> <li>• Check that engine oil level is correct referring to "Engine Oil and Filter Change in Section 0B".</li> <li>• Check that intake air / vacuum circuit is working properly referring to "Table – 1048OA: Air Intake / Vacuum Circuit Check".</li> <li>• Check condition of fuel circuit and make sure that it is working properly referring to "Table – 1040OA: Fuel Supply System Check".</li> <li>• Check that low pressure circuit is working properly referring to "Low Fuel Pressure Circuit Check".</li> </ul>	Go to Step 2.	Repair or replace.
2	<b>Environmental parameters check</b> 1) Connect SUZUKI scan tool to DLC with ignition switch turned OFF. 2) Check value of the following parameters. <ul style="list-style-type: none"> <li>• Battery voltage</li> <li>• Accel Position</li> <li>• APP sensor 1 voltage</li> <li>• APP sensor 2 voltage</li> <li>• Fuel Press target</li> <li>• Fuel Press measured</li> <li>• Engine speed</li> <li>• MAF</li> <li>• Coolant Temp</li> </ul>	Go to Step 3.	Check that system of faulty parameter.
3	<b>Electrical equipment check</b> 1) Check that main and circuit fuses have not blown.	Go to Step 4.	Repair or replace.
4	<b>Glow plug control module and its circuit check</b> 1) Check that glow plugs are working properly referring to "Table – 5520CA: Glow Plugs Operation Check".	Go to Step 5.	Repair or replace.

Step	Action	Yes	No
5	<b>EGR valve check</b> 1) Using SUZUKI scan tool, carry out output test of EGR valve.	Go to Step 6.	EGR valve not working. Check wiring continuity. Replace EGR valve if necessary referring to "EGR Valve Removal and Installation in Section 1D".
6	<b>Fuel filter check</b> 1) Check fuel filter for condition.	Go to Step 7.	Water, petrol, paraffin or dirt found to be present. Clean tank and pipes and replace fuel filter element referring to "Fuel Filter Element Replacement in Section 1G".
7	<b>Valve clearance check</b> 1) Check that valve clearance is correct referring to "Valve Lash (Clearance) Inspection in Section 1D".	Go to Step 8.	Valve clearance not correct. Adjust valve clearance referring to "Valve Lash (Clearance) Adjustment in Section 1D".
8	<b>Cylinder compression check</b> 1) Carry out cylinder compression check referring to "Compression Check in Section 1D".	Go to Step 10.	Cylinder compression insufficient. Go to Step 9.
9	<b>Check on cause of insufficient compression</b> 1) Carry out "Valve and Cylinder Head Assembly Removal and Installation in Section 1D" to check valve seal. Check condition of cylinders/piston rings.	End.	Valve seal insufficient. Overhaul cylinder head referring to "Valve and Cylinder Head Disassembly and Reassembly in Section 1D".

### Engine Idling High

Step	Action	Yes	No
1	<b>Ambient parameters check</b> 1) Connect SUZUKI scan tool to DLC with ignition switch turned OFF. 2) Check value of the following parameters. <ul style="list-style-type: none"> <li>• Battery voltage</li> <li>• Accel Position</li> <li>• APP sensor 1 voltage</li> <li>• APP sensor 2 voltage</li> <li>• IAT 1</li> <li>• Coolant Temp</li> <li>• Engine speed</li> <li>• Fuel Press target</li> <li>• Fuel Press measured</li> </ul>	End.	Check that system of faulty parameter.

**Engine Idling Too Low**

<b>Step</b>	<b>Action</b>	<b>Yes</b>	<b>No</b>
1	<b>Environmental parameters check</b> 1) Connect SUZUKI scan tool to DLC with ignition switch turned OFF. 2) Check value of the following parameters. <ul style="list-style-type: none"> <li>• Battery voltage</li> <li>• Accel Position</li> <li>• APP sensor 1 voltage</li> <li>• APP sensor 2 voltage</li> <li>• Engine speed</li> <li>• Fuel Press target</li> <li>• Fuel Press measured</li> </ul>	Go to Step 2.	Check that system of faulty parameter.
2	<b>Configuration tests</b> 1) If symptom is occurred after replacing any of the following component(s), it is necessary to register data of replacing component(s) in ECM described in "ECM Registration in Section 1C". <ul style="list-style-type: none"> <li>• Fuel pressure sensor</li> <li>• Fuel injector</li> <li>• Differential pressure sensor</li> <li>• Diesel particulate filter</li> <li>• Pre-catalytic converter</li> </ul>	Go to Step 3.	Carry out register data of replacing component(s) in ECM described in "ECM Registration in Section 1C".
3	<b>Electrical equipment check</b> 1) Check that main and circuit fuses have not blown.	Go to Step 4.	Repair or replace.
4	<b>Glow plug control module and its circuit check</b> 1) Check that glow plugs are working properly referring to "Table – 5520CA: Glow Plugs Operation Check".	Go to Step 5.	Repair.
5	<b>EGR valve check</b> 1) Using SUZUKI scan tool, carry out output test of EGR valve.	Go to Step 6.	EGR valve not working. Check wiring continuity. Replace EGR valve if necessary referring to "EGR Valve Removal and Installation in Section 1D".
6	<b>Fuel filter check</b> 1) Check fuel filter for condition.	Go to Step 7.	Water, petrol, paraffin or dirt found to be present. Clean tank and pipes and replace fuel filter element referring to "Fuel Filter Element Replacement in Section 1G".

Step	Action	Yes	No
7	<b>Valve clearance check</b> 1) Check that valve clearance is correct referring to "Valve Lash (Clearance) Inspection in Section 1D".	Go to Step 8.	Valve clearance not correct. Adjust valve clearance referring to "Valve Lash (Clearance) Adjustment in Section 1D".
8	<b>Cylinder compression check</b> 1) Carry out cylinder compression check referring to "Compression Check in Section 1D".	End.	Cylinder compression insufficient. Go to Step 9.
9	<b>Check on cause of insufficient compression</b> 1) Carry out "Valve and Cylinder Head Assembly Removal and Installation in Section 1D" to check valve seal. Check condition of cylinders/piston rings.	End.	Valve seal insufficient Overhaul head referring to "Valve and Cylinder Head Disassembly and Reassembly in Section 1D".

### Engine Going Off on Idling (Then Restarting)

Step	Action	Yes	No
1	<b>Preliminary check</b> 1) Check the following. <ul style="list-style-type: none"> <li>• Check that engine oil level is correct referring to "Engine Oil and Filter Change in Section 0B".</li> <li>• Check that intake air / vacuum circuit is working properly referring to "Table – 1048OA: Air Intake / Vacuum Circuit Check".</li> <li>• Check condition of fuel circuit and make sure that it is working properly referring to "Table – 1040OA: Fuel Supply System Check".</li> <li>• Wiring on engine correctly fastened to ground.</li> <li>• Battery correctly fastened to ground.</li> <li>• Positive battery pole and all leads connected to it correctly fastened.</li> </ul>	Go to Step 2.	Repair or replace.
2	<b>Ambient parameters check</b> 1) Connect SUZUKI scan tool to DLC with ignition switch turned OFF. 2) Check value of the following parameters. <ul style="list-style-type: none"> <li>• Battery voltage</li> <li>• Coolant Temp</li> <li>• Fuel Temp</li> <li>• Fuel Press target</li> <li>• Fuel Press measured</li> <li>• Engine speed</li> </ul>	Go to Step 3.	Check that system of faulty parameter.
3	<b>Electrical equipment check</b> 1) Check that main and circuit fuses have not blown.	Go to Step 4.	Repair or replace.

Step	Action	Yes	No
4	<b>Glow plug control module and its circuit check</b> 1) Check that glow plugs are working properly referring to "Table – 5520CA: Glow Plugs Operation Check".	Go to Step 5.	Repair.
5	<b>Low fuel pressure check</b> 1) Check low fuel pressure circuit referring to "Low Fuel Pressure Circuit Check".	Go to Step 6.	Repair or replace.
6	<b>High fuel pressure check</b> 1) Check high fuel pressure circuit referring to "High Fuel Pressure Circuit Check".	Go to Step 7.	Repair or replace.
7	<b>Pump power supply check</b> 1) Check that pump supply voltage is equal to 12 V and current is within 2 – 10 A referring to "Table – 1040AA: Check on Supply Voltage and Current Uptake".	Go to Step 8.	Voltage is lower than 12 V. Check electrical wiring.  Current greater than 10 A: pump defective. Replace fuel pump referring to "Fuel Pump Assembly Removal and Installation in Section 1G".  Current less than 2 A: pump obstructed. Replace fuel pump referring to "Fuel Pump Assembly Removal and Installation in Section 1G" and clean fuel tank.
8	<b>Check correct operation</b> 1) Replace fuel pressure regulator valve on common rail referring to "Common Rail, Fuel Pressure Sensor and Fuel Pressure Regulator Valve Removal and Installation in Section 1G" and check that malfunction is not detected.	End.	Replace high pressure pump referring to "High Pressure Pump Removal and Installation in Section 1G" and check that DTC is not detected.



**Poor Change in Engine Speed on Pressing Accelerator Pedal**

Step	Action	Yes	No
1	<b>Preliminary check</b> 1) Check the following. <ul style="list-style-type: none"> <li>• Check that engine oil level is correct referring to “Engine Oil and Filter Change in Section 0B”.</li> <li>• Check that intake air / vacuum circuit is working properly referring to “Table – 1048OA: Air Intake / Vacuum Circuit Check”.</li> <li>• Check condition of fuel circuit and make sure that it is working properly referring to “Table – 1040OA: Fuel Supply System Check”.</li> <li>• Check that low pressure circuit is working properly referring to “Low Fuel Pressure Circuit Check”.</li> </ul>	Go to Step 2.	Repair or replace.
2	<b>Ambient parameters check</b> 1) Connect SUZUKI scan tool to DLC with ignition switch turned OFF. 2) Check value of the following parameters. <ul style="list-style-type: none"> <li>• Battery voltage</li> <li>• Accel Position</li> <li>• APP sensor 1 voltage</li> <li>• APP sensor 2 voltage</li> <li>• MAF</li> <li>• IAT 2</li> <li>• Coolant Temp</li> <li>• Fuel Temp</li> <li>• Fuel Press target</li> <li>• Fuel Press measured</li> <li>• Engine speed</li> </ul>	End.	Check that system of faulty parameter.

**Engine Poor Response**

Step	Action	Yes	No
1	<b>Preliminary check</b> 1) Check the following. <ul style="list-style-type: none"> <li>• Check that engine oil level is correct referring to “Engine Oil and Filter Change in Section 0B”.</li> <li>• Check that intake air / vacuum circuit is working properly referring to “Table – 1048OA: Air Intake / Vacuum Circuit Check”.</li> <li>• Check condition of fuel circuit and make sure that it is working properly referring to “Table – 1040OA: Fuel Supply System Check”.</li> <li>• Check that low pressure circuit is working properly referring to “Low Fuel Pressure Circuit Check”.</li> </ul>	Go to Step 2.	Repair or replace.

Step	Action	Yes	No
2	<b>Ambient parameters check</b> 1) Connect SUZUKI scan tool to DLC with ignition switch turned OFF. 2) Check value of the following parameters. <ul style="list-style-type: none"> <li>• Battery voltage</li> <li>• Barometric Press</li> <li>• Boost Press target</li> <li>• Boost Press measured</li> <li>• MAF</li> <li>• Accel Position</li> <li>• APP sensor 1 voltage</li> <li>• APP sensor 2 voltage</li> <li>• Coolant Temp</li> <li>• Fuel temperature</li> <li>• Fuel Press target</li> <li>• Fuel Press measured</li> <li>• Engine speed</li> </ul>	Go to Step 3.	Check that system of faulty parameter.
3	<b>Electrical equipment check</b> 1) Check that main and circuit fuses have not blown.	Go to Step 4.	Repair or replace.
4	<b>Glow plug control module and its circuit check</b> 1) Check that glow plugs are working properly referring to "Table – 5520CA: Glow Plugs Operation Check".	End.	Repair or replace.

**Engine Going Off on Running (Then Not Restarting)**

Step	Action	Yes	No
1	<b>Preliminary check</b> 1) Check the following. <ul style="list-style-type: none"> <li>• Check that engine oil level is correct referring to "Engine Oil and Filter Change in Section 0B".</li> <li>• Check that intake air / vacuum circuit is working properly referring to "Table – 1048OA: Air Intake / Vacuum Circuit Check".</li> <li>• Check condition of fuel circuit and make sure that it is working properly referring to "Table – 1040OA: Fuel Supply System Check".</li> <li>• Wiring on engine correctly fastened to ground</li> <li>• Battery correctly fastened to ground</li> <li>• Positive battery pole and all leads connected to it correctly fastened.</li> </ul>	Go to Step 2.	Repair or replace.

Step	Action	Yes	No
2	<b>Ambient parameters check</b> 1) Connect SUZUKI scan tool to DLC with ignition switch turned OFF. 2) Check value of the following parameters. <ul style="list-style-type: none"> <li>• Battery voltage</li> <li>• Engine speed</li> <li>• Fuel Press target</li> <li>• Fuel Press measured</li> </ul>	Go to Step 3.	Check that system of faulty parameter.
3	<b>Diesel particulate filter system check</b> 1) Check that diesel particulate filter system is working properly.	Go to Step 4.	Repair or replace.
4	<b>Electrical equipment check</b> 1) Check that main and circuit fuses have not blown.	Go to Step 5.	Repair or replace.
5	<b>Glow plug control module and its circuit check</b> 1) Check that glow plugs are working properly referring to "Table – 5520CA: Glow Plugs Operation Check".	Go to Step 6.	Repair.
6	<b>Low fuel pressure check</b> 1) Check low fuel pressure circuit referring to "Low Fuel Pressure Circuit Check".	Go to Step 7.	Repair or replace.
7	<b>High fuel pressure check</b> 1) Check high fuel pressure circuit referring to "High Fuel Pressure Circuit Check".	Go to Step 8.	Repair or replace.
8	<b>Pump power supply check</b> 1) Check that pump supply voltage is equal to 12 V and current is within 2 – 10 A referring to "Table – 1040AA: Check on Supply Voltage and Current Uptake".	Go to Step 9.	Voltage is lower than 12 V. Check electrical wiring. Current greater than 10 A: pump defective. Replace fuel pump referring to "Fuel Pump Assembly Removal and Installation in Section 1G". Current less than 2 A: pump obstructed. Replace fuel pump referring to "Fuel Pump Assembly Removal and Installation in Section 1G" and clean fuel tank.

Step	Action	Yes	No
9	<b>Check correct operation</b> 1) Replace fuel pressure regulator valve on common rail referring to "Common Rail, Fuel Pressure Sensor and Fuel Pressure Regulator Valve Removal and Installation in Section 1G" and check that malfunction is not detected.	End.	Replace high pressure pump referring to "High Pressure Pump Removal and Installation in Section 1G".

### Engine Cuts Out Whilst Driving

Step	Action	Yes	No
1	<b>Preliminary check</b> 1) Check the following. <ul style="list-style-type: none"> <li>• Check that engine oil level is correct referring to "Engine Oil and Filter Change in Section 0B".</li> <li>• Check that intake air / vacuum circuit is working properly referring to "Table – 1048OA: Air Intake / Vacuum Circuit Check".</li> <li>• Check condition of fuel circuit and make sure that it is working properly referring to "Table – 1040OA: Fuel Supply System Check".</li> <li>• Wiring on engine correctly fastened to ground.</li> <li>• Battery correctly fastened to ground.</li> <li>• Positive battery pole and all leads connected to it correctly fastened.</li> </ul>	Go to Step 2.	Repair or replace.
2	<b>Ambient parameters check</b> 1) Connect SUZUKI scan tool to DLC with ignition switch turned OFF. 2) Check value of the following parameters. <ul style="list-style-type: none"> <li>• Battery voltage</li> <li>• Engine speed</li> </ul>	Go to Step 3.	Check that system of faulty parameter.
3	<b>Diesel particulate filter system check</b> 1) Check that diesel particulate filter system is working properly.	Go to Step 4.	Repair or replace.
4	<b>Electrical equipment check</b> 1) Check that main and circuit fuses have not blown.	Go to Step 5.	Repair or replace.
5	<b>Glow plug control module and its circuit check</b> 1) Check that glow plugs are working properly referring to "Table – 5520CA: Glow Plugs Operation Check".	Go to Step 6.	Repair.
6	<b>Low fuel pressure check</b> 1) Check low fuel pressure circuit referring to "Low Fuel Pressure Circuit Check".	Go to Step 7.	Repair or replace.