

IMPORTANT

WARNING/CAUTION/NOTE

Please read this manual and follow its instructions carefully. To emphasize special information, the words

⚠ WARNING, **⚠ CAUTION** and **NOTE** have special meanings. Pay special attention to the messages highlighted by these signal words.

⚠ WARNING

Indicates a potential hazard that could result in death or injury.

⚠ CAUTION

Indicates a potential hazard that could result in vehicle damage.

NOTE:

Indicates special information to make maintenance easier or instructions clearer.

⚠ WARNING

This service manual is intended for authorized Suzuki dealers and qualified service technicians only. Inexperienced technicians or technicians without the proper tools and equipment may not be able to properly perform the services described in this manual.

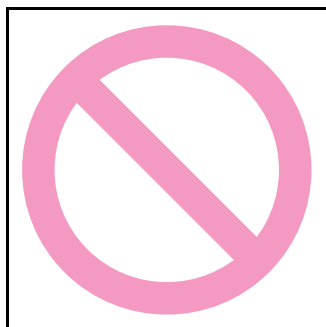
Improper repair may result in injury to the technician and may render the vehicle unsafe for the driver and passengers.

⚠ WARNING

For vehicles equipped with a Supplemental Restraint (Air Bag) System:

- Service on and around the air bag system components or wiring must be performed only by an authorized SUZUKI dealer. Refer to “Air Bag System Components and Wiring Location View” under “General Description” in air bag system section in order to confirm whether you are performing service on or near the air bag system components or wiring. Please observe all WARNINGS and “Service Precautions” under “On-Vehicle Service” in air bag system section before performing service on or around the air bag system components or wiring. Failure to follow WARNINGS could result in unintentional activation of the system or could render the system inoperative. Either of these two conditions may result in severe injury.
 - If the air bag system and another vehicle system both need repair, Suzuki recommends that the air bag system be repaired first, to help avoid unintended air bag system activation.
 - Do not modify the steering wheel, instrument panel or any other air bag system component on or around air bag system components or wiring. Modifications can adversely affect air bag system performance and lead to injury.
 - If the vehicle will be exposed to temperatures over 93 °C (200 °F), for example, during a paint baking process, remove the air bag system components, that is air bag (inflator) modules, SDM and/or seat belt with pretensioner, beforehand to avoid component damage or unintended activation.
-

The circle with a slash in this manual means “Don’t do this” or “Don’t let this happen”.



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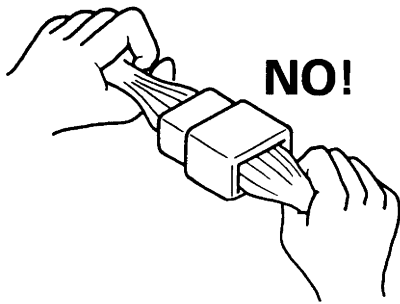


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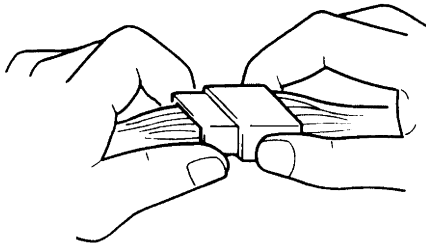
00-9 Precautions:

- When disconnecting connectors, never pull the wiring harness. Unlock the connector lock first and then pull them apart by holding connectors themselves.



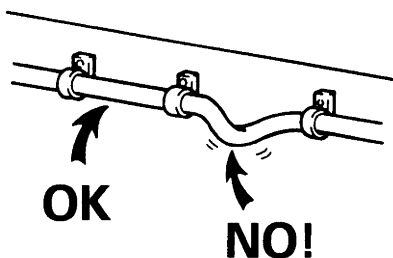
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- When connecting connectors, also hold connectors and put them together until they lock securely (a click is heard).



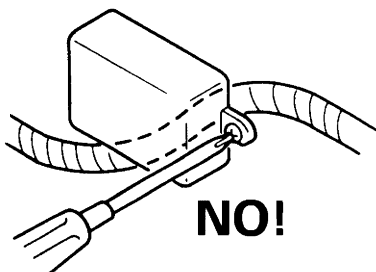
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- When installing the wiring harness, fix it with clamps so that no slack is left.



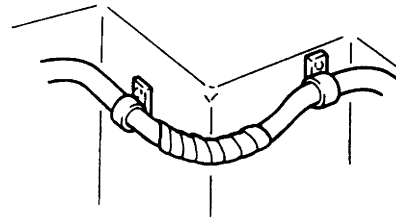
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- When installing vehicle parts, be careful so that the wiring harness is not interfered with or caught by any other part.



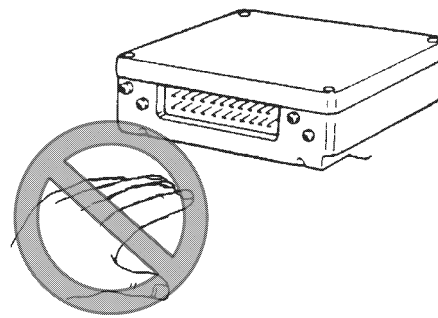
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- To avoid damage to the harness, protect its part which may contact against a part forming a sharp angle by winding tape or the like around it.



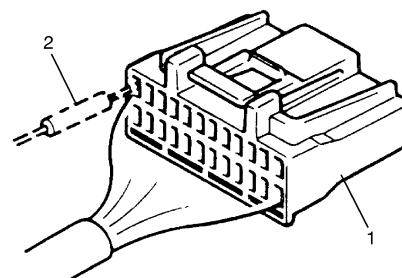
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- Be careful not to touch the electrical terminals of parts which use microcomputers (e.g. electronic control unit like as ECM, PCM, P/S controller, etc.). The static electricity from your body can damage these parts.

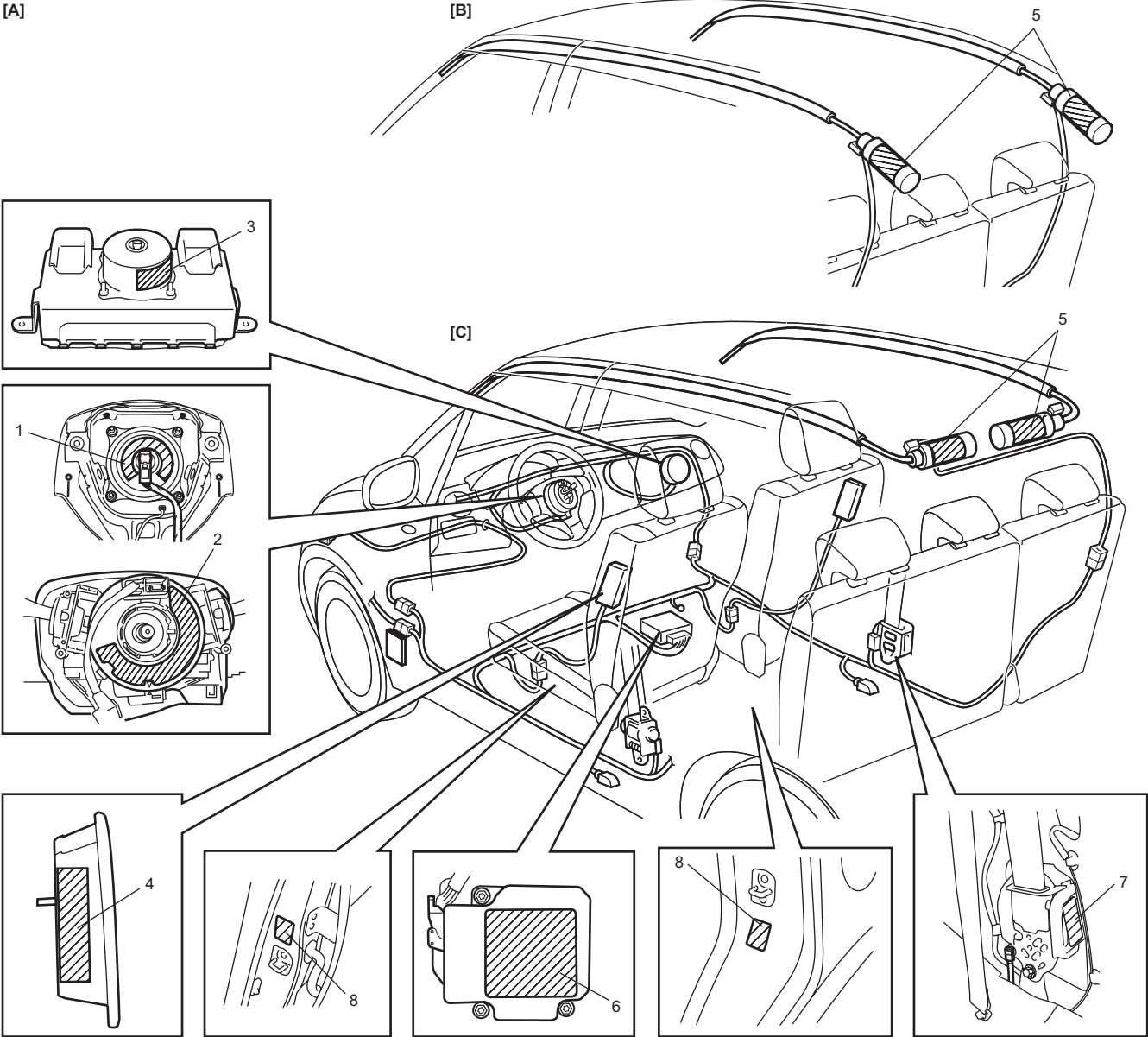


I3RM0A000004-01

- Never connect any tester (voltmeter, ohmmeter, or whatever) to electronic control unit when its coupler is disconnected. Attempt to do it may cause damage to it.
- Never connect an ohmmeter to electronic control unit with its coupler connected to it. Attempt to do it may cause damage to electronic control unit and sensors.
- Be sure to use a specified voltmeter / ohmmeter. Otherwise, accurate measurements may not be obtained or personal injury may result. If not specified, use a voltmeter with high impedance ($M \Omega/V$ minimum) or a digital type voltmeter.
- When taking measurements at electrical connectors using a tester probe, be sure to insert the probe (2) from the wire harness side (backside) of the connector (1).



I2RH01010046-01



I7RW0A010001-01

1. Air bag label on driver air bag (inflator) module	7. Pretensioner label on seat belt retractor
2. Air bag label on contact coil assembly	8. Side/Curtain air bag label on pillar (both right and left sides) (if equipped)
3. Air bag label on passenger air bag (inflator) module	[A]: These labels are attached on vehicle equipped with air bag system only.
4. Air bag label on side air bag (inflator) module (if equipped)	[B]: Sedan model
5. Air bag label on curtain air bag (inflator) module	[C]: Hatchback model
6. Air bag label on SDM	

1A-2 Engine General Information and Diagnosis:

- Therefore, check both ECM and TCM for DTC when MIL lights on.
- When checking ECM for DTC, keep in mind that DTC is displayed on the scan tool as follows depending on the scan tool used.
 - SUZUKI scan tool displays DTC detected by ECM.
 - CAN communication OBD generic scan tool displays DTC detected by each of ECM and TCM simultaneously.
- Priorities for diagnosing troubles
If two or more diagnostic trouble codes (DTCs) are stored, proceed to the flow of the DTC which has detected earliest in the order and follow the instruction in that table.
If no instructions are given, DTCs according to the following priorities.
 - a. Diagnostic trouble codes (DTCs) other than DTC P0171 / P0172 (Fuel system too lean/too rich) and DTC P0300 / P0301 / P0302 / P0303 / P0304 (Misfire detected)
 - b. DTC P0171 / P0172 (Fuel system too lean/too rich)
 - c. DTC P0300 / P0301 / P0302 / P0303 / P0304 (Misfire detected)
- Be sure to read "Precaution for CAN Communication System in Section 00" before inspection and observe what is written there.
- ECM Replacement
When substituting a known-good ECM, check for the following conditions. Neglecting this check may cause damage to known good ECM.
 - Resistance value of all relays, actuators is as specified respectively.
 - APP sensor, TP sensor and A/C refrigerant pressure sensor are in good condition and none of power circuits of these sensors is shorted to ground.
- Communication of ECM, BCM, combination meter, keyless start control module, ABS / control module, 4WD control module and TCM, is established by CAN (Controller Area Network). (For more detail of CAN communication for ECM, refer to "CAN Communication System Description"). Therefore, handle CAN communication line with care referring to "Precaution for CAN Communication System in Section 00".
- Immobilizer transponder code registration after replacing ECM (Immobilizer model)
When ECM is replaced with new one or with another one, make sure to register immobilizer transponder code to ECM correctly according to "Procedure after ECM Replacement in Section 10C".

Precautions for DTC Troubleshooting

S7RW0C1100004

- Before performed trouble shooting, be sure to read the "Precautions of ECM Circuit Inspection".
- When measuring circuit voltage, resistance and/or pulse signal at ECM connector, connect the special tool to ECM and/or the ECM connectors referring to "Inspection of ECM and Its Circuits".
- Upon completion of inspection and repair work, perform "DTC Confirmation Procedure" and confirm that the trouble has been corrected.

Precautions of ECM Circuit Inspection

S7RW0C1100005

- ECM connectors are waterproofed. Each terminal of the ECM connectors is sealed up with the grommet. Therefore, when measuring circuit voltage, resistance and/or pulse signal at ECM connector, do not insert the tester's probe into the sealed terminal at the harness side. When measuring circuit voltage, resistance and/or pulse signal at ECM connector, connect the special tool to the ECM connectors. And, insert the tester's probe into the special tool's connectors at the harness side, and then measure voltage, resistance and/or pulse signal. Or, ECM and its circuits may be damaged by water.
- Wire colors of the special tool's connectors are different from the ones of the ECM connectors. However, the circuit arrangement of the special tool's connectors is same as the one of the ECM connectors. Therefore, measure circuit voltage and resistance by identifying the terminal location subject to the measurement.

Precautions of Electric Throttle Body System Calibration

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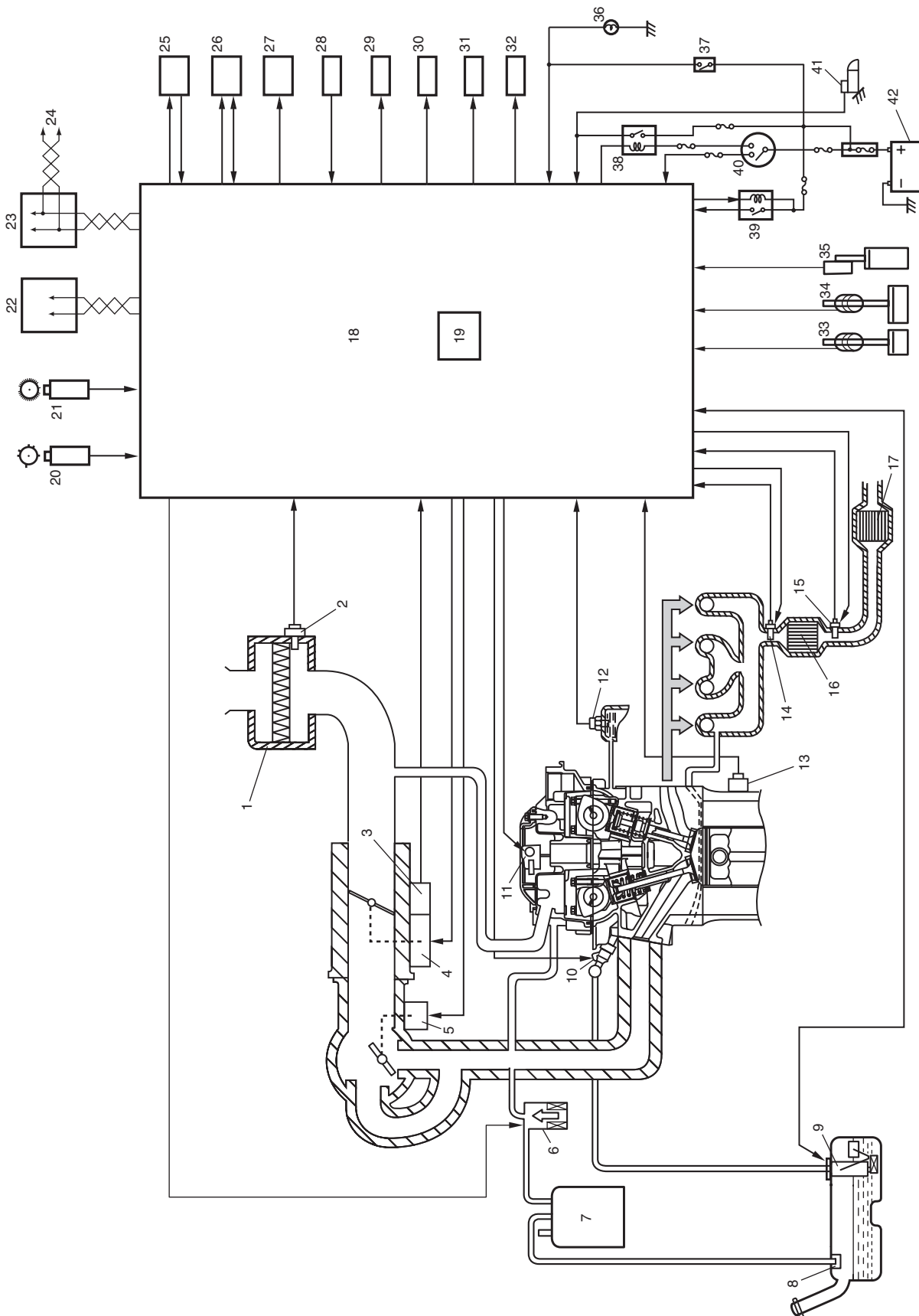
After performing one of works described below, it is necessary to re-register the completely closed throttle valve reference position stored in memory of ECM. (For detailed information, refer to "Description of Electric Throttle Body System Calibration".) For the procedure to register such data in ECM, refer to "Electric Throttle Body System Calibration in Section 1C".

- To shut off backup power of ECM for such purposes of battery replacement or "DOME" fuse removal.
- To erase DTCs P0607, P0122, P0123, P0222, P0223, P2101, P2102, P2103, P2111, P2119, P2122, P2123, P2127, P2128, P2135 and/or P2138.
- To replace ECM.
- To replace throttle body and/or APP sensor assembly.

Schematic and Routing Diagram

Engine and Emission Control System Diagram

S7RW0C1102001



1A-32 Engine General Information and Diagnosis:

Step	Action	Yes	No
4	<p>DTC Check</p> <ol style="list-style-type: none"> 1) Turn ignition switch to OFF position. 2) Connect scan tool to DLC. 3) Check DTC in the following control modules that communicate with scan tool by K-line. <ul style="list-style-type: none"> • BCM • Keyless start control module • 4WD control module <p><i>Is there any DTC other than CAN-DTC?</i></p>	Go to applicable troubleshooting of DTC other than CAN-DTC.	Go to Step 5.
5	<p>CAN line check between DLC and BCM</p> <ol style="list-style-type: none"> 1) Turn ignition switch to OFF position. 2) Disconnect BCM connector from BCM. 3) Check for proper connection to all terminals of BCM connector. 4) If OK, check CAN lines between DLC and BCM connector for open, short to power circuit, short to ground circuit, short to other CAN line and high resistance. <p><i>Are CAN lines between DLC and BCM connector in good condition?</i></p>	Go to Step 6.	Repair CAN line.
6	<p>Control module connector check</p> <ol style="list-style-type: none"> 1) Turn ignition switch to OFF position. 2) Disconnect all the following control module connectors. <ul style="list-style-type: none"> • Control modules communicated by CAN <ul style="list-style-type: none"> – ECM – TCM – ABS control module – BCM – Combination meter – Keyless start control module – 4WD control module 3) Check for proper connection to each CAN line terminal of all control module (communicated by CAN) connectors. 4) If OK, connect connectors of all control module/sensor communicated by CAN securely. 5) Check communication between scan tool and ECM/TCM by DTC check in ECM/TCM. <p><i>Is it possible to check DTC in ECM and TCM?</i></p>	Intermittent trouble. Check for intermittent referring to “Intermittent and Poor Connection Inspection in Section 00”.	Go to Step 7.

Visual Inspection

S7RW0C1104009

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 Leakage Check Procedure in Section 1G"
A/T fluid	Level, leakage	"Automatic Transaxle Fluid Level Inspection in Section 0B"
Air cleaner element	Dirt, clogging	"Accessory Drive Belt Inspection in Section 0B"
Battery	Fluid level, corrosion of terminal	"Battery Description in Section 1J"
Water pump belt	Tension, damage	"Accessory Drive Belt Inspection in Section 0B"
Throttle valve	Operating sound	"Electric Throttle Body Assembly On-Vehicle Inspection in Section 1C"
Vacuum hoses of air intake system	Disconnection, looseness, deterioration, bend	"Vacuum Hose and Purge Valve Chamber Inspection in Section 1B"
Connectors of electric wire harness	Disconnection, friction	
Fuses	Burning	"Intermittent and Poor Connection Inspection in Section 00"
Parts	Installation, deformation	—
Bolt	Looseness	—
Other parts that can be checked visually		—
Also add the following items at engine start, if possible		
MIL	Operation	"Malfunction Indicator Lamp (MIL) Check"
Charging light	Operation	"Generator Symptom Diagnosis in Section 1J"
Engine oil pressure light	Operation	"Oil Pressure Switch Inspection in Section 9C"
Engine coolant temp. meter	Operation	"Engine Coolant Temperature (ECT) Sensor Inspection in Section 9C"
Fuel level meter	Operation	"Fuel Level Sensor Inspection in Section 9C"
Tachometer	Operation	—
Exhaust system	Leakage of exhaust gas, noise	—
Abnormal air being inhaled from air intake system		—
Other parts that can be checked visually		—

Engine Basic Inspection

S7RW0C1104010

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	Was "Engine and Emission Control System Check" performed?	Go to Step 2.	Go to "Engine and Emission Control System Check".
2	Check battery voltage Is it 11 V or more?	Go to Step 3.	Charge or replace battery.
3	Is vehicle equipped with keyless start control system?	Go to Step 4.	Go to Step 5.
4	Check keyless start control system for operation 1) Check keyless start control system referring to "Keyless Start System Operation Inspection in Section 10E". Is check result satisfactory?	Go to Step 5.	Keyless start control system malfunction.

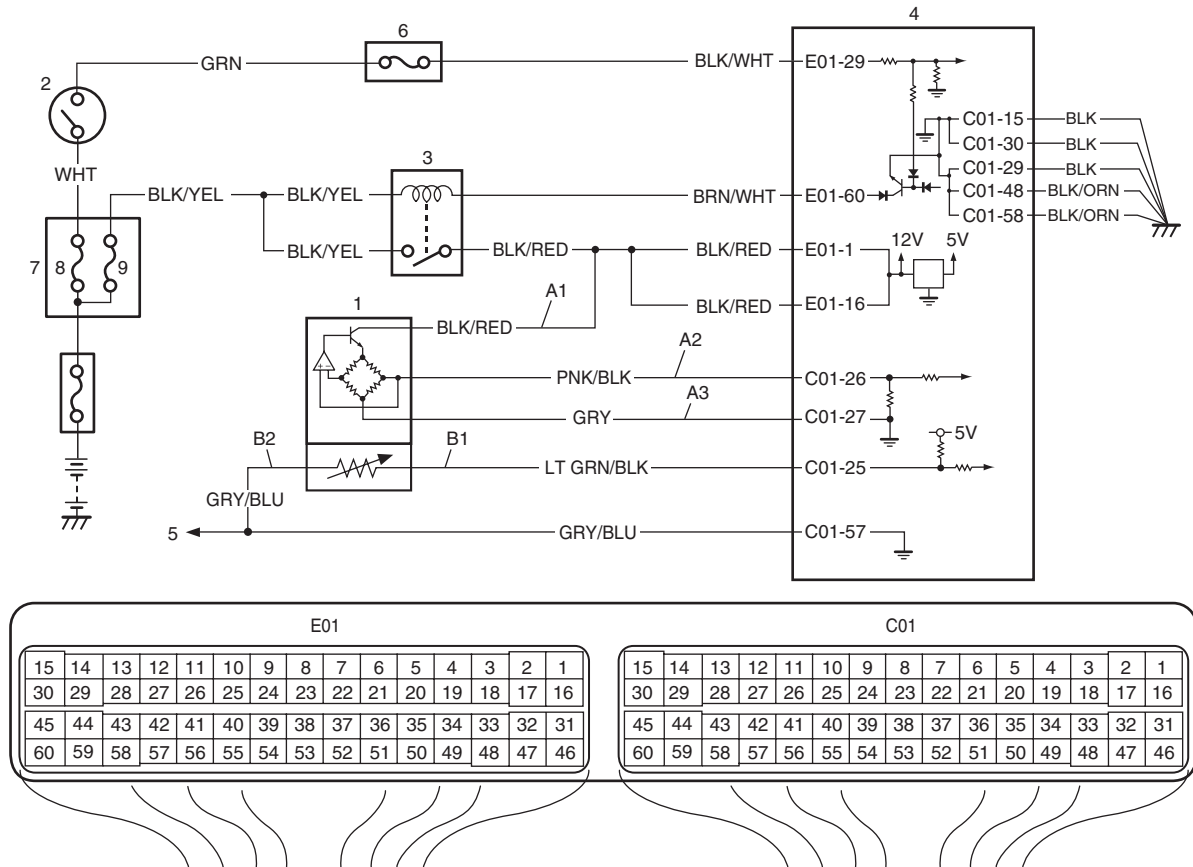
1A-62 Engine General Information and Diagnosis:

Step	Action	Yes	No
4	<p>HO2S heater circuit check</p> <p>1) Disconnect connectors from ECM and check for proper terminal connection to ECM connector.</p> <p>2) If connections are OK, check that HO2S heater circuit is as follows.</p> <ul style="list-style-type: none"> • Insulation resistance of wire harness is infinity between “Control circuit of HO2S heater” terminal and each other terminal at HO2S connector. • Wiring harness resistance of “Control circuit of HO2S heater” is less than 1 Ω. • Insulation resistance between “Control circuit of HO2S heater” and vehicle body ground is infinity. <p><i>Is it in good condition?</i></p>	Go to Step 5.	Repair or replace defective wiring harness / connector.
5	<p>HO2S heater check</p> <p>1) Check heater resistance of HO2S referring to “Heated Oxygen Sensor (HO2S) Heater On-Vehicle Inspection in Section 1C”.</p> <p><i>Is HO2S heater in good condition?</i></p>	Substitute a known-good ECM and recheck.	Replace HO2S.

DTC P0101: Mass or Volume Air Flow Circuit Range / Performance

S7RW0C1104017

Wiring Diagram



I7RW01110046-03

A1: MAF sensor power supply circuit	B2: IAT sensor ground circuit	4. ECM	8. "IGN" fuse
A2: MAF sensor signal circuit	1. MAF and IAT sensor	5. To other sensors	9. "FI" fuse
A3: MAF sensor ground circuit	2. Ignition switch	6. "IG COIL" fuse	
B1: IAT sensor signal circuit	3. Main relay	7. Fuse box No.2	

DTC P0134: O2 Sensor Circuit No Activity Detected (Sensor-1, Bank-1)

S7RW0C1104026

Wiring Diagram

Refer to “DTC P0030: HO2S Heater Control Circuit (Sensor-1, Bank-1)”.

A/F Sensor Description

Refer to “A/F Sensor Description”.

DTC Detecting Condition and Trouble Area

DTC detecting condition	Trouble area
Impedance of A/F sensor element is higher than 500 Ω for 15 sec. even though A/F sensor heater is turned ON for specified time with engine running. (2 driving cycle detection logic)	<ul style="list-style-type: none"> • A/F sensor and/or its circuit • ECM

DTC Confirmation Procedure

NOTE

Check to make sure that the following conditions are satisfied when using this “DTC Confirmation Procedure”.

- The following DTCs are not detected: DTCs related to A/F sensor heater

- 1) With ignition switch OFF, connect scan tool to DLC.
- 2) Turn ON ignition switch and clear DTC.
- 3) Start engine and warm up to normal operating temperature.
- 4) Run engine at idle speed for 2 min. or more.
- 5) Check DTC and pending DTC.

DTC Troubleshooting

Step	Action	Yes	No
1	Was “Engine and Emission Control System Check” performed?	Go to Step 2.	Go to “Engine and Emission Control System Check”.
2	<p>A/F sensor signal check</p> <ol style="list-style-type: none"> 1) Connect scan tool with ignition switch turned OFF. 2) Warm up engine to normal operating temperature and keep it at 2000 r/min. for 60 sec. 3) Repeat racing engine (Repeat depressing accelerator pedal 5 to 6 times continuously to enrich A/F mixture and take foot off from pedal to enlean it). 4) Check for A/F sensor output current displayed on scan tool. <p>Does A/F sensor output current between -0.2 mA and 0.2 mA?</p>	<p>Intermittent trouble.</p> <p>Check for intermittent referring to “Intermittent and Poor Connection Inspection in Section 00”.</p>	Go to Step 3.

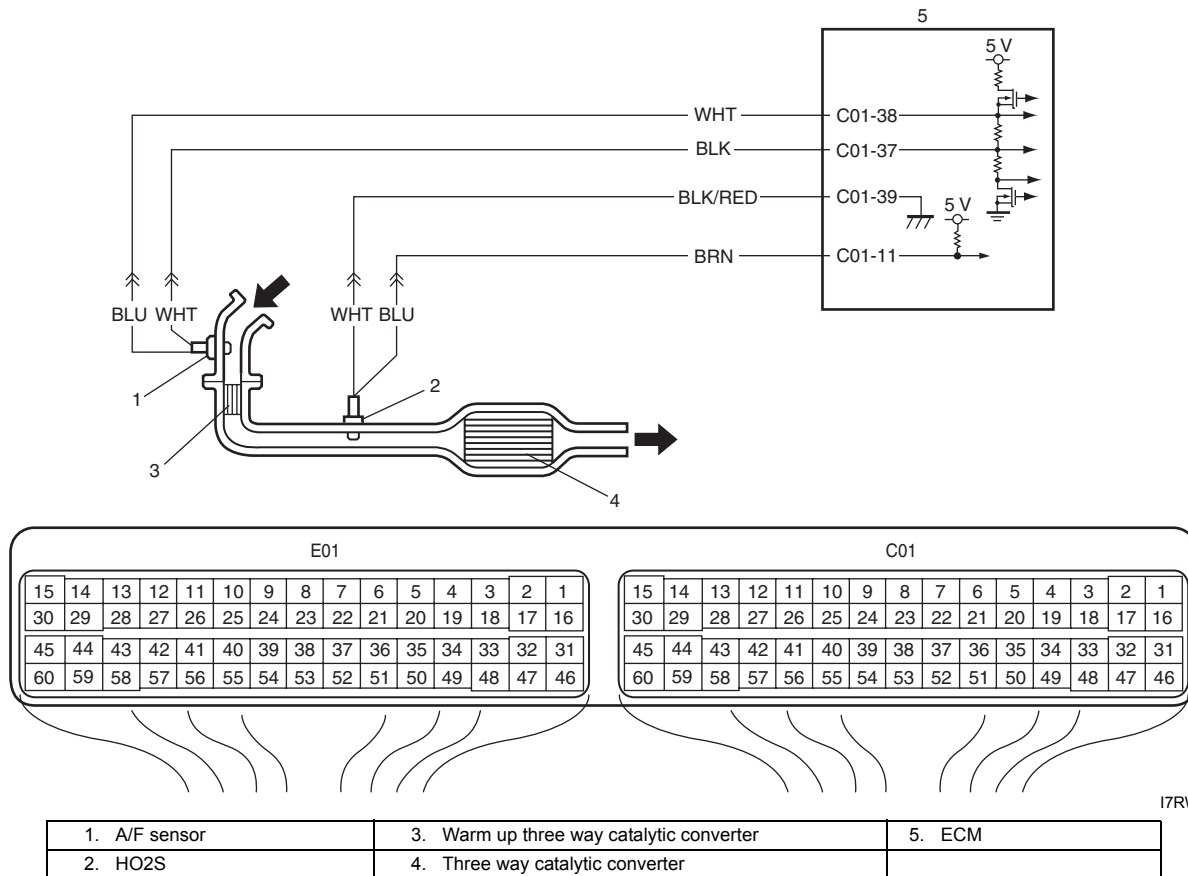
1A-92 Engine General Information and Diagnosis:

Step	Action	Yes	No
6	CMP sensor check 1) Check CMP sensor and sensor rotor referring to "Camshaft Position (CMP) Sensor Inspection in Section 1C". <i>Are they in good condition?</i>	Substitute a known-good ECM and recheck.	Replace CMP sensor and/or sensor rotor.

DTC P0420: Catalyst System Efficiency Below Threshold (Bank-1)

S7RW0C1104035

System and Wiring Diagram



System Description

ECM monitors oxygen concentration in the exhaust gas which has passed the warm up three way catalytic converter by HO2S. When the catalyst is functioning properly, the variation cycle of HO2S output voltage (oxygen concentration) is slower than that of A/F sensor output signal because the amount of oxygen in the exhaust gas is stored in warm up three way catalytic converter.

A/F Sensor Description

Refer to "A/F Sensor Description".

DTC Detecting Condition and Trouble Area

DTC detecting condition	Trouble area
Ratio of integrated value of HO2S output variation per integrated value of A/F sensor output variation is more than specification while vehicle is running after warmed up. (2 driving cycle detection logic, monitoring once per driving cycle)	<ul style="list-style-type: none"> • Exhaust gas leak • Warm up three way catalytic converter • HO2S • A/F sensor

DTC Detecting Condition and Trouble Area

DTC detecting condition	Trouble area
DTC P0532: Output voltage of A/C refrigerant pressure sensor is lower than 0.2 V for 5 sec. (1 driving cycle detection logic but MIL does not light up)	<ul style="list-style-type: none"> • A/C refrigerant pressure sensor and/or its circuit • ECM
DTC P0533: Output voltage of A/C refrigerant pressure sensor is higher than 4.93 V for 5 sec. (1 driving cycle detection logic but MIL does not light up)	

DTC Confirmation Procedure

- 1) With ignition switch turned OFF, connect scan tool.
- 2) Turn ON ignition switch and clear DTC by using scan tool.
- 3) Check DTC.

DTC Troubleshooting

Step	Action	Yes	No
1	Was "Engine and Emission Control System Check" performed?	Go to Step 2.	Go to "Engine and Emission Control System Check".
2	A/C refrigerant pressure sensor and its circuit check 1) Check A/C refrigerant pressure sensor and its circuit for condition referring to "A/C Refrigerant Pressure Sensor and Its Circuit Inspection: Manual Type in Section 7B". Is it in good condition?	Substitute a known-good ECM and recheck.	Repair or replace defective parts.

DTC P0601 / P0602 / P0607: Internal Control Module Memory Check Sum Error / Control Module Programming Error / Control Module Performance

S7RW0C1104043

System Description

Internal control module is installed in ECM.

DTC Detecting Condition and Trouble Area

NOTE

After reprogramming of ECM is executed, if the DTC P0601 and/or P0602 are indicated, it is possible that the reprogramming of ECM is not completed correctly.

DTC detecting condition	Trouble area
DTC P0601: Data write error or check sum error. (1 driving cycle detection logic, monitoring once per driving cycle)	<ul style="list-style-type: none"> • ECM power supply circuit and or ground circuit • ECM
DTC P0602: Data programming error. (1 driving cycle detection logic but MIL does not light up)	
DTC P0607: ECM internal processor error. (1 driving cycle detection logic)	

DTC Confirmation Procedure

- 1) With ignition switch OFF, connect scan tool.
- 2) Turn ON ignition switch and clear DTC by using scan tool.
- 3) Start engine and run it at idle if possible.
- 4) Check DTC.

1A-122 Engine General Information and Diagnosis:

Step	Action	Yes	No
4	<p>Wire harness check</p> <p>1) Check TP sensor (main and sub) circuit for condition. For TP sensor (main) circuit, refer to Step 3 of "DTC P0122 / P0123: Throttle / Pedal Position Sensor / Switch "A" Circuit Low / High". For TP sensor (sub) circuit, refer to Step 3 of "DTC P0222 / P0223: Throttle Position Sensor (Sub) Circuit Low / High".</p> <p><i>Is it in good condition?</i></p>	Substitute a known-good ECM and recheck.	Repair or replace.

DTC P2138: Pedal Position Sensor (Main / Sub) Voltage Correction

S7RW0C1104055

Wiring Diagram

Refer to "DTC P0122 / P0123: Throttle / Pedal Position Sensor / Switch "A" Circuit Low / High".

DTC Detecting Condition and Trouble Area

DTC detecting condition	Trouble area
Difference between the opening angle based on APP sensor (main) and the opening angle based on APP sensor (sub) is more than specification for 0.5 sec. (1 driving detection logic)	<ul style="list-style-type: none"> • APP sensor (main) and/or its circuit • APP sensor assembly • ECM

DTC Confirmation Procedure

- 1) With ignition switch turned OFF, connect scan tool.
- 2) Turn ON ignition switch and clear DTC by using scan tool.
- 3) Keep the accelerator pedal at idle position for 2 sec.
- 4) Keep the accelerator pedal at fully depressed position for 2 sec.
- 5) Repeat Step 3) and 4) for 3 times.
- 6) Check DTC.

DTC Troubleshooting

Step	Action	Yes	No
1	<p><i>Was "Engine and Emission Control System Check" performed?</i></p>	Go to Step 2.	Go to "Engine and Emission Control System Check".
2	<p>TP sensor and its circuit check</p> <p>1) Connect scan tool to DLC with ignition switch turned OFF.</p> <p>2) Turn ON ignition switch, check "APP Sensor 1 Volt" and "APP Sensor 2 Volt" displayed on scan tool when accelerator pedal is idle position and fully depressed.</p> <p><i>Is displayed each APP sensor value as described voltage in "Scan Tool Data"?</i></p>	Intermittent trouble. Check for intermittent referring to "Intermittent and Poor Connection Inspection in Section 00".	Go to Step 3.
3	<p>APP sensor check</p> <p>1) Check APP sensor for performance referring to "Accelerator Pedal Position (APP) Sensor Assembly On-Vehicle Inspection in Section 1C".</p> <p><i>Is it in good condition?</i></p>	Go to Step 4.	Replace APP sensor assembly.

Terminal No.	Wire color	Circuit	Normal voltage	Condition	Remarks
E01-22	LT GRN	Cruise control command switch signal	4 – 6 V	IG switch: ON	—
E01-23	—	—	—	—	—
E01-24	YEL/RED	Fuel level sensor signal	0 – 6 V	IG switch: ON	Voltage varies depends on fuel level
E01-25	—	—	—	—	—
E01-26	—	—	—	—	—
E01-27	RED/BLU	EPS active signal (idle up signal)	Approx. 12 V	Ignition switch ON	—
			0 – 1 V	Engine idling and turned steering wheel to the right or left until it stops	
E01-28	YEL/BLK	Serial communication line for immobilizer coil antenna	10 – 14 V	IG switch: ON	—
E01-29	BLK/WHT	Ignition switch signal	0 – 1 V	IG switch: OFF	—
			10 – 14 V	IG switch: ON	
E01-30	WHT	Starting motor control relay output	0 – 1 V	IG switch: ON	—
				IG switch: ST (engine cranking)	
E01-31	—	—	—	—	—
E01-32	—	—	—	—	—
E01-33	—	—	—	—	—
E01-34	—	—	—	—	—
E01-35	BLU/WHT	Electric load signal for heater blower motor	0 – 14 V	IG switch: ON Blower selector < 3rd position (Manual A/C model)	—
				IG switch: ON Blower selector < 2nd position (Auto A/C model)	
			0 – 1 V	IG switch: ON Blower selector > 2nd position	—
E01-36	ORN	Ground for sensors	Below 0.3 V	IG switch: ON	—
E01-37	—	—	—	—	—
E01-38	—	—	—	—	—
E01-39	—	—	—	—	—
E01-40	—	—	—	—	—
E01-41	WHT/BLK	A/C evaporator outlet air temp. sensor signal (manual A/C model)	3.4 – 3.7 V	IG switch: ON A/C evaporator outlet temperature: 0 °C (32 °F).	—
			2.5 – 2.8 V	IG switch: ON A/C evaporator outlet temperature: 15 °C (59 °F).	
			1.7 – 2.0 V	IG switch: ON A/C evaporator outlet temperature: 30 °C (86 °F).	
		A/C evaporator outlet air temp. sensor signal (auto A/C model)	0 – 2 V	IG switch: ON	
E01-42	—	—	—	—	—
E01-43	—	—	—	—	—

Troubleshooting

NOTE

- Before performed troubleshooting, be sure to read the “Precautions of ECM Circuit Inspection”.
- When measuring circuit voltage, resistance and/or pulse signal at ECM connector, connect the special tool to ECM and/or the ECM connectors referring to “Inspection of ECM and Its Circuits”.

Step	Action	Yes	No
1	<p>Fuel injector check for operating sound</p> <p>1) Using sound scope, check each injector for operating sound at engine cranking.</p> <p><i>Do all 4 injector make operating sound?</i></p>	Fuel injectors circuit is in good condition.	Go to Step 2.
2	<p>Fuel injector resistance check</p> <p>1) Disconnect connectors from fuel injectors with ignition switch turned OFF.</p> <p>2) Check for proper connection to fuel injector at each terminals.</p> <p>3) If OK, check all 4 fuel injectors for resistance referring to “Fuel Injector On-Vehicle Inspection in Section 1G”.</p> <p><i>Are all injectors in good condition?</i></p>	Go to Step 3.	Faulty fuel injector.
3	<p>Fuel injector insulation resistance check</p> <p>1) Check that there is insulation between each fuel injector terminal and engine ground.</p> <p><i>Is there insulation?</i></p>	Go to Step 4.	Faulty fuel injector.
4	<p>Fuel injector power supply check</p> <p>1) Measure voltage between each “BLK/RED” wire terminal of fuel injector connector and engine ground with ignition switch turned ON.</p> <p><i>Is voltage 10 – 14 V?</i></p>	Go to Step 5.	<p>“BLK/RED” wire is open or shorted to ground circuit.</p> <p>If it is in good condition, go to “ECM Power and Ground Circuit Check”.</p>
5	<p>Wire circuit check</p> <p>1) Turn OFF ignition switch.</p> <p>2) Disconnect connectors from ECM.</p> <p>3) Measure resistance between each “BLU/YEL”, “BLU/WHT”, “BLU/RED”, “BLU/ORN” wire terminal of fuel injector connector and vehicle body ground.</p> <p><i>Is resistance infinity?</i></p>	Go to Step 6.	<p>“BLU/YEL”, “BLU/WHT”, “BLU/RED” and/or “BLU/ORN” wire(s) are shorted to ground.</p>
6	<p>Wire circuit check</p> <p>1) Measure voltage between each “BLU/YEL”, “BLU/WHT”, “BLU/RED”, “BLU/ORN” wire terminal of fuel injector connector and vehicle body ground with ignition switch turned ON.</p> <p><i>Is voltage 0 V?</i></p>	Go to Step 7.	<p>“BLU/YEL”, “BLU/WHT”, “BLU/RED” and/or “BLU/ORN” wire(s) are shorted to power supply circuit.</p>
7	<p>Fuel injector drive signal check</p> <p>1) Connect connectors to each fuel injector and ECM with ignition switch turned OFF.</p> <p>2) Turn ON ignition switch.</p> <p>3) Measure voltage between each “C01-1”, “C01-2”, “C01-16”, “C01-17” terminal of ECM connector and vehicle body ground.</p> <p><i>Is voltage 10 – 14 V?</i></p>	<p>Check fuel injector referring to “Fuel Injector Inspection in Section 1G”.</p> <p>If check result is satisfactory, substitute a known-good ECM and recheck.</p>	<p>“BLU/YEL”, “BLU/WHT”, “BLU/RED” and/or “BLU/ORN” wire(s) are open circuit.</p>

Radiator Cooling Fan High Speed Control System Check

S7RW0C1104072

Wiring Diagram

Refer to “Radiator Cooling Fan Low Speed Control System Check”.

Troubleshooting

▲ WARNING

Keep hands, tools, and clothing away from radiator cooling fan to help prevent personal injury. This fan is electric and can come on whether or not the engine is running. The fan can start automatically in response to the ECT sensor with the ignition switch at the “ON” position.

NOTE

- Before performed troubleshooting, be sure to read the “Precautions of ECM Circuit Inspection”.
- When measuring circuit voltage, resistance and/or pulse signal at ECM connector, connect the special tool to ECM and/or the ECM connectors referring to “Inspection of ECM and Its Circuits”.

Step	Action	Yes	No
1	<p>Low speed radiator cooling fan control circuit check</p> <p>1) Check low speed radiator cooling fan control circuit referring to “Radiator Cooling Fan Low Speed Control System Check”.</p> <p><i>Is it in good condition?</i></p>	Go to Step 2.	Repair or replace faulty condition.
2	<p>High speed radiator cooling fan control circuit check</p> <p>1) Start engine and select “Data List” mode on scan tool.</p> <p>2) Warm up engine until coolant temp. is 102.5 °C, 216.5 °F or higher and A/C switch turns OFF. (If engine coolant temp. dose not rise, check engine cooling system or ECT sensor.)</p> <p><i>Is radiator cooling fan started at high speed when engine coolant temp. reached above temp?</i></p>	Radiator cooling fan control system is in good condition.	Perform from Step 2 to Step 6 of “DTC P0480: Fan 1 Control Circuit”. If OK, Go to Step 3.
3	<p>Radiator cooling fan check</p> <p>1) Check radiator cooling fan referring to “Radiator Cooling Fan Assembly Inspection in Section 1F”.</p> <p><i>Is it in good condition?</i></p>	Substitute a known-good ECM and recheck.	Faulty radiator cooling fan.

Air Fuel Ratio (A/F) Sensor On-Vehicle Inspection

S7RW0C1306009

Heater

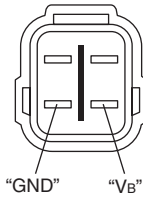
- 1) Disconnect A/F sensor connector.
- 2) Using ohmmeter, measure resistance of Sensor heater between terminals "V_B" and "GND" at sensor connector. If found faulty, replace A/F sensor.

NOTE

Temperature of sensor affects resistance value largely. Make sure that sensor heater is at correct temperature.

A/F sensor heater resistance
 2 – 3 Ω at 20 °C (68 °F)

Viewed from terminal side



I7RW01130009-02

- 3) Connect A/F sensor connector securely.

Heated Oxygen Sensor (HO2S) Heater On-Vehicle Inspection

S7RW0C1306010

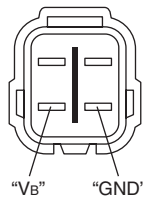
- 1) Disconnect sensor connector.
- 2) Using ohmmeter, measure resistance of sensor heater between terminals "V_B" and "GND" at sensor connector. If found faulty, replace oxygen sensor.

NOTE

Temperature of sensor affects resistance value largely. Make sure that sensor heater is at correct temperature.

HO2S heater resistance
 5.0 – 6.4 Ω at 20 °C (68 °F)

Viewed from terminal side



I5JB0A130024-03

- 3) Connect sensor connector securely.

Air Fuel Ratio (A/F) Sensor, Heated Oxygen Sensor (HO2S) Removal and Installation

S7RW0C1306011

Removal

▲ WARNING

To avoid danger of being burned, do not touch exhaust system when system is hot. A/F sensor and/or HO2S removal should be performed when system is cool.

- 1) Disconnect negative cable at battery.
- 2) Disconnect connector of A/F sensor and/or HO2S.
- 3) Remove A/F sensor (1) and/or HO2S (2) from exhaust No.1 pipe.

Installation

Reverse removal procedure noting the following.

- Tighten A/F sensor (1) to specified torque.

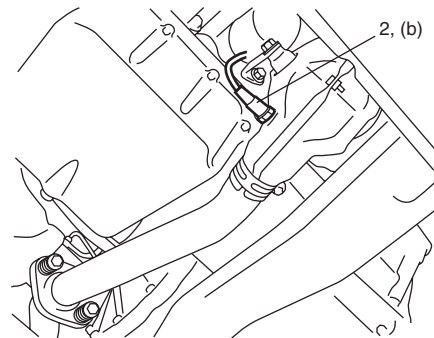
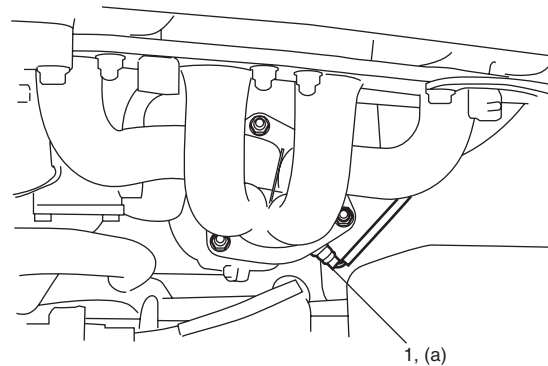
Tightening torque

A/F sensor (a): 45 N·m (4.5 kgf-m, 32.5 lb-ft)

- Tighten HO2S (2) to specified torque.

Tightening torque

HO2S (b): 45 N·m (4.5 kgf-m, 32.5 lb-ft)



I7RW01130010-01

Electric Throttle Body On-Vehicle Inspection

S7RW0C1406006

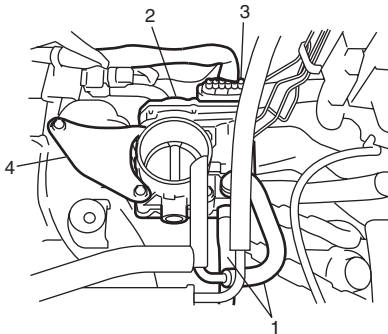
Check electric throttle body assembly referring to “Throttle Valve Operation Check” and “Electric Throttle Body Assembly Operation Check” under “Electric Throttle Body Assembly On-Vehicle Inspection in Section 1C”.

Electric Throttle Body Assembly Removal and Installation

S7RW0C1406007

Removal

- 1) Disconnect negative (–) cable at battery.
- 2) Drain coolant.
- 3) Remove air cleaner assembly referring to “Air Cleaner Assembly Removal and Installation”.
- 4) Disconnect engine coolant hoses (1) from electric throttle body assembly (2).
- 5) Disconnect connector (3) from electric throttle body assembly.
- 6) Remove stiffener (4).

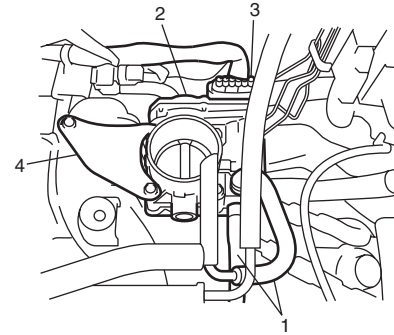


I7RW01140022-03

- 7) Remove electric throttle body assembly from intake manifold.

Installation

- 1) Clean mating surfaces, and install new throttle body gasket to intake manifold.
- 2) Install electric throttle body assembly (2) with stiffener (4) to intake manifold.
- 3) Connect connector (3) to electric throttle body assembly securely.
- 4) Connect engine coolant hoses (1) to electric throttle body assembly (2).



I7RW01140022-03

- 5) Install air cleaner assembly referring to “Air Cleaner Assembly Removal and Installation”.
- 6) Refill coolant referring to “Cooling System Flush and Refill in Section 1F”.
- 7) Connect negative (–) cable at battery.
- 8) Perform calibration of electric throttle body assembly referring to “Electric Throttle Body System Calibration in Section 1C” if replaced.

Electric Throttle Body Cleaning

S7RW0C1406008

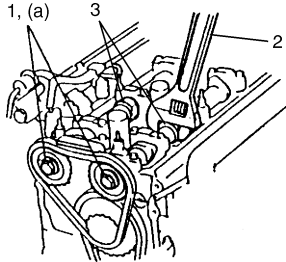
Clean electric throttle body assembly referring to “Throttle Valve Operation Check” under “Electric Throttle Body Assembly On-Vehicle Inspection in Section 1C”.

1D-25 Engine Mechanical:

- 6) Tighten intake and exhaust camshaft timing sprocket bolts (1) to specified torque. To tighten it, fit a spanner (2) to hexagonal part (3) at the center of camshaft to hold it stationary.

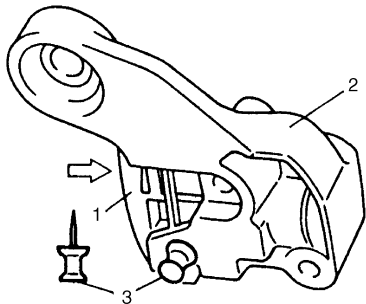
Tightening torque

Camshaft timing sprocket bolt (a): 80 N·m (8.0 kgf-m, 57.5 lb-ft)



I7RW01140053-01

- 7) Push back plunger (1) into tensioner body (2), and hold it at the position by inserting stopper (3) into body.



I2RH01140072-01

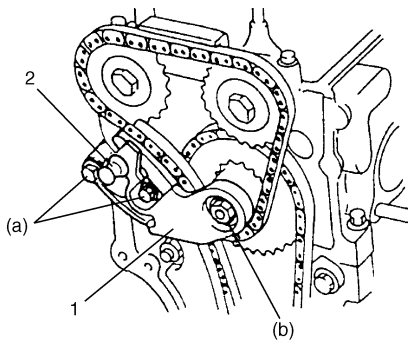
- 8) Install timing chain tensioner adjuster No.2 (1) with new gasket.

Tightening torque

Timing chain tensioner adjuster No.2 bolt (a): 11 N·m (1.1 kgf-m, 8.0 lb-ft)

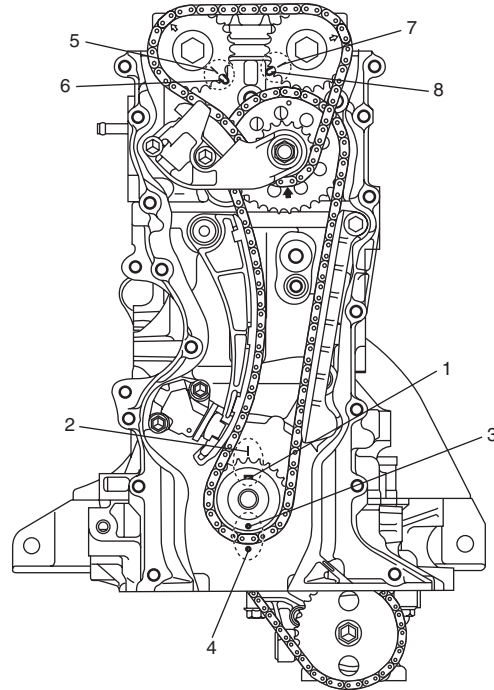
Timing chain tensioner adjuster No.2 nut (b): 45 N·m (4.5 kgf-m, 33.0 lb-ft)

- 9) Pull out stopper (2) from timing chain tensioner adjuster No.2.



I2RH01140073-01

- 10) Turn crankshaft two rotations clockwise, and then align timing mark (1) on crankshaft and timing mark (2) on cylinder block as shown in figure. At this time, check timing marks (3, 5 and 7) of sprockets are in match with timing marks (4, 6 and 8) of cylinder head, cylinder block and lower crank case.



I7RW01140056-01

3.	Timing mark on crank timing sprocket
4.	Timing mark on lower crankcase
5.	Timing mark on intake camshaft timing sprocket
6.	Timing mark of intake camshaft timing sprocket
7.	Timing mark on exhaust camshaft timing sprocket
8.	Timing mark of exhaust camshaft timing sprocket

- 11) Apply oil to timing chains, tensioner, tensioner adjusters, sprockets and guides.
- 12) Install timing chain cover. Refer to "Timing Chain Cover Removal and Installation" for installation.
- 13) Install cylinder head cover. Refer to "Cylinder Head Cover Removal and Installation" for installation.
- 14) Install oil pan. Refer to "Oil Pan and Oil Pump Strainer Removal and Installation in Section 1E" for installation.
- 15) Install engine assembly to vehicle referring to "Engine Assembly Removal and Installation".

Valves and Valve Guides Inspection

S7RW0C1406030

Valve Guide

Valve stem-to-guide clearance

Using a micrometer and bore gauge, take diameter readings on valve stems and guides to check stem-to-guide clearance.

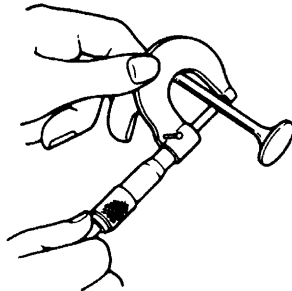
Be sure to take reading at more than one place along the length of each stem and guide.

If clearance exceeds limit, replace valve and valve guide.

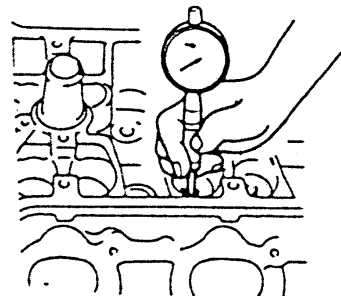
Valve stem and valve guide specification

Item		Standard	Limit
Valve stem diameter [A]	In	5.965 – 5.980 mm (0.2348 – 0.2354 in.)	—
	Ex	5.940 – 5.955 mm (0.2339 – 0.2344 in.)	—
Valve guide bore [B]	In & Ex	6.000 – 6.012 mm (0.2362 – 0.2366 in.)	—
Stem-to-guide clearance	In	0.020 – 0.047 mm (0.0008 – 0.0018 in.)	0.070 mm (0.0028 in.)
	Ex	0.045 – 0.072 mm (0.0017 – 0.0028 in.)	0.090 mm (0.0035 in.)

[A]



[B]



I4RS0B140016-01

Valve stem end deflection

If bore gauge is not available, check end deflection of valve stem with a dial gauge instead.

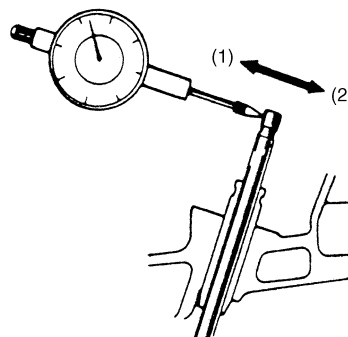
Move stem end in directions (1) and (2) to measure end deflection.

If deflection exceeds its limit, replace valve stem and valve guide.

Valve stem end deflection limit

In: 0.14 mm (0.005 in.)

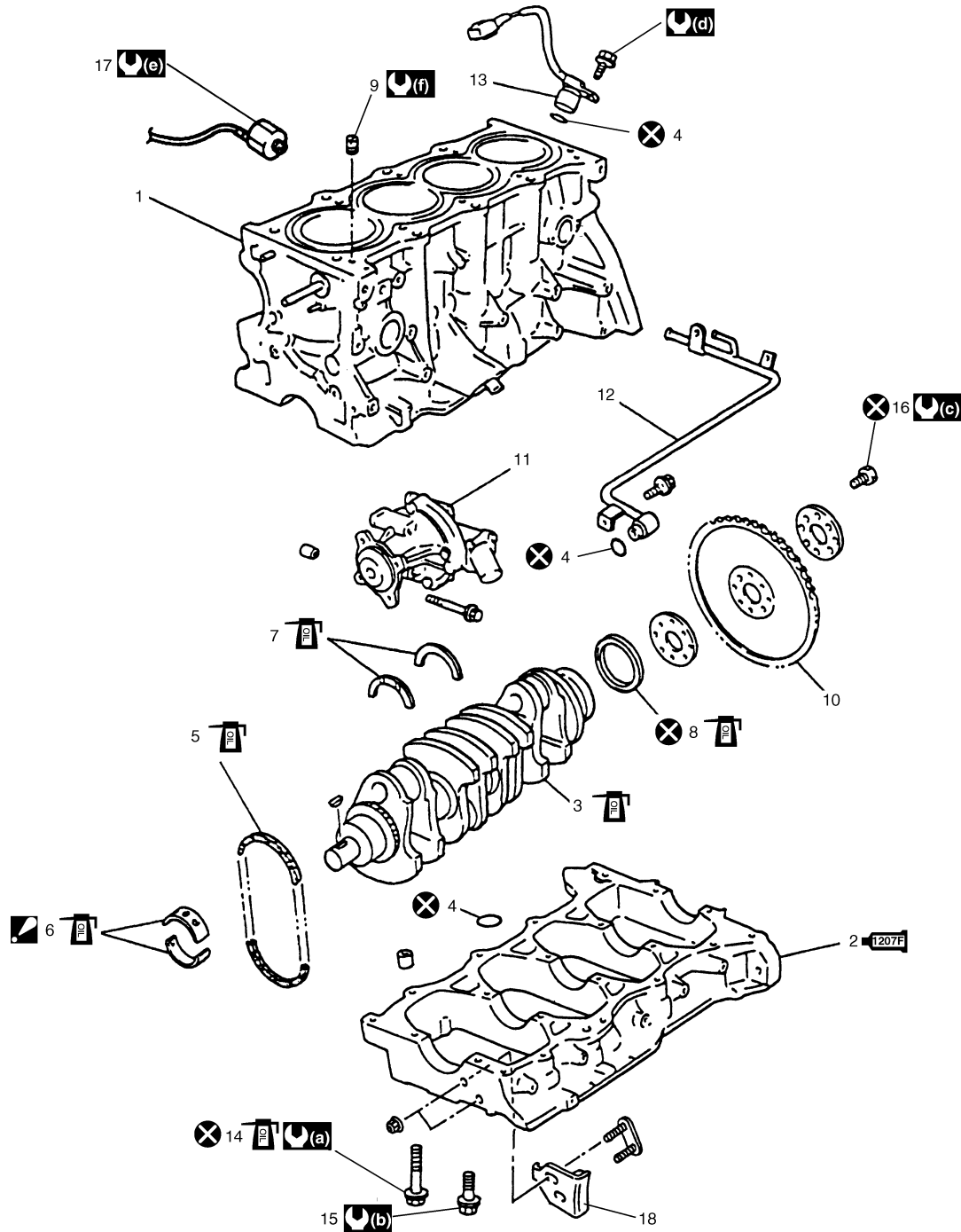
Ex: 0.18 mm (0.007 in.)



IYSQ01141096-01

Main Bearings, Crankshaft and Cylinder Block Components

S7RW0C1406037



I7RW01140065-01

1. Cylinder block	10. Flywheel	(a) : Tighten 40 N-m (4.0 kgf-m, 29.0 lb-ft), 0 N-m (0 kgf-m, 0 lb-ft), 40 N-m (4.0 kgf-m, 29.0 lb-ft) and 58 N-m (5.8 kgf-m, 42.0 lb-ft) by the specified procedure.
(1207F) 2. Lower crankcase : Apply sealant 99000-31250 to mating surface.	11. Water pump	(b) : Tighten 26 N-m (2.6 kgf-m, 19.0 lb-ft) by the specified procedure.
3. Crankshaft	12. Heater outlet pipe	(c) : 70 N-m (7.0 kgf-m, 51.0 lb-ft)
4. O-ring	13. CKP sensor	(d) : 11 N-m (1.1 kgf-m, 8.0 lb-ft)
5. Oil pump chain	14. Crankcase bolt (10 mm thread diameter)	(e) : 22 N-m (2.2 kgf-m, 16.0 lb-ft)
(1207F) 6. Main bearing : Do not apply engine oil between cylinder block and bearing, between lower crankcase and bearing. Upper half of bearing has an oil groove.	15. Crankcase bolt (8 mm thread diameter)	(f) : 3 N-m (0.3 kgf-m, 2.5 lb-ft)
7. Thrust bearing	16. Flywheel or drive plate bolt	(X) : Do not reuse.

Diagnostic Information and Procedures

Oil Pressure Check

S7RW0C1504001

⚠ WARNING

To avoid danger of being burned, do not touch exhaust manifold when exhaust system is hot.

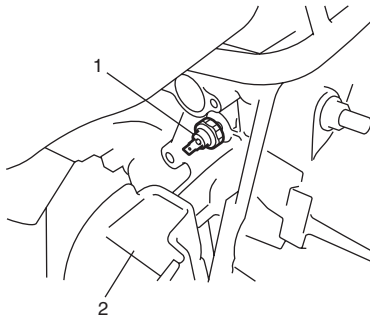
When servicing, be sure to perform it after exhaust system has cooled down.

NOTE

Prior to checking oil pressure, check the following.

- **Oil level in oil pan**
If oil level is low, add oil up to Full level hole on oil level gauge referring to “Engine Oil and Filter Change”.
- **Oil quality**
If oil is discolored, or deteriorated, change it. For particular oil to be used, refer to “Engine Oil and Filter Change”.
- **Oil leaks**
If leak is found, repair it.

- 1) Disconnect oil pressure switch connector.
- 2) Remove oil pressure switch (1) from cylinder block.



I7RW01150002-01

2. Engine front mounting bracket

- 3) Install special tool (Oil pressure gauge) to vacated threaded hole.

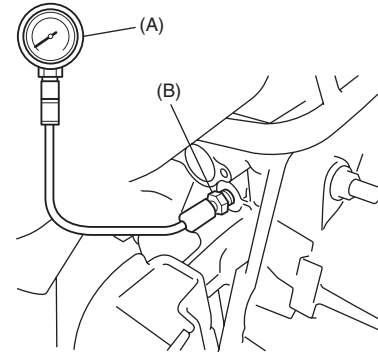
Special tool

(A): 09915-77311

(B): 09915-78211

⚠ CAUTION

Be careful not to make special tool touch Exhaust manifold when installing because Exhaust manifold becomes very hot.



I7RW01150003-02

- 4) Start engine and warm it up to normal operating temperature.

NOTE

Be sure to place transmission gear shift lever in “Neutral” (shift selector lever to “P” range for A/T model), and set parking brake and block drive wheels.

- 5) After warming up, raise engine speed to 4,000 r/min and measure oil pressure.

Oil pressure specification

More than 390 kPa (3.9 kgf/cm², 55.5 psi)

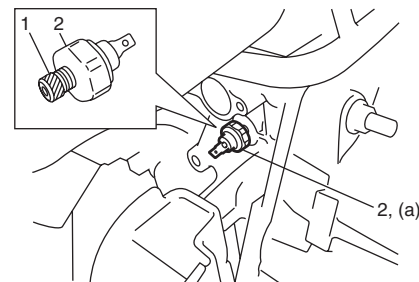
- 6) After checking oil pressure, stop engine and remove oil pressure gauge.
- 7) Before reinstalling oil pressure switch (2), be sure to wrap its screw threads with sealing tape (1) and tighten switch to specified torque.

Tightening torque

Oil pressure switch (a): 13 N·m (1.3 kgf-m, 9.5 lb-ft)

NOTE

If sealing tape edge is bulged out from screw threads of switch, cut it off.



I7RW01150004-01

- 8) Start engine and check oil pressure switch for oil leakage. If oil leakage is found, repair it.
- 9) Connect oil pressure switch connector.

Coolant Level Check

S7RW0C1606002

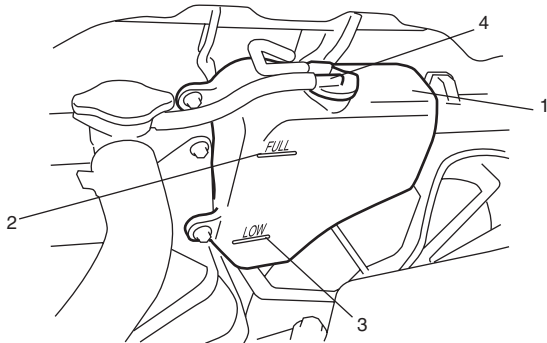
▲ WARNING

To help avoid danger of being burned, do not remove radiator cap while engine and radiator are still hot. Scalding fluid and steam can be blown out under pressure if radiator cap is taken off too soon.

To check level, lift hood and look at “see-through” coolant reservoir. It is not necessary to remove radiator cap to check coolant level. When engine is cool, check coolant level in reservoir (1). A normal coolant level should be between FULL mark (2) and LOW mark (3) on reservoir (1). If coolant level is below LOW mark (3), remove reservoir cap (4) and add proper coolant to reservoir to bring coolant level up to FULL mark (2).

NOTE

If proper quality antifreeze is used, there is no need to add extra inhibitors or additives that claim to improve system. They may be harmful to proper operation of system, and are unnecessary expense.



I6RW0C160001-01

Engine Cooling System Inspection and Cleaning

S7RW0C1606003

▲ WARNING

To help avoid danger of being burned, do not remove radiator cap while engine and radiator are still hot. Scalding fluid and steam can be blown out under pressure if cap is taken off too soon.

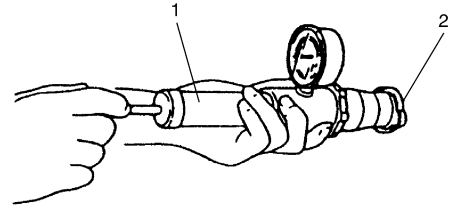
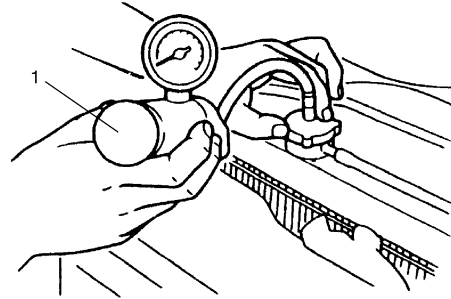
- 1) Check cooling system for leakage or damage.
- 2) Wash radiator cap and filler neck with clean water by removing radiator cap when engine is cold.
- 3) Check coolant for proper level and freeze protection.
- 4) Using a pressure tester (1), check system and radiator cap (2) for proper pressure holding capacity. If replacement of cap is required, use a proper cap for this vehicle.

NOTE

After installing radiator cap to radiator, make sure that the ear of cap lines is parallel to radiator.

Cooling system and radiator cap holding pressure (for inspection)

110 kPa (1.1 kgf/cm², 15.6 psi)



I5RH01160001-01

- 5) Tighten hose clamps and inspect all hoses. Replace hoses whenever cracked, swollen or otherwise deteriorated.
- 6) Clean frontal area of radiator core.

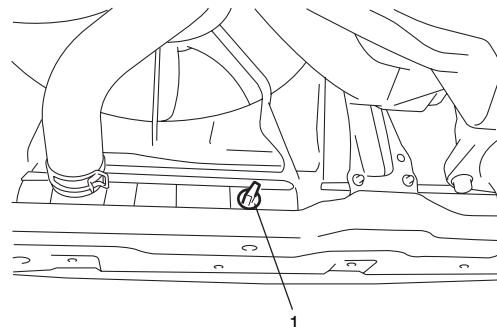
Cooling System Draining

S7RW0C1606004

▲ WARNING

To help avoid danger of being burned, do not remove radiator cap while engine and radiator are still hot. Scalding fluid and steam can be blown out under pressure if cap is taken off too soon.

- 1) Remove radiator cap.
- 2) Drain coolant from radiator drain plug (1).
- 3) After draining coolant, be sure to tighten drain plug (1) securely.



I4RS0A160003-01

Fuel Injector Inspection

S7RW0C1706009

⚠ WARNING

- Before starting the following procedure, be sure to observe "Precautions on Fuel System Service" in order to reduce the risk of fire and personal injury.
- Put injector and battery as far away as possible in order to reduce risk of fire and personal injury when connecting/disconnecting test lead to/from battery.

- 1) Relieve fuel pressure according to "Fuel Pressure Relief Procedure" if equipped.
- 2) Disconnect fuel feed hose from delivery pipe.
- 3) Set special tools as follows.

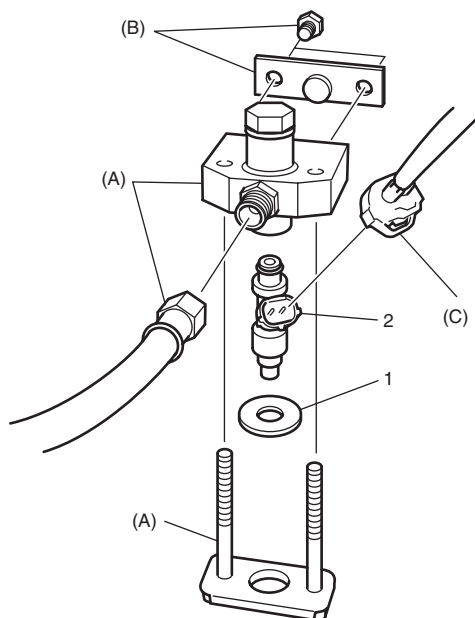
Special tool

(A): 09912-58421

(B): 09930-88530

(C): 09912-57610

- a) Fit washer (1) (inside diameter 13.5 – 14.5 mm (0.532 – 0.570 in.)) to injector (2), and then install injector to special tool (A).
- b) Connect special tool (B) to injector.
- c) Install special tool (C) to special tool (A).
- d) Connect fuel feed hose to special tool (A).

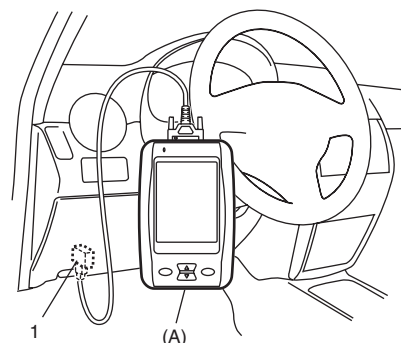


I6RW0B170014-01

- 4) Install suitable vinyl tube onto injector nozzle to prevent fuel from splashing out when injecting.
- 5) Put graduated cylinder under injector.
- 6) Operate fuel pump and apply fuel pressure to injector as follows:
 - a) When using scan tool:
 - i) Connect scan tool to DLC with ignition switch OFF.
 - ii) Turn ignition switch ON, clear DTC and select "Active Test" mode on scan tool.
 - iii) Turn fuel pump ON by using scan tool.

Special tool

(A): SUZUKI scan tool (SUZUKI-SDT)



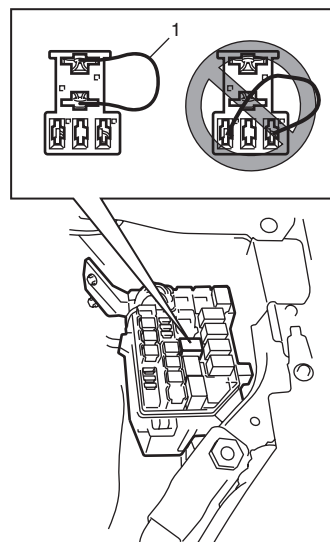
I5RW0C110011-01

- b) When not using scan tool:
 - i) Remove fuel pump relay from connector.
 - ii) Connect two terminals of relay connector using service wire (1) as shown in figure.

⚠ CAUTION

Check to make sure that connection is made between correct terminals. Wrong connection can cause damage to ECM, wire harness, etc.

- iii) Turn ignition switch ON.



I5RW0A170011-02

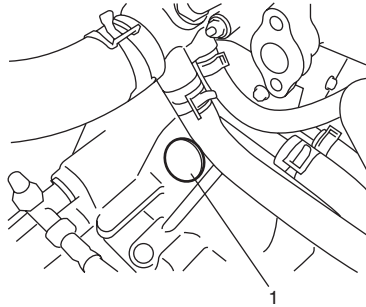
Ignition Timing Inspection

S7RW0C1806005

NOTE

- Ignition timing is not adjustable. If ignition timing is out of specification, check system related parts.
- Before starting engine, place transmission gear shift lever in “Neutral” (shift selector lever to “P” range for A/T model), and set parking brake.

1) Detach timing hole cover (1).

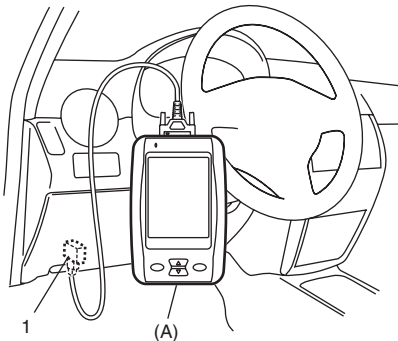


I7RW01180006-01

2) Connect scan tool to DLC (1) with ignition switch OFF.

Special tool

(A): SUZUKI scan tool (SUZUKI-SDT)



I5RW0C110011-01

- 3) Start engine and warm it up to normal operating temperature.
- 4) Make sure that all of electrical loads except ignition are switched off.
- 5) Check to be sure that idle speed is within specification referring to “Idle Speed and IAC Throttle Valve Opening Inspection in Section 1A”.
- 6) Fix ignition timing by using “Fixed Spark” of “Misc Test” mode on scan tool.

7) Set timing light to ignition coil harness for No.1 cylinder and check that ignition timing is within specification.

Initial ignition timing

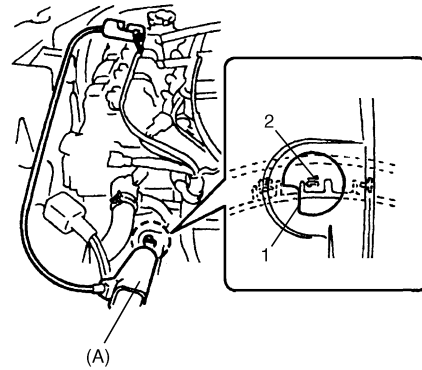
Fixed with SUZUKI scan tool: 2° – 8° BTDC (at specified idle speed)

Ignition order

1 – 3 – 4 – 2

Special tool

(A): 09930-76420



I7RW01180008-01

- | |
|--|
| 1. Timing mark on clutch housing or torque converter housing |
| 2. Timing mark BTDC 5° |

8) If ignition timing is out of specification, check the followings.

- CKP sensor
- CKP sensor plate
- TP sensor
- CMP sensor
- CMP sensor rotor tooth of camshaft
- Wheel speed sensor (VSS)
- Knock sensor
- Timing chain cover installation

9) After checking initial ignition timing, release ignition timing fixation by using SUZUKI scan tool.

10) With engine idling (throttle opening at closed position and vehicle stopped), check that ignition timing is about 3° – 17° BTDC. (Constant variation within a few degrees from 3° – 17° BTDC indicates no abnormality but proves operation of electronic timing control system.) Also, check that increasing engine speed advances ignition timing. If the check results are not satisfactory, check CKP sensor and ECM.

Generator Test (Undercharged Battery Check)

S7RW0C1A04003

This condition, as evidenced by slow cranking or indicator clear with dark or light yellow dot can be caused by one or more of the following conditions even though indicator light may be operating normal. The following procedure also applies to cars with voltmeter and ammeter.

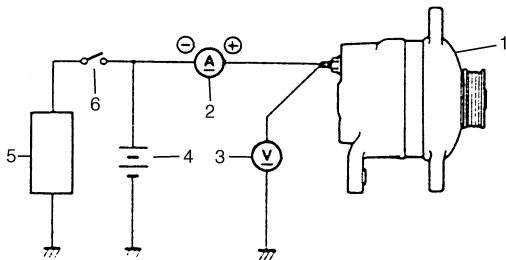
- 1) Make sure that undercharged condition has not been caused by accessories left on for extended period of time.
- 2) Check drive belt for proper tension.
- 3) If battery defect is suspected, refer to "Battery Description".
- 4) Inspect wiring for defects. Check all connections for tightness and cleanliness, battery cable connections at battery, starting motor, ignition ground cable and no "C" terminal circuit at ground.
- 5) Connect switch (6), load (5), battery (4), voltmeter (3) and ammeter (2) to generator (1) as shown in figure.

Voltmeter: Set between generator "B" terminal and ground.

Ammeter: Set between generator "B" terminal and battery (+) terminal.

NOTE

Use fully charged battery.



IYSQ011A0007-01

- 6) Measure current and voltage.

No-Load Check

- 1) Run engine from idling up to 2000 rpm and read meters.

NOTE

Turn off switches of all accessories (wiper, heater etc.).

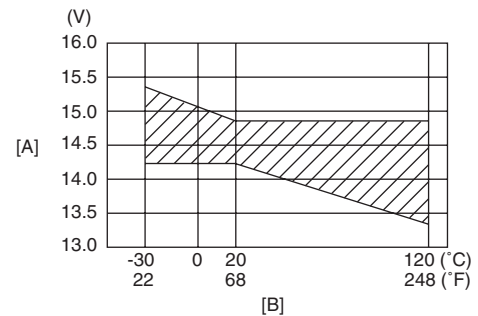
Specification for undercharged battery (No-load check)

Current: 10 A

Voltage: 14.2 – 14.8 V (at 20 °C, 68 °F)

NOTE

Consideration should be taken that voltage will differ somewhat with regulator case temperature as shown in figure.

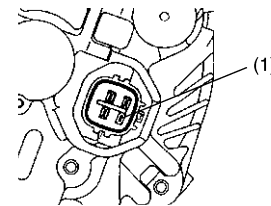


I6RS0B1A1002-01

[A]: Regulated voltage (V)

[B]: Heat sink temperature (°C)

- 2) Using service wire, ground "C" terminal (1) of generator.



I5JB0A1A0011-01

- 3) Measure voltage between "B" terminal of generator and body ground.

Voltage: 12.5 – 13.1 V (at 20 °C, 68 °F)

• **If voltage is higher than standard value**

If voltage is higher than standard value, check ground of brushes.

If brushes are not grounded, replace IC regulator.

If voltage is lower than standard value, proceed to the following check.

Load Check

- 1) Run engine at 2000 rpm and turn on head light and heater motor.
- 2) Measure current and if it is less than 30 A repair or replace generator.

Specifications

Tightening Torque Specifications

S7RW0C1B07001

Fastening part	Tightening torque			Note
	N·m	kgf·m	lb·ft	
Exhaust manifold bolt	Tighten 50 N·m (5.0 kgf·m, 36.5 lb·ft) by the specified procedure			☞
Exhaust manifold nut	Tighten 50 N·m (5.0 kgf·m, 36.5 lb·ft) by the specified procedure			☞

NOTE

The specified tightening torque is also described in the following.
 “Exhaust System Components”

Reference:

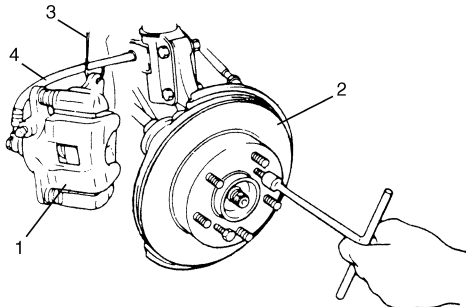
For the tightening torque of fastener not specified in this section, refer to “Fasteners Information in Section 0A”.

- Remove caliper carrier bolts and then caliper (1) with carrier.

NOTE

Hang removed caliper with a wire hook or the like (3) so as to prevent brake hose (4) from bending, twisting or tension.
 Do not depress brake pedal during caliper removal.
 Don't operate brake pedal with caliper removed.

- Pull brake disc (2) off by using two 8 mm bolts.



I5JB0A220014-01

- Pull out wheel hub (1) with special tools.

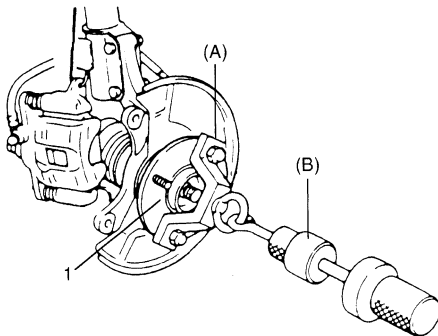
Special tool

(A): 09943-17912

(B): 09942-15511

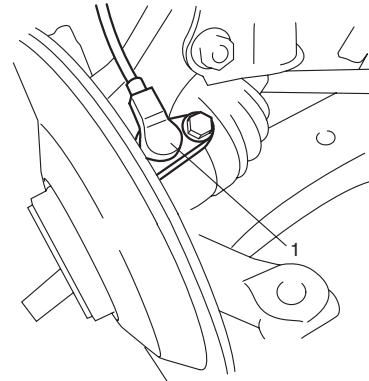
CAUTION

When wheel hub is removed, replace wheel bearing with new one.



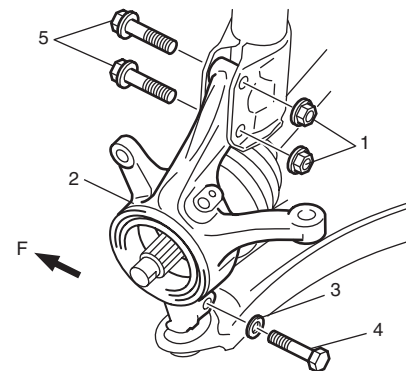
I2RH01220028-01

- Disconnect tie-rod end from steering knuckle referring to "Tie-Rod End Removal and Installation in Section 6C".
- Remove wheel speed sensor (1) from knuckle.



I5RW0A220013-01

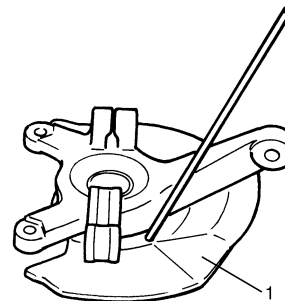
- Loosen strut bracket nuts (1).
- Remove ball joint bolt (4) and washer (3).
- Remove strut bracket bolts (5) from strut bracket and then steering knuckle (2).



F: Forward

I7RW0C220005-01

- Uncaulk and remove dust cover (1).



I2RH01220032-01

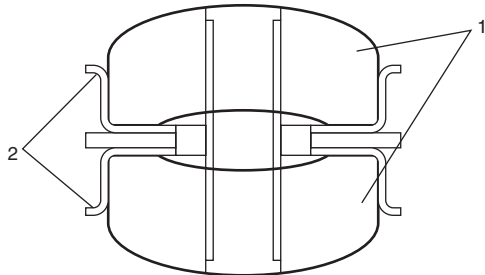
2C-3 Rear Suspension:

Installation

- 1) Install absorber upper bushes (1).

NOTE

For proper installing direction of absorber upper bushes (1), refer to the figure.



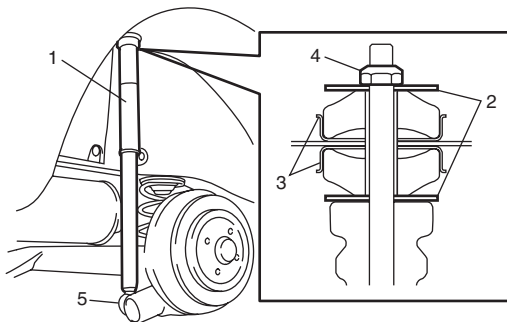
I5RW0A230028-01

2. Body panel

- 2) Install shock absorber (1), upper washers (2). Tighten new rear shock absorber upper nut (4) and lower nut (5) temporarily at this step.

⚠ CAUTION

Use new rear shock absorber upper nut. Otherwise, nut may loosen.



I7RW01230017-01

3. Body panel

- 3) Remove floor jack from rear axle.
- 4) Install rear wheel and tighten wheel nuts to specified torque.

Tightening torque

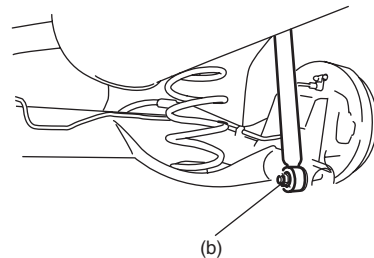
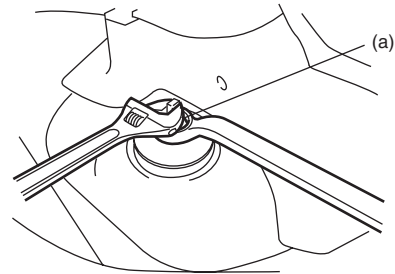
Wheel nut: 85 N·m (8.5 kgf·m, 61.5 lb-ft)

- 5) Lower hoist and bounce vehicle up and down several times to stabilize suspension.
- 6) Tighten nuts to specified torque.

Tightening torque

Rear shock absorber upper nut (a): 30 N·m (3.0 kgf·m, 22.0 lb-ft)

Rear shock absorber lower nut (b): 90 N·m (9.0 kgf·m, 65.0 lb-ft)



I5RW0A230006-01

- 7) For hatchback model, install access hole cover in quarter inner trim.
- 8) For sedan model, install quarter inner trim.

Radial Tire Waddle Description

S7RW0C2401005

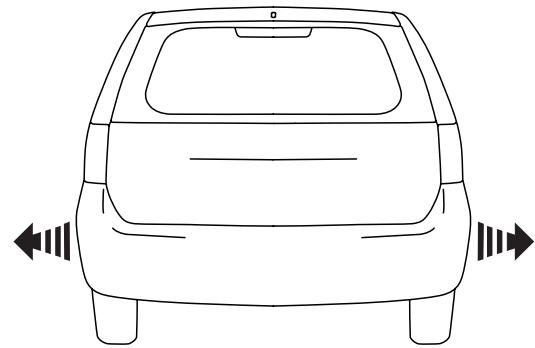
Waddle is side to side movement at the front and/or rear of the vehicle. It is caused by the steel belt not being straight within the tire. It is most noticeable at a low speed, 8 to 48 kph (5 to 30 mph).

It is possible to locate the faulty tire by road testing the vehicle. If it is on the rear, the rear end of the vehicle shakes from side to side or “waddles”. To the driver in the seat, it feels as though someone is pushing on the side of vehicle.

If the faulty tire is on the front, waddling is more visual. The front sheet metal appears to be moving back and forth and the driver feels as though he is at the pivot point in vehicle.

Waddle can be quickly diagnosed by using Tire Problem Detector (TPD) and following the equipment manufacture’s recommendations.

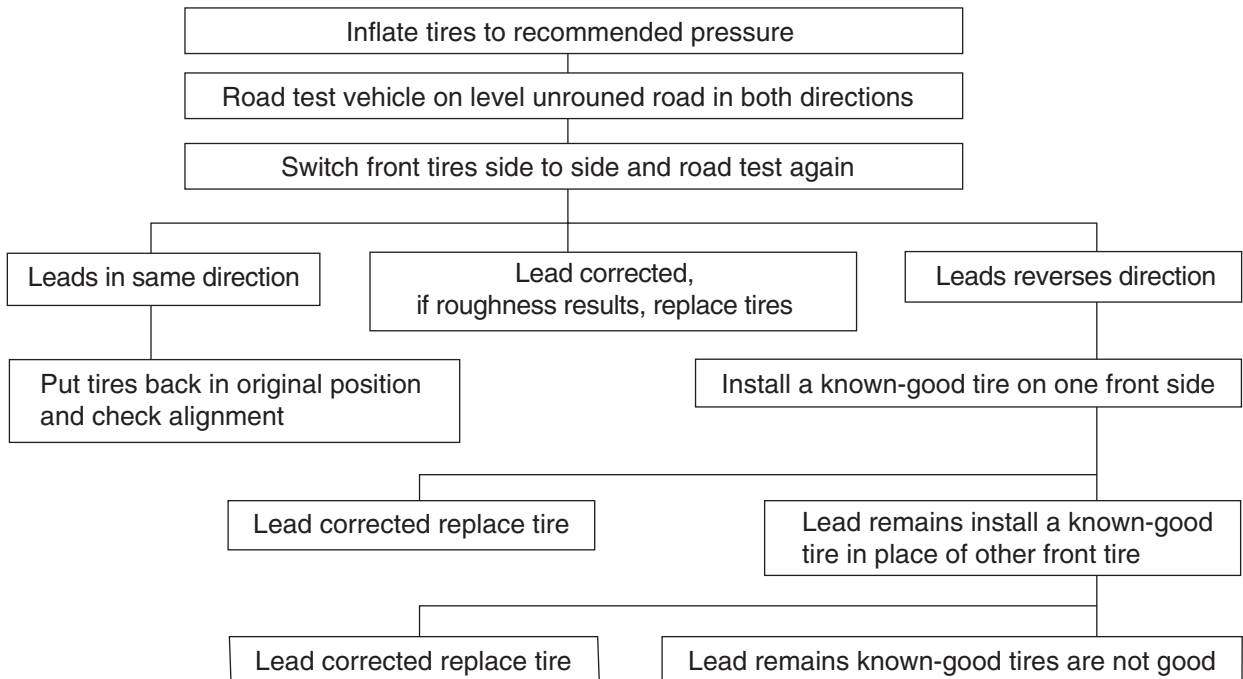
If TPD is not available, an alternative method of substituting known-good tire / wheel assemblies can be used as follows, although it takes a longer time.



I2RH01240006-01

- 1) Ride vehicle to determine whether the front or rear waddles.
- 2) Install tires and wheels that are known to be good (on similar vehicle) in place of those on waddling end of vehicle. If waddling end cannot be identified, substitute rear ones.
- 3) Road test again. If improvement is noted, reinstall originals one at a time till waddle causal tire is found. If no improvement is noted, install known-good tires in place of all four. Then reinstall originals in the same manner.

Equipment manufacture’s recommendations



I2RH01240007-01

Special Tools and Equipment

Recommended Service Material

S7RW0C3118001

Material	SUZUKI recommended product or Specification	Note
Grease	SUZUKI Super Grease A P/No.: 99000-25011	

NOTE

Required service material is also described in the following.
 “Front Drive Shaft Components: Front”

Special Tool

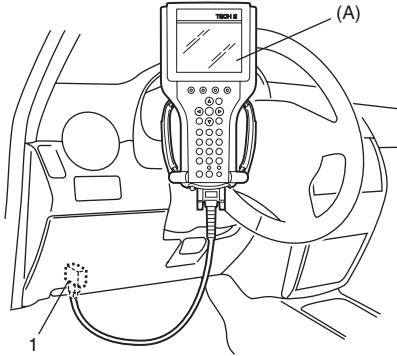
S7RW0C3118002

09925-15410 Oil seal installer 	09925-98221 Bearing installer
09943-57010 Band compressor 	09943-57021 Pliers, Low-Profile Clamp

DTC Check

S7RW0C3204005

- 1) Turn ignition switch to OFF position.
- 2) Connect SUZUKI scan tool to data link connector (DLC) (1) located on underside of instrument panel.

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

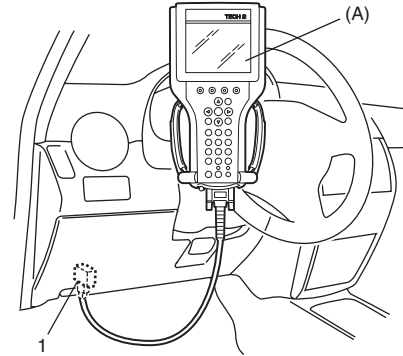
I5RW0A320008-01

- 3) Turn ignition switch to ON position.
- 4) Read DTC according to instructions displayed on SUZUKI scan tool and print it or write it down. Refer to SUZUKI scan tool operator's manual for further details.
If communication between SUZUKI scan tool and 4WD control module is not possible, check if SUZUKI scan tool is communicable by connecting it to 4WD control module in another vehicle. If communication is possible in this case, SUZUKI scan tool is in good condition. Then check data link connector 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 SUZUKI scan tool from data link connector (DLC).

DTC Clearance

S7RW0C3204006

- 1) Turn ignition switch to OFF position.
- 2) Connect SUZUKI scan tool to data link connector (DLC) (1) located on underside of instrument panel.

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

I5RW0A320008-01

- 3) Turn ignition switch to ON position.
- 4) Erase DTC according to instructions displayed on SUZUKI scan tool. Refer to SUZUKI scan tool operator's manual for further details.
- 5) After completing clearance, turn ignition switch OFF and disconnect SUZUKI scan tool from data link connector (DLC).
- 6) Perform "DTC Check" and confirm that NO CODES is displayed.

NOTE

DTC stored in 4WD control module memory are also cleared in the following cases. Be careful not to clear them before keeping their record.

- **When power to 4WD control module is cut off (by disconnecting battery cable, removing fuse or disconnecting 4WD control module connectors).**
- **When the same malfunction (DTC) is not detected again during 40 engine warm-up cycles.**

3B-26 Differential:

DTC U0073: Control Module Communication Bus Off

S7RW0C3204021

Refer to "Troubleshooting for CAN-DTC in Section 1A".

DTC U0100: Lost Communication with ECM

S7RW0C3204022

Refer to "Troubleshooting for CAN-DTC in Section 1A".

DTC U0121: Lost Communication with ABS / ESP® Control Module

S7RW0C3204023

Refer to "Troubleshooting for CAN-DTC in Section 1A".

DTC U0155: Lost Communication with Instrument Panel Cluster (IPC) Control Module

S7RW0C3204024

Refer to "Troubleshooting for CAN-DTC in Section 1A".

Inspection of 4WD Control Module and Its Circuits

S7RW0C3204025

4WD control module and its circuits can be checked at coupler connected to 4WD control module by measuring voltage, pulse signal.

⚠ CAUTION

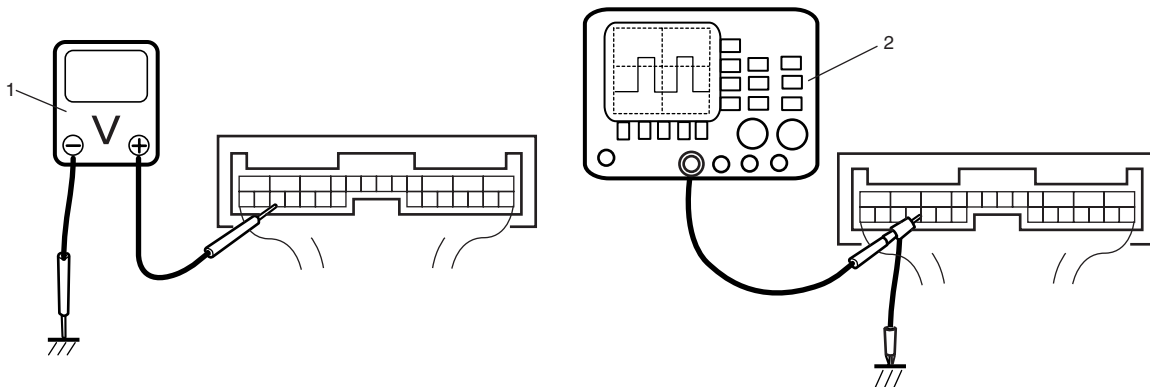
4WD control module cannot be checked by itself. It is strictly prohibited to connect voltmeter or ohmmeter to 4WD control module with couplers disconnected from it.

Voltage and Signal Check

- 1) Check voltage using voltmeter (1) connected to each terminal of couplers.
- 2) Check signal using oscilloscope (2) connected to each terminal of couplers.

NOTE

- As each terminal voltage is affected by the battery voltage, confirm that it is 11 V or more when ignition switch is turned ON.
- Pulse signal cannot be measured by voltmeter. It can be measured by oscilloscope.
- Item with asterisk (*) in normal voltage column can be read only by oscilloscope.

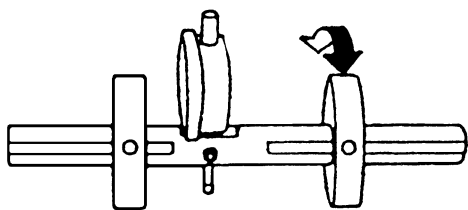


I4JA01332053-01

- 14) Set dial gauge to bevel pinion mounting dummy and make 0 (zero) adjustment on surface plate.

NOTE

- When setting dial gauge to mounting dummy, tighten screw lightly. Be careful not to overtighten it, which will cause damage to dial gauge.
- With dial gauge set, turn dummy back and forth by hand a couple of times and attain accurate 0 (zero) adjustment.
- It is desirable that short pointer indicates beyond 2 mm when long one is at 0 (zero).

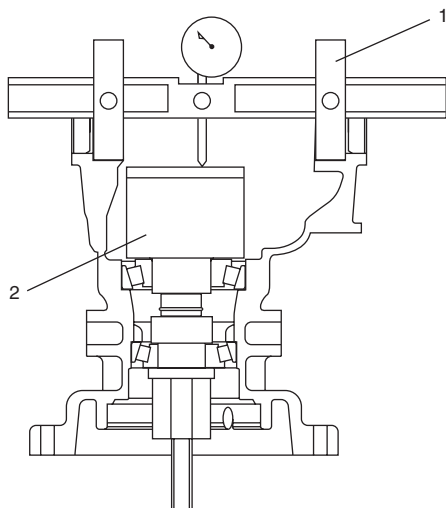


I5RW0A320051-01

- 15) Place zero-adjusted mounting dummy (1) and dial gauge set on pinion dummy (2) and take measurement between zero position and extended dial gauge measuring tip.

NOTE

- Repeat turning back and forth of dummy and measure distance as far as top surface of pinion dummy accurately.
- When dial gauge measuring tip extends from 0 (zero) position, pointer turns counterclockwise.



I5RW0A320052-01

- 16) Necessary adjusting shim thickness is the same value as measured value by dial gauge.

$$\text{Necessary shim thickness "e"} = \text{Dial gauge measured value "c"}$$

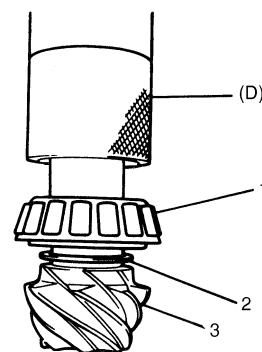
- 17) Select adjusting shim(s) (2) closest to obtained value from among the following available sizes and put it in place and then press-fit rear bearing (1) to bevel pinion (3).

Available shim thickness

0.30, 0.60, 0.63, 0.66, 0.69, 0.72, 0.75, 0.78, 0.81, 0.84 and 0.87 mm (0.012, 0.023, 0.024, 0.026, 0.027, 0.028, 0.030, 0.031, 0.032, 0.033 and 0.034 in.)

Special tool

(D): 09925-18011

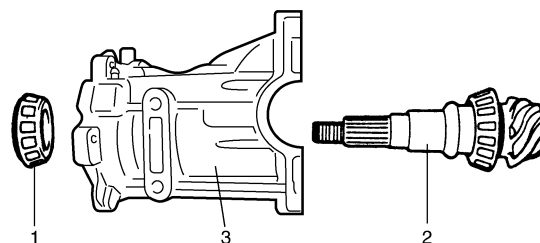


I3RH01322055-01

- 18) With new pinion spacer (2) inserted as shown in figure, install front bearing (1) to differential carrier (3).

NOTE

Apply differential oil to front and rear bearings.



I5RW0A320053-01

3C-7 Transfer:

- d) Select a shim which is close to half thickness of the calculated value (necessary shim thickness) from among the available shims to install it between bearing and case at each of right and left sides.

For example:

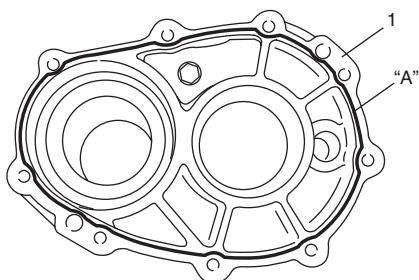
Measure distance "a" is 110.75 mm (4.360 in.).
 Measure depth "b" is 85.8 mm (3.378 in.).
 Measure depth "c" is 26.55 mm (1.045 in.).
 Necessary shim thickness = 85.8 mm (3.378 in.) + 26.55 mm (1.045 in.) – 110.75 mm (4.360 in.) + 0.1 mm (0.004 in.) = 1.7 mm (0.067 in.)
 $1.7 \text{ mm (0.067 in.)} \div 2 = 0.85 \text{ mm (0.033 in.)}$
 Calculated thickness of new shim = 0.85 mm (0.033 in.)

Available reduction driven gear shim thickness

0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95, 1.00 and 1.05 mm (0.024, 0.026, 0.028, 0.030, 0.031, 0.033, 0.035, 0.037, 0.039 and 0.041 in.)

- 2) Clean mating surface of right and left cases, and apply sealant to right case (1) as shown in figure by such amount that its section is 1.2 mm (0.047 in.) in diameter.

"A": Sealant 99000-31260 (SUZUKI Bond No.1217G)



I5RW0A330011-01

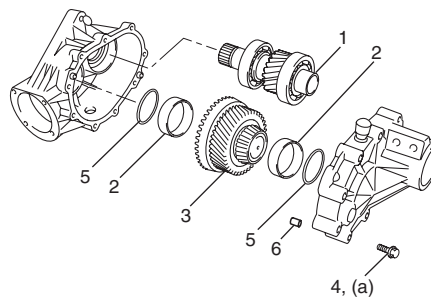
- 3) Assemble the following parts in right and left cases by reversing disassembling procedure.

- Reduction drive gear assembly (1)
- Reduction driven gear assembly (3)
- Bearing outer races (2)
- Reduction driven gear shims (5)
- Dowel pin (6)

- 4) Tighten transfer case bolts (4) to specified torque.

Tightening torque

Transfer case bolt (a): 23 N·m (2.3 kgf·m, 17.0 lb-ft)

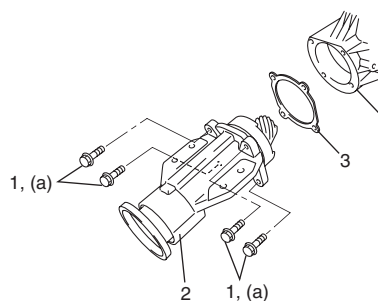


I5RW0A330012-02

- 5) Select bevel pinion shim (3) referring to step 1) of "Reassembly" under "Transfer Output Retainer Assembly Disassembly and Reassembly".
- 6) Inspect tooth contact according to "Bevel Gear Tooth Contact Inspection".
- 7) Install transfer output retainer assembly (2) with bevel pinion shim (3) to transfer left case (4) by tightening retainer bolt (1) to specified torque.

Tightening torque

Transfer output retainer bolt (a): 55 N·m (5.5 kgf·m, 40.0 lb-ft)



I5RW0A330013-02

- 8) Install bolt to bolt hole of flange (2), set dial gauge measuring tip at right angles to bolt (1) as shown in figure. Holding reduction driven gear by hand, take measurement backlash of pinion and bevel gear.

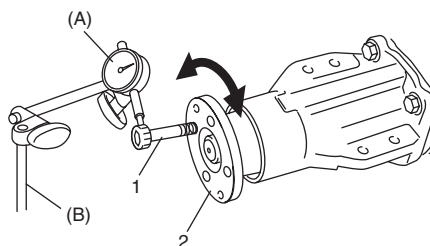
NOTE

If backlash exceeds specification given below, adjust it by changing thickness ratio of shims assembled in right and left cases in Step 3).

Special tool

- (A): 09900-20607**
- (B): 09900-20701**

Bevel pinion & bevel gear backlash : 0.1 – 0.2 mm (0.0039 – 0.0078 in.)



I5RW0A330014-02

Section 4

Brakes

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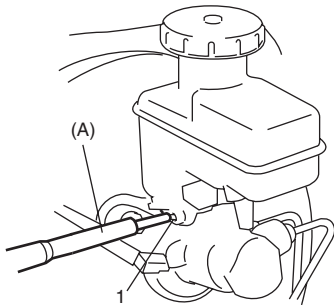
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4A-13 Brake Control System and Diagnosis:

- 3) Drain brake fluid in reservoir.
- 4) Disconnect clutch reservoir hose from reservoir (M/T model).
- 5) Remove reservoir connector pin (1) by using special tool and then reservoir.

Special tool

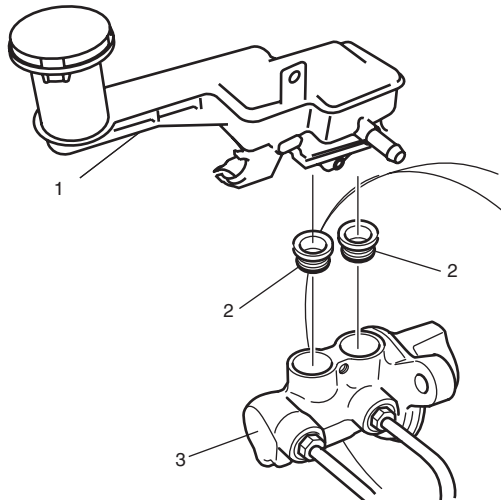
(A): 09916-44310



I5JB0A410013-02

Installation

- 1) When using new grommets (2), lubricate them with the same fluid as the one to fill reservoir with. Then press-fit grommets (2) to master cylinder (3).
- 2) Install reservoir (1) to master cylinder.

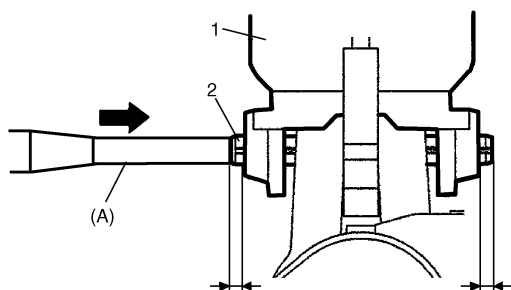


I7RW01410010-02

- 3) Drive in reservoir connector pin (2) by using special tool (A). Till both of its ends at the right and left of reservoir (1) becomes the same length.

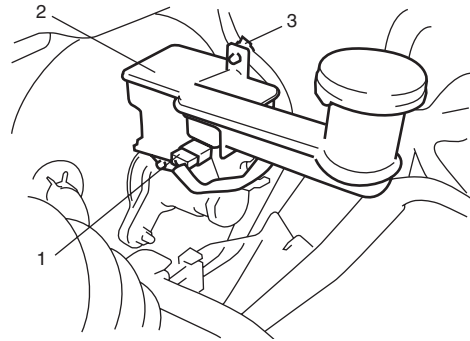
Special tool

(A): 09916-44310



I7RW01410011-01

- 4) Connect clutch reservoir hose to reservoir (M/T model).
- 5) Connect fluid level switch coupler (1) and clamp (3) to reservoir (2).



I7RW01410009-01

- 6) Fill reservoir with specified brake fluid up to its MAX level.
- 7) After completing the work, bleed air from brake system referring to "Air Bleeding of Brake System" and bleed air from clutch system referring to "Air Bleeding of Clutch System in Section 5C" (M/T model).
- 8) Check each installed parts for fluid leakage.
- 9) Perform brake test and check fluid leakage.

Master Cylinder Removal and Installation

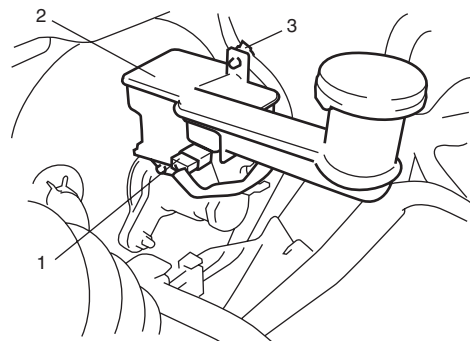
S7RW0C4106012

⚠ CAUTION

- Never disassemble master cylinder since the master cylinder is supplied as assembly parts. If faulty condition is found, replace it with new one.
- Do not allow brake fluid to get on painted surfaces. Painted surfaces will be damaged by brake fluid, flush it with water immediately if any fluid is spilled.

Removal

- 1) Clean outside of master cylinder.
- 2) Disconnect fluid level switch coupler (1) and clamp (3) from reservoir (2).



I7RW01410009-01

Brake Shoe

⚠ CAUTION

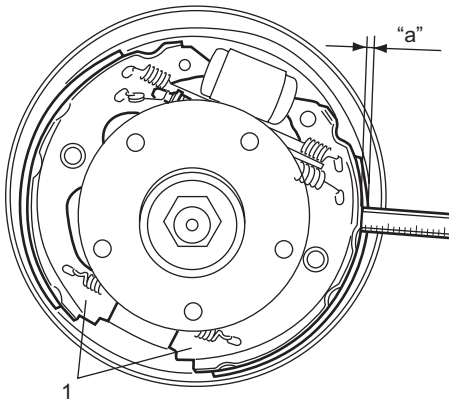
Never polish lining with sandpaper. If lining is polished with sandpaper, hard particles of sandpaper will be deposited in lining and may damage drum. When it is required to correct lining, replace it with a new one.

Measure thickness of brake shoe (1). Also, check surface of lining for hardening, excessive wear. If necessary, replace new brake shoes.

Rear brake shoe lining thickness "a"

Standard: 4.0 mm (0.157 in.)

Limit: 1.0 mm (0.04 in.)



I8RW01431001-01

Rear Brake Shoe On-Vehicle Inspection

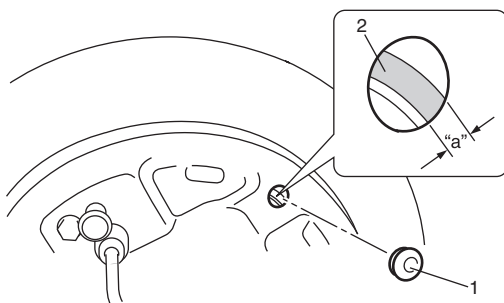
S7RW0C4316004

Amount of brake shoe wear can be checked as follows.

- 1) Hoist vehicle.
- 2) Remove rubber cover (plug) (1) from brake back plate.
- 3) Through hole of back plate, visually check for thickness of brake shoe lining (2). If lining thickness is less than specified wear limit, replace all brake shoes with new ones.

Lining thickness "a"

Service limit: 1.0 mm (0.04 in.)



I4RS0B430004-01

Rear Brake Shoe Removal and Installation

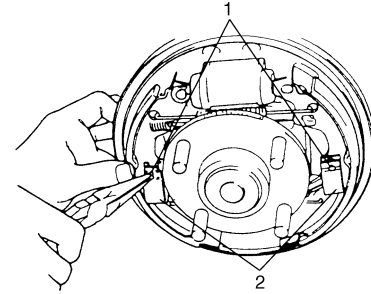
S7RW0C4316005

NOTE

When replacing brake shoe, replace it on the right and left.

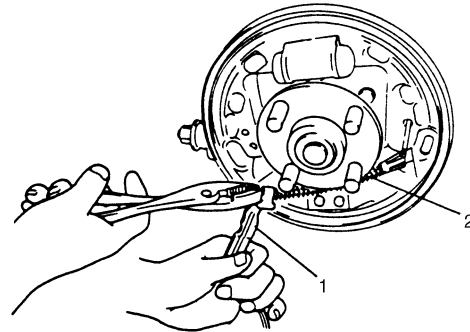
Removal

- 1) Remove brake drum referring to "Rear Brake Drum Removal and Installation: Drum".
- 2) Push and rotate 90° hold down pin (1) and remove hold down pin (1) and hold down spring (2).



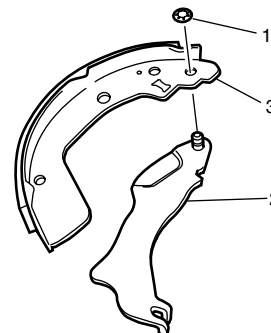
I7RW01431003-01

- 3) Remove return springs, brake shoes and adjuster.
- 4) Disconnect parking brake shoe lever (1) from parking brake cable (2).



I2RH01430013-01

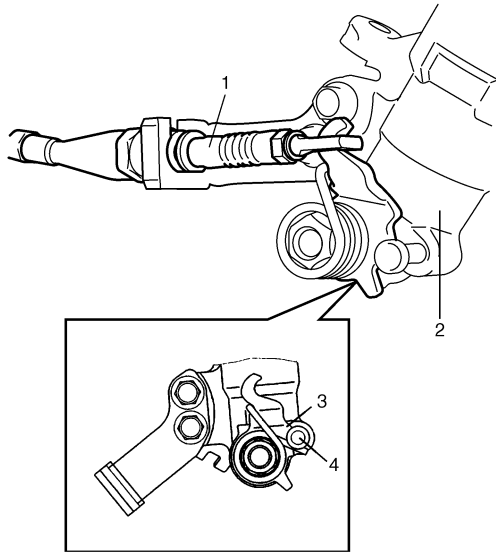
- 5) Remove push nut (1).
- 6) Remove parking brake shoe lever (2) from shoe rim (3).



I4RS0A430014-01

4D-3 Parking Brake:

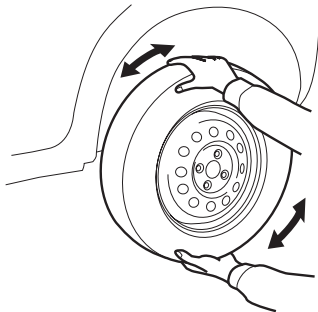
- 3) Make sure that lever (3) contacts pin (4).



I7RW01440002-01

1. Parking brake cable	2. Brake caliper
------------------------	------------------

- 4) Pull up parking brake lever 1 notch.
- 5) Rotate rear wheel by hand and fasten parking lever adjust nut until dragging rear wheel lightly.



I7RW01440006-01

- 6) Release parking brake lever and then make sure that there is no drag in rear wheel. If there is, repeats go to step 2).
- 7) Make sure that the number of notch is between 4 and 9 when operating parking brake lever.
- 8) If the number of notch is not between 4 and 9, replace parking brake cable and/or inspect rear brake caliper.

Parking Brake Cable Removal and Installation

S7RW0C4406003

Removal

NOTE

When it is necessary to remove both right and left parking brake cables, repeat below steps 2) and 6) on right and left wheels.

- 1) Hoist vehicle.
- 2) Remove wheel.
- 3) Disconnect parking brake cable from equalizer (parking brake lever) and clamps.
- 4) Remove brake drum. Refer to "Rear Brake Drum Removal and Installation: Drum in Section 4C" (drum brake model).
- 5) Disconnect parking brake cable from brake shoe lever referring to "Rear Brake Shoe Removal and Installation: Drum in Section 4C" (drum brake model).
- 6) Disconnect parking brake cable from lever referring to "Rear Disc Brake Caliper Removal and Installation: Disc in Section 4C" (disc brake model).
- 7) Remove parking brake cable and parking cable bracket.

Installation

Install it by reversing removal procedure, noting the following points.

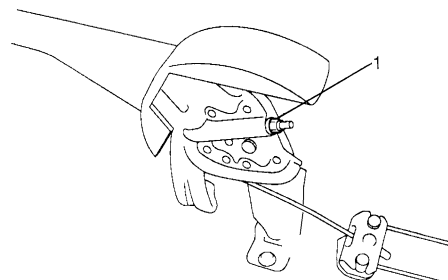
- Install clamps properly referring to "Parking Brake Cable Components".
- Tighten bolts and nuts to specified torque referring to "Parking Brake Cable Components".
- Adjust parking brake cable. Refer to "Parking Brake Inspection and Adjustment".
- Check brake disc or brake drum for dragging and brake system for proper performance. Brake test should be performed.

Parking Brake Lever Removal and Installation

S7RW0C4406004

Removal

- 1) Remove console box.
- 2) Block vehicle wheels and release parking brake lever.
- 3) Disconnect lead wire of parking brake switch at coupler.
- 4) Loosen parking brake cable adjusting nut (1).



I4RS0A440004-01

Step	Action	Yes	No
3	<p>CAN communication line circuit check</p> <ol style="list-style-type: none"> 1) Turn ignition switch to OFF position. 2) Disconnect connectors of all control modules communicating by means of CAN. 3) Check for proper connection to CAN communication line wire. 4) If OK then check CAN communication line circuit between control modules for open, short and high resistance. <p><i>Is each CAN communication line circuit in good condition?</i></p>	Substitute a known-good combination meter and recheck. If warning light remains ON, substitute a known-good ABS hydraulic unit / control module assembly and recheck.	Repair circuit and recheck.

EBD Warning Light (Brake Warning Light) Comes ON Steady

S7RW0C4504010

Wiring Diagram

Referring to "Wiring Diagram" under "ABS Warning Light Does Not Come ON at Ignition Switch ON".

Circuit Description

EBD warning light (brake warning light) is controlled by ABS control module and BCM through light driver module in combination meter.

If EBD system is in good condition, ABS control module turns EBD warning light ON at the ignition switch ON, keeps it ON for 2 seconds and then turns it OFF.

EBD warning light is turned ON continuously at the following conditions.

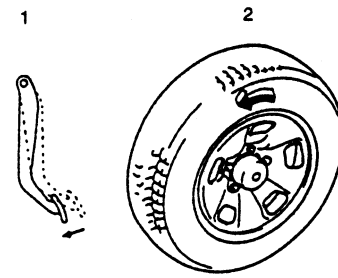
- EBD system is an abnormality
- Connector of ABS control module is disconnected
- Parking brake switch is ON
- Brake fluid level is lower than minimum level

The information of parking brake switch and brake fluid level are transmitted from BCM to light driver module in combination meter through CAN communication line.

Troubleshooting

Step	Action	Yes	No
1	<p>Parking brake and brake fluid level check</p> <ol style="list-style-type: none"> 1) Make sure that: <ul style="list-style-type: none"> • Parking brake is completely released. • Brake fluid level is upper than the minimum level. <p><i>Are the check results OK?</i></p>	Go to Step 2.	Release parking brake completely and/or replenish brake fluid.
2	<p>ABS warning light operation check</p> <ol style="list-style-type: none"> 1) Turn ignition switch to ON position. <p><i>Does ABS warning light come on steady?</i></p>	Perform "ABS Warning Light Comes ON Steady" previously outlined.	Go to Step 3.
3	<p>Parking brake switch circuit and brake fluid level switch circuit check</p> <ol style="list-style-type: none"> 1) Release parking brake completely, and replenish brake fluid. 2) Disconnect BCM connectors with ignition switch turned OFF. 3) Measure resistance between each terminal of "E04-5", "L01-6" and vehicle body ground. <p><i>Are resistance $\infty\Omega$?</i></p>	Go to Step 4.	Check each applicable circuit for short to vehicle body ground. If OK then check parking brake switch and/or brake fluid level switch.

- 7) Turn ignition switch to ON position and select menu to "HYDRAULIC CONTROL TEST" under "miscellaneous test" ("MISC. TEST") mode of SUZUKI scan tool.
- 8) Perform the following checks with help of another person.
 Brake pedal (1) should be depressed and then select testing wheel by SUZUKI scan tool and the wheel (2) should be turned by another person's hand. At this time, check that:
 - Operation sound of solenoid is heard and the wheel turns only about 0.5 sec. (Brake force is depressurized).
 - Operation sound of pump motor is heard and pulsation is felt at brake pedal.



I4RH01450021-01

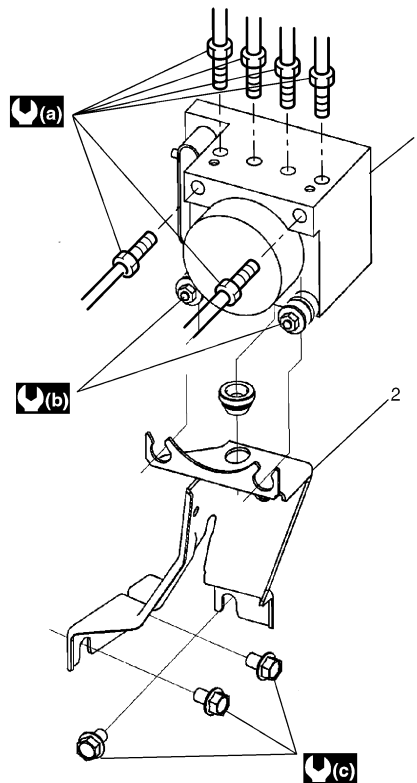
- 9) Check for all 4-wheels condition respectively. If a faulty condition is found, replace ABS hydraulic unit / control module assembly.
- 10) After completing the check, turn ignition switch to OFF position and disconnect SUZUKI scan tool from DLC.

ABS Hydraulic Unit / Control Module Assembly Components

S7RW0C4506002

⚠ CAUTION

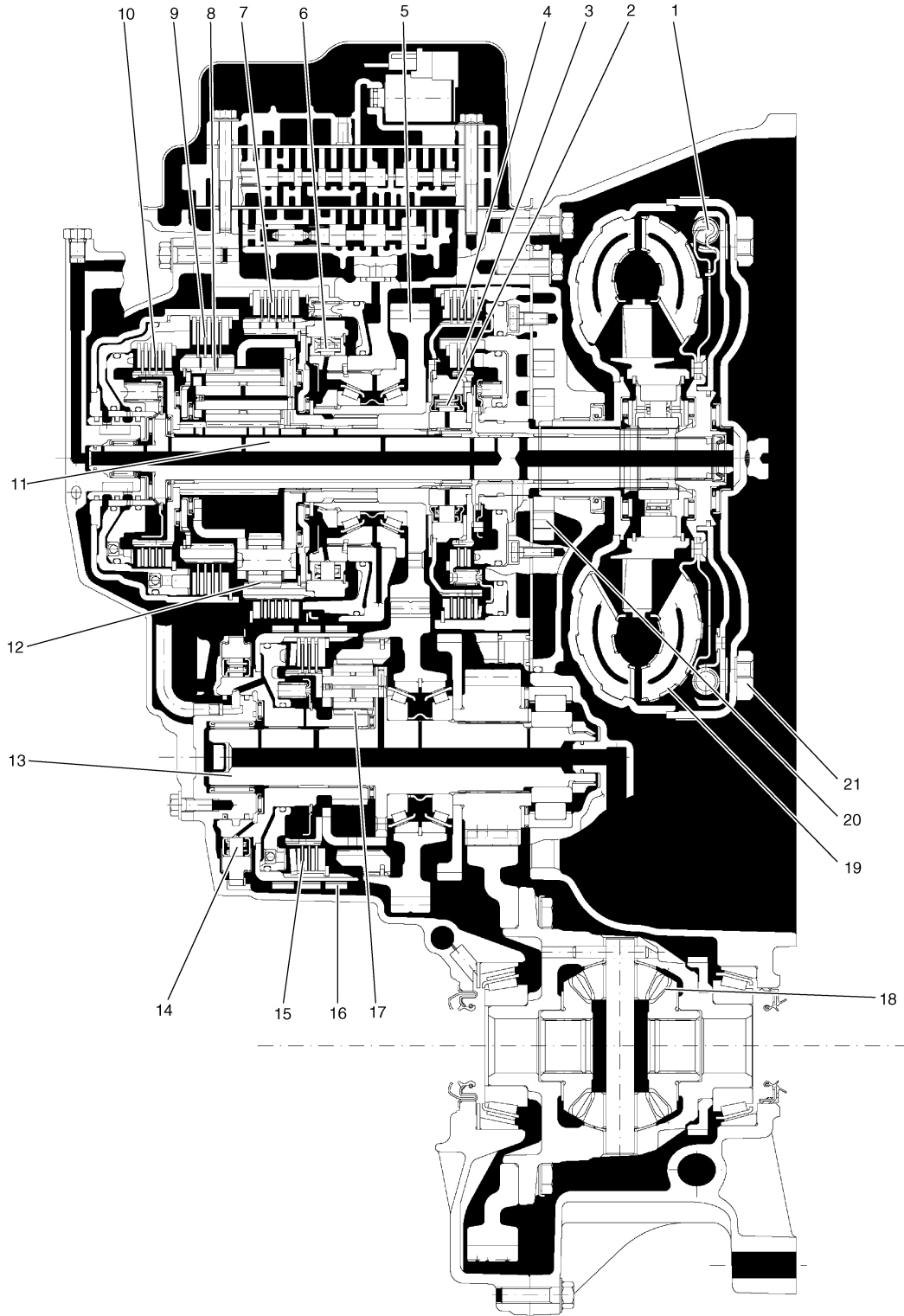
Never disassemble ABS hydraulic unit / control module assembly, loosen blind plug or remove motor. Performing any of these prohibited services will affect original performance of ABS hydraulic unit / control module assembly.



I6RW0C450006-01

1. ABS hydraulic unit / control module assembly	(a) : 16 N·m (1.6 kgf-m, 11.5 lb-ft)	(c) : 26 N·m (2.6 kgf-m, 19.0 lb-ft)
2. Bracket	(b) : 9 N·m (0.9 kgf-m, 6.5 lb-ft)	

2WD



I4RH01510001-01

1. Torque converter clutch (TCC)	7. 1st / reverse brake	13. Countershaft	19. Torque converter
2. One-way No. 1 clutch	8. Rear planetary gear	14. One-way No. 3 clutch	20. Oil pump
3. 2nd coast brake	9. Forward clutch	15. U/D clutch	21. Drive plate mounting nut
4. 2nd brake	10. Direct clutch	16. U/D brake	
5. Counter drive gear	11. Input shaft	17. U/D planetary gear	
6. One-way No. 2 clutch	12. Front planetary gear	18. Differential gear	

5A-18 Automatic Transmission/Transaxle:

DTC No.	Detecting item	Detecting condition (DTC will set when detecting:)	A	B
☞ P0711	Transmission Fluid Temperature Sensor "A" Circuit Range/Performance	Transmission fluid temperature is no change and less than 20 °C (68 °F) while vehicle is running at 40 km/h (25 mile/h) or more for 10 minutes or more.	2 driving cycles	2 driving cycles*
☞ P0712	Transmission Fluid Temperature Sensor "A" Circuit Low	Transmission fluid temperature sensor signal voltage is less than specified value for more than 5 minutes while engine is running.	1 driving cycle	1 driving cycle
☞ P0713	Transmission Fluid Temperature Sensor "A" Circuit High	Transmission fluid temperature sensor signal voltage is higher than specified value for 12 minutes while vehicle is running.	1 driving cycle	1 driving cycle
☞ P0717	Input Speed Sensor "A" Circuit No Signal	Pulse signals of input shaft speed sensor are not input although pulse signals of output shaft speed sensor are input while vehicle is running.	1 driving cycle	1 driving cycle
☞ P0722	Output Speed Sensor Circuit No Signal	Pulse signals of output shaft speed sensor are not input although pulse signals of input shaft speed sensor are input while vehicle is running.	1 driving cycle	1 driving cycle
☞ P0741	Torque Converter Clutch Circuit Performance or Stuck Off	Difference between engine speed and input shaft speed is larger than specification while TCC solenoid valve is turned ON.	2 driving cycles	2 driving cycles*
☞ P0742	Torque Converter Clutch Circuit Stuck On	Difference between engine speed and input shaft speed is smaller than specification while TCC solenoid valve is turned OFF.	2 driving cycles	2 driving cycles*
☞ P0751	Shift Solenoid "A" Performance or Stuck Off	Actual gear position is different from commanded gear position of TCM (Shift solenoid valve – A does not turn ON).	2 driving cycles	2 driving cycles*
☞ P0752	Shift Solenoid "A" Stuck On	Actual gear position is different from commanded gear position of TCM (Shift solenoid valve – A does not turn OFF).	2 driving cycles	2 driving cycles*
☞ P0756	Shift Solenoid "B" Performance or Stuck Off	Actual gear position is different from commanded gear position of TCM (Shift solenoid valve – B does not turn ON).	2 driving cycles	2 driving cycles*
☞ P0757	Shift Solenoid "B" Stuck On	Actual gear position is different from commanded gear position of TCM (Shift solenoid valve – B does not turn OFF).	2 driving cycles	2 driving cycles*
☞ P0961	Pressure Control Solenoid "A" Control Circuit Range/Performance	Difference between actual current of pressure control solenoid valve and current of pressure control solenoid valve calculated by TCM is more than specification.	1 driving cycle	1 driving cycle
☞ P0962	Pressure Control Solenoid "A" Control Circuit Low	Value of pressure control solenoid valve output current is too low for 12.5 seconds or more.	1 driving cycle	1 driving cycle
☞ P0963	Pressure Control Solenoid "A" Control Circuit High	Value of pressure control solenoid valve output current is too high for 12.5 seconds or more.	1 driving cycle	1 driving cycle
☞ P0973	Shift Solenoid "A" Control Circuit Low	Difference between command signal and monitor signal of shift solenoid valve – A (shift solenoid valve – A circuit is shorted to ground).	1 driving cycle	1 driving cycle
☞ P0974	Shift Solenoid "A" Control Circuit High	Difference between command signal and monitor signal of shift solenoid valve – A (shift solenoid valve – A circuit is open or shorted to power supply circuit).	1 driving cycle	1 driving cycle
☞ P0976	Shift Solenoid "B" Control Circuit Low	Difference between command signal and monitor signal of shift solenoid valve – B (shift solenoid valve – B circuit is shorted to ground).	1 driving cycle	1 driving cycle
☞ P0977	Shift Solenoid "B" Control Circuit High	Difference between command signal and monitor signal of shift solenoid valve – B (shift solenoid valve – B circuit is open or shorted to power supply circuit).	1 driving cycle	1 driving cycle
☞ P1702	Internal Control Module Memory Check Sum Error	Data write error or check sum error.	1 driving cycle	1 driving cycle

Condition	Possible cause	Correction / Reference Item
Excessive "N" → "D" time lag	Clogged oil strainer	<i>Replace.</i>
	Faulty oil pump	<i>Inspection. If NG, replace.</i>
	Slippery forward clutch	<i>Inspection. If NG, replace.</i>
	Faulty one-way No. 2 clutch	<i>Inspection. If NG, replace.</i>
	Leakage from "D" range fluid pressure circuit	<i>Overhaul or replace valve body assembly.</i>
Excessive "N" → "R" time lag	Clogged oil strainer	<i>Replace.</i>
	Faulty oil pump	<i>Inspection. If NG, replace.</i>
	Slippery direct clutch	<i>Inspection. If NG, replace.</i>
	Slippery 1st / reverse brake	<i>Inspection. If NG, replace.</i>
	Slippery U/D brake	<i>Inspection. If NG, replace.</i>
Leakage from "R" range fluid pressure circuit	<i>Overhaul or replace valve body assembly.</i>	
Poor engine brake in downshift to "L" range	Faulty 1st / reverse brake	<i>Inspection. If NG, replace.</i>

Transmission Warning Light Circuit Check – Light Does Not Come "ON" at Ignition Switch ON (Non-Euro-OBD Model)

S7RW0C5104019

Troubleshooting

Step	Action	Yes	No
1	Combination Meter Power Supply Check 1) Turn ignition switch ON. <i>Does other indicator / warning lights in combination meter comes ON?</i>	Go to Step 2.	Repair combination meter power supply circuit referring to "Combination Meter Circuit Diagram in Section 9C".
2	1) TCM power and ground circuit check referring to "TCM Power and Ground Circuit Check". <i>Is it in good condition?</i>	Go to Step 3.	Repair or replace.
3	DTC check 1) Check DTC referring to "DTC Check". <i>Is there DTC U0073 or U0100?</i>	Go to applicable DTC diag. flow.	Go to Step 4.
4	Combination Meter Function Check 1) Turn ignition switch ON. <i>Does A/T selector position indicator show correct select lever position?</i>	Replace combination meter.	Substitute a known-good TCM and recheck.

Transmission Warning Light Circuit Check – Light Remains "ON" at Ignition Switch ON (Non-Euro-OBD Model)

S7RW0C5104020

Troubleshooting

Step	Action	Yes	No
1	Diagnostic Trouble Code (DTC) Check 1) Check DTC referring to "DTC Check". <i>Is there any DTC(s)?</i>	Perform DTC Flow to repair and retry.	Substitute a known-good TCM and recheck. If OK, substitute a known-good combination meter and recheck.

5A-48 Automatic Transmission/Transaxle:

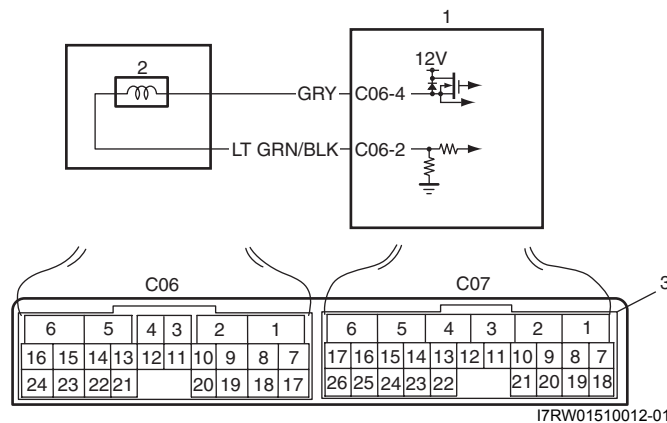
Step	Action	Yes	No
4	<p>Check pressure control solenoid valve circuit for open</p> <p>1) Check resistance between terminals "C06-2" and "C06-4" of disconnected harness side TCM connector.</p> <p><i>Is it infinity?</i></p>	"LT GRN/BLK" or "GRY" circuit open.	Intermittent trouble or faulty TCM. Check for intermittent referring to "Intermittent and Poor Connection Inspection in Section 00". If OK, substitute a known-good TCM and recheck.

DTC P0963: Pressure Control Solenoid "A" Control Circuit High

S7RW0C5104033

Wiring Diagram

Refer to "DTC P0961: Pressure Control Solenoid "A" Control Circuit Range / Performance".



1. TCM	3. Terminal arrangement of TCM connector (viewed from harness side)
2. Pressure control solenoid valve	

DTC Detecting Condition and Trouble Area

DTC detecting condition	Trouble area
Value of pressure control solenoid valve output current is too high for 12.5 seconds or more. (1 driving cycle detection logic)	<ul style="list-style-type: none"> Pressure control solenoid valve or its circuit malfunction. TCM

DTC Confirmation Procedure

- 1) Clear DTC.
- 2) Start engine and run it for 1 minute.
- 3) Check DTC.

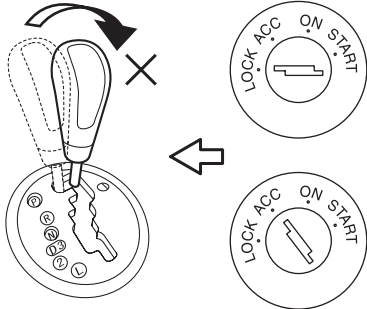
DTC Troubleshooting

Step	Action	Yes	No
1	Was "A/T System Check" performed?	Go to Step 2.	Go to "A/T System Check".
2	<p>Check pressure control solenoid valve circuit for IG short</p> <p>1) Turn ignition switch to OFF position and disconnect TCM connectors.</p> <p>2) Check for proper connection to "C06-2" and "C06-4".</p> <p>3) If OK, turn ignition switch to ON position and measure voltage between "C06-4" terminal of disconnected harness side TCM connector and ground.</p> <p><i>Is it 0 V?</i></p>	Go to Step 3.	"LT GRN/BLK" or "GRY" circuit shorted to power circuit.

Brake Interlock System Inspection

S7RW0C5104044

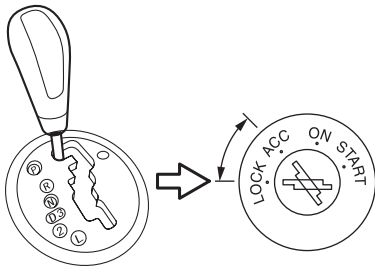
- 1) Check that select lever cannot be moved to any other range from "P" range position when ignition switch key is at ACC position, at LOCK position or it is removed from keyhole of ignition switch, or brake pedal is not depressed.



I7RW01510025-01

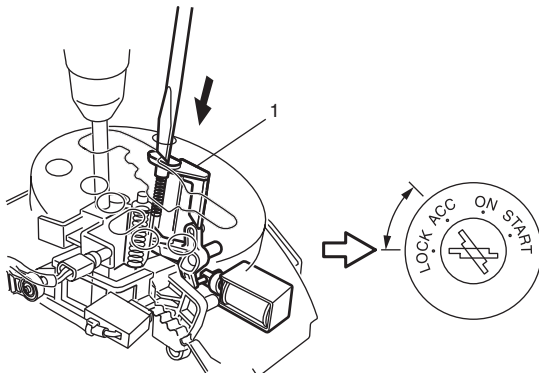
- 2) Shift select lever to "P" range position, check for the following.

- Ignition key can be turned between LOCK and ACC positions back and forth and also it can be removed from ignition switch.



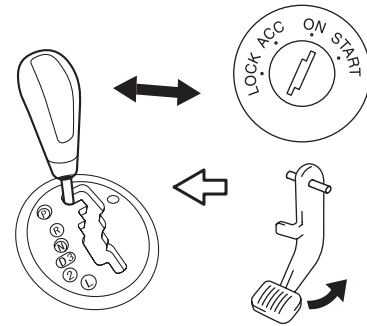
I7RW01510026-01

- With ignition switch turned to ACC position, push shift lock solenoid release plate (1). Then, select lever can be shifted from "P" range position to any other range.
- While ignition switch is at LOCK position, even when shift lock solenoid release plate (1) is pressed, select lever cannot be shifted from P range position to any other range.



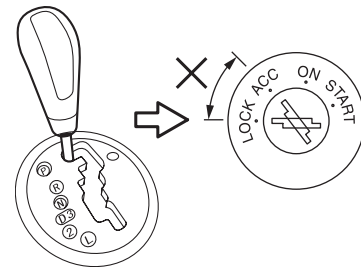
I7RW01510027-01

- When ignition switch is turned ON and brake pedal is depressed, select lever can be shifted from "P" range position to any other range.



I7RW01510028-01

- 3) With select lever shifted to any position other than "P" range, check that ignition key cannot be turned LOCK position and it cannot be removed from ignition switch unless it is at LOCK position.



I7RW01510031-01

Transmission Control Module (TCM) Removal and Installation

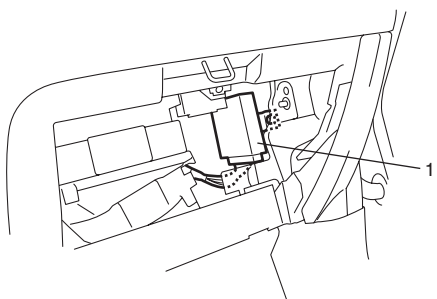
S7RW0C5106024

⚠ CAUTION

TCM consists of highly precise parts, therefore when handling it, be careful not to expose to excessive shock.

Removal

- 1) Disconnect negative cable at battery.
- 2) If the vehicle is equipped with air bag system, disable air bag system. Refer to "Disabling Air Bag System in Section 8B".
- 3) Remove glove box.
- 4) Disconnect connectors from TCM (1).
- 5) Remove TCM by removing its nuts.



I5RW0C510040-01

Installation

Reverse removal procedure noting the following.

- Connect TCM connectors securely.
- If the vehicle is equipped with air bag system, be sure to enable air bag system after TCM is back in place. Refer to "Enabling Air Bag System in Section 8B".

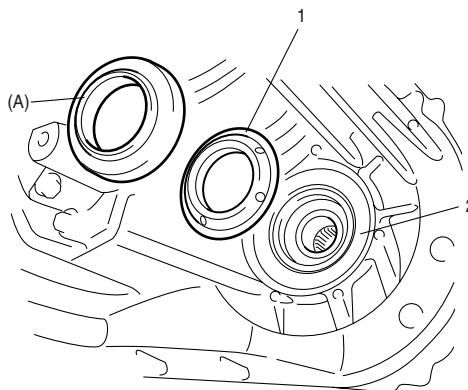
Differential Side Oil Seal Replacement

S7RW0C5106025

- 1) Lift up vehicle and drain A/T fluid.
- 2) Remove drive shaft joints from differential gear of transaxle. Refer to "Front Drive Shaft Assembly Removal and Installation: Front in Section 3A" for procedure to disconnect drive shaft joints. For differential side oil seal removal, it is not necessary to remove drive shafts from steering knuckle.
- 3) Remove differential side oil seal by using screw driver or the like.
- 4) Apply grease to new differential side oil seal lip.
 - : **Grease 99000-25030 (SUZUKI Super Grease C)**
- 5) Press-fit new differential side oil seal (1) until transaxle case end face (2) is flush with oil seal end, using special tool.

Special tool

(A): 09924-07730



I4RH01510047-01

- 6) Install drive shaft referring to "Front Drive Shaft Assembly Removal and Installation: Front in Section 3A".
- 7) Pour A/T fluid referring to "A/T Fluid Change".

2nd Coast Brake and 2nd Brake Preliminary Check

S7RW0C5106034

- 1) Measure 2nd brake piston stroke while applying and releasing compressed air (400 – 800 kPa, 4 – 8 kg/cm², 57 – 113 psi) through oil hole (1) by using special tools.

If measured piston stroke exceeds specified value, disassemble and inspect inner parts.

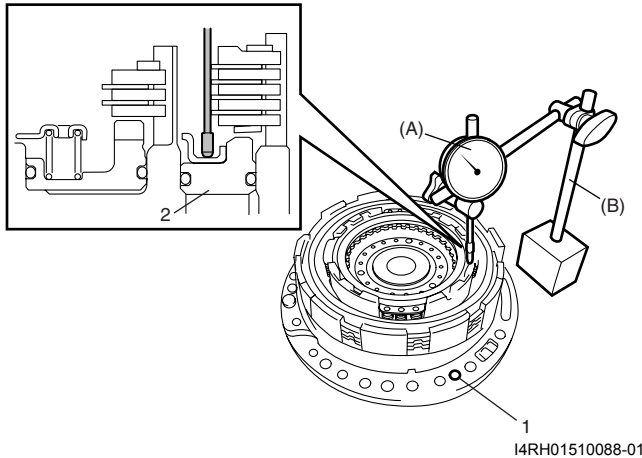
Special tool

(A): 09900-20607

(B): 09900-20701

2nd brake piston stroke

Standard: 1.91 – 2.69 mm (0.075 – 0.106 in.)



2. 2nd brake piston

- 2) Measure 2nd coast brake piston stroke while applying and releasing compressed air (400 – 800 kPa, 4 – 8 kg/cm², 57 – 113 psi) through oil hole (1) by using special tools.

If measured piston stroke exceeds specified valve, disassemble and inspect inner parts.

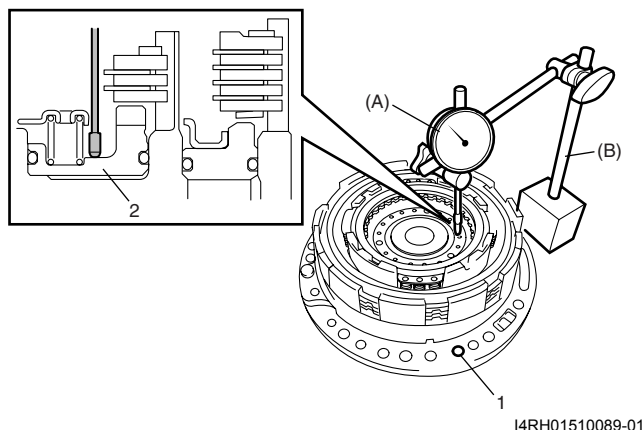
Special tool

(A): 09900-20607

(B): 09900-20701

2nd coast brake piston stroke

Standard: 0.82 – 1.66 mm (0.032 – 0.156 in.)



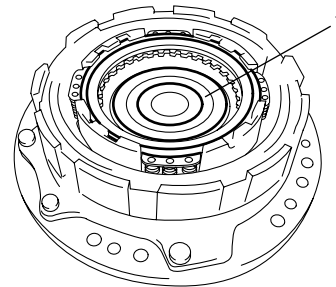
2. 2nd coast brake piston

Oil Pump, 2nd Coast Brake and 2nd Brake Disassembly and Reassembly

S7RW0C5106035

Disassembly

- 1) Remove 2nd coast brake thrust washer (1).



- 2) Using special tool and hydraulic press (1), compress 2nd brake piston return spring (2) until spring seat is pushed down to 1 – 2 mm (0.039 – 0.078 in.) lower than snap ring groove and remove snap ring (3).

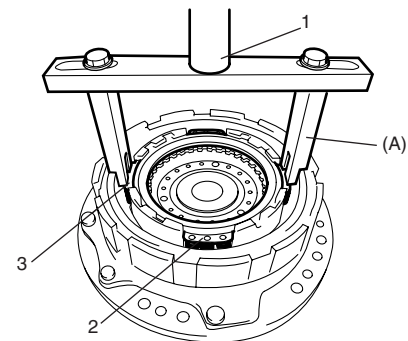
Special tool

(A): 09941-51010

⚠ CAUTION

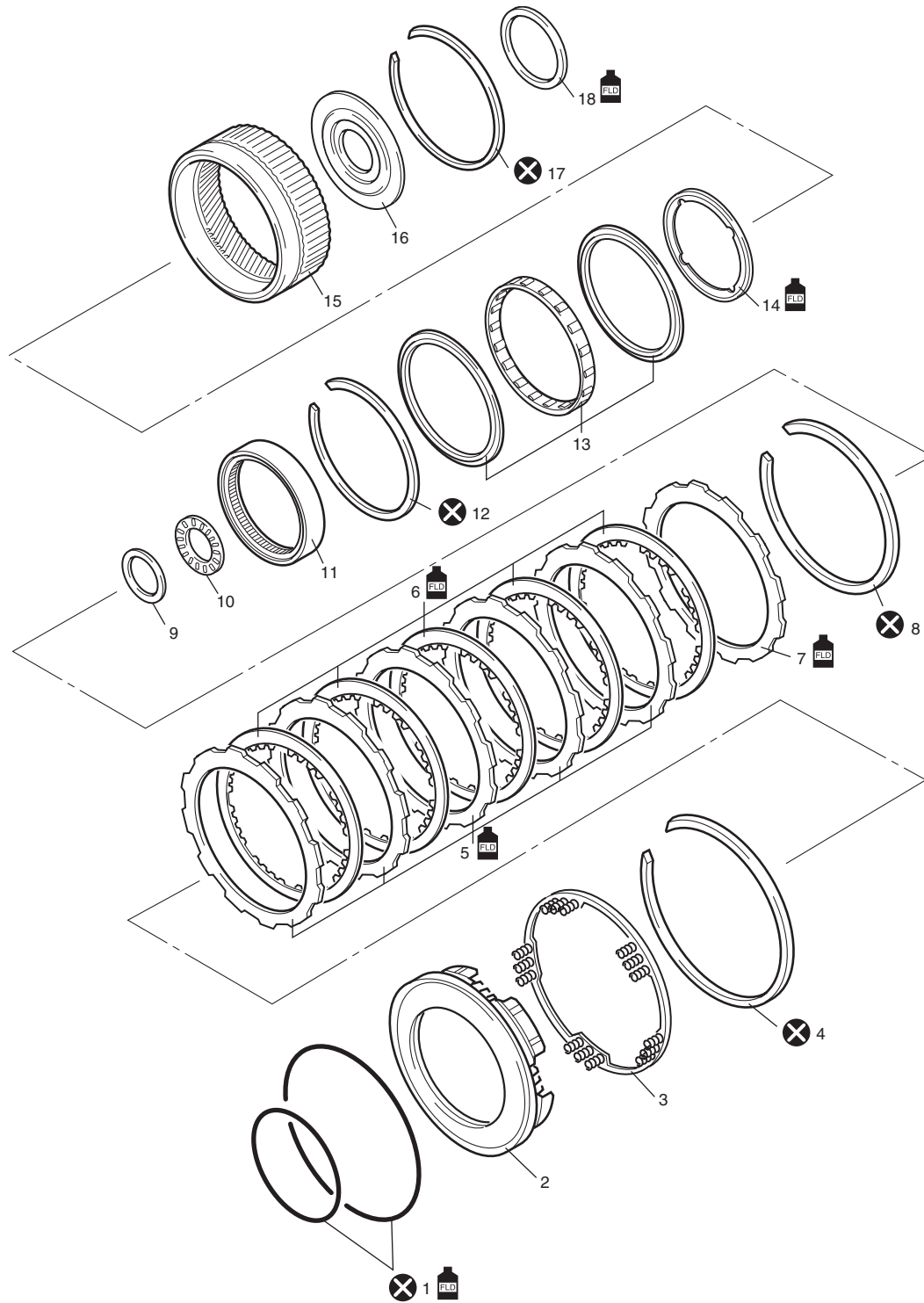
Be careful when applying pressure, for overpressure will cause plate section of 2nd brake piston return spring to deform.

- 3) Remove retaining plate, friction plates and separator plates.



1st / Reverse Brake and One-Way No. 2 Clutch Components

S7RW0C5106045

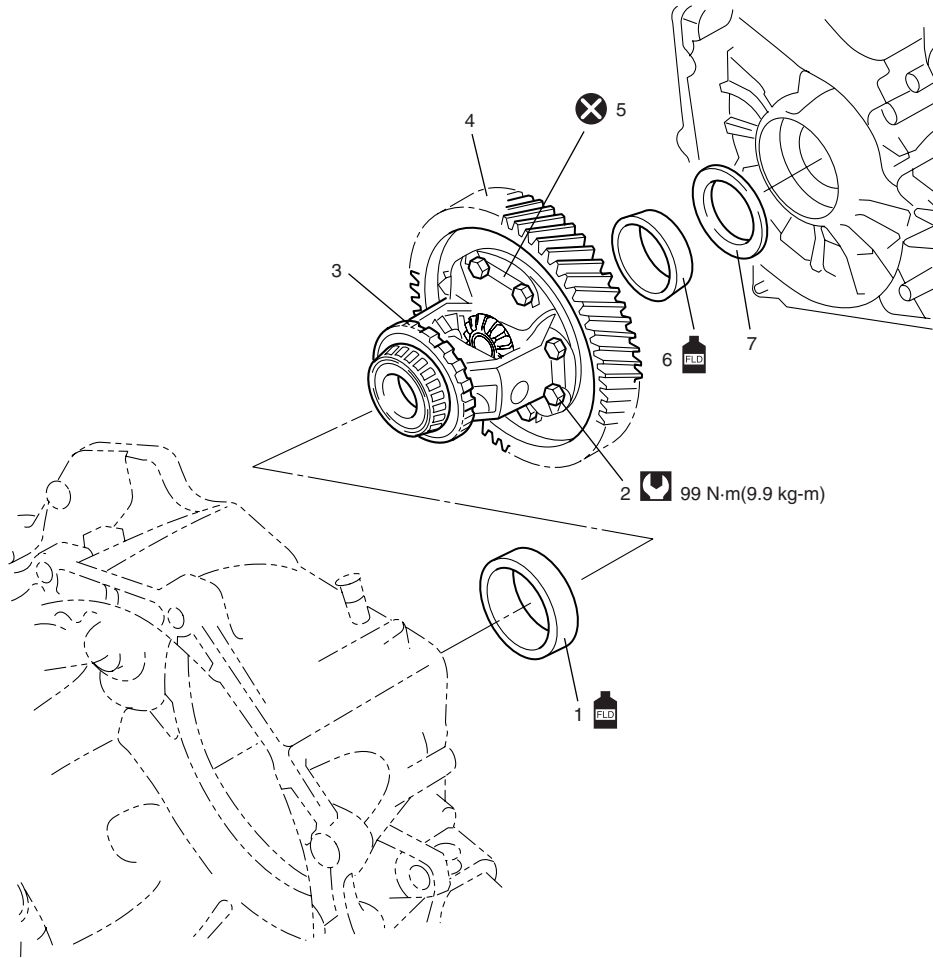


I7RW01510054-01

1. O-ring	6. Friction plate	11. One-way No. 2 clutch inner race	16. Front planetary ring gear flange
2. 1st / reverse brake piston	7. Retaining plate	12. Snap ring	17. Snap ring
3. 1st / reverse brake piston return spring	8. Snap ring	13. One-way No. 2 clutch	18. Front planetary ring gear rear thrust bearing
4. Snap ring	9. Front planetary ring gear front thrust bearing	14. Front planetary ring gear thrust washer	: Apply automatic transaxle fluid.
5. Separate plate	10. Front planetary ring gear front thrust bearing	15. Front planetary ring gear	: Do not reuse.

Differential Components

S7RW0C5106065



I4RH01510178-01

1. Differential side right bearing race	5. Ring gear set bolt lock plate	: Apply automatic transaxle fluid.
2. Bolt	6. Differential side left bearing race	: Tightening torque
3. Differential gear assembly	7. Shim	: Do not reuse.
4. Final gear		

Differential Preliminary Check

S7RW0C5106066

Differential Assembly Starting Torque

- 1) Install differential assembly (1) to transaxle case and tighten case bolts to specified torque.

Tightening torque

Transaxle housing bolts: 30 N·m (3.0 kgf·m, 22 lb-ft)

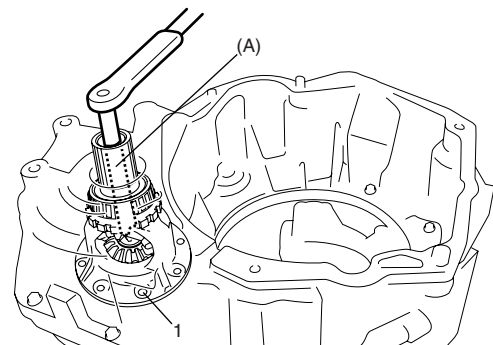
- 2) Measure differential assembly starting torque, using special tool. If starting torque exceeds specified value, replace shim in the following so as starting torque to be in standard value.

Starting torque of differential assembly

0.7 – 1.2 N·m (0.07 – 0.12 kgf·m, 0.506 – 0.868 lb-ft)

Special tool

(A): 09928-06060



I4RH01510179-01

- 91) Install transmission range sensor assembly.
- Install transmission range sensor plate (1) to groove of solenoid harness.
 - Install transmission range sensor (2) to manual valve lever shaft (3).
 - Place lock washer (4).
 - Insert transmission range sensor bolts.
 - Tighten transmission range sensor lock nut (5) to specified torque and then bend claws lock washer.

Tightening torque

Transmission range sensor lock nut (a): 7.0 N·m (0.7 kgf-m, 5.0 lb-ft)

- Install manual shift lever (6), washer (7) and tighten nut (8) to specified torque.

Tightening torque

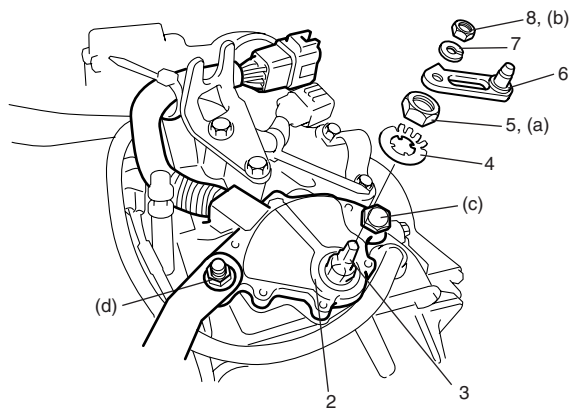
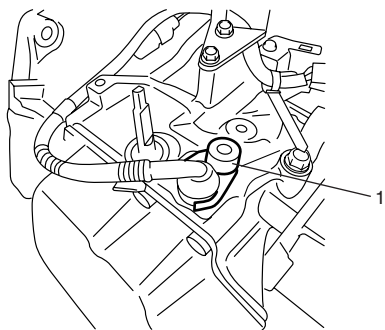
Manual select lever nut (b): 12 N·m (1.2 kgf-m, 8.7 lb-ft)

- Adjust transmission range sensor.
- Tighten transmission range sensor bolt and nut to specified torque.

Tightening torque

Transmission range sensor bolt (c): 25 N·m (2.5 kgf-m, 18.0 lb-ft)

Transmission range sensor nut (d): 7.5 N·m (0.75 kgf-m, 5.5 lb-ft)



I5RH01510023-01

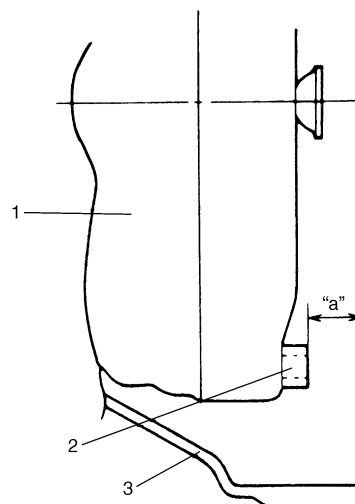
- 92) Install torque converter (1) to input shaft.
- Install torque converter (1), using care not to damage oil seal of oil pump.
 - After installing torque converter (1), check that distance "a" is within specification.

Distance between torque converter and mating surface of transaxle housing (3)
"a": 21.5 mm (0.846 in.) or more

- Check torque converter (1) for smooth rotation.

⚠ CAUTION

- Before installing converter, make sure that its pump hub portion is free from nicks, burrs or damage which may cause oil seal to leak.
- Be very careful not to drop converter on oil pump gear. Damage in gear, should it occur, may cause a critical trouble.



I2RH01510269-01

2. Flange nut

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- 3) Apply grease to pin (5) of gear shift control lever, and then install adjuster (1) into pin of gear shift control lever securely.

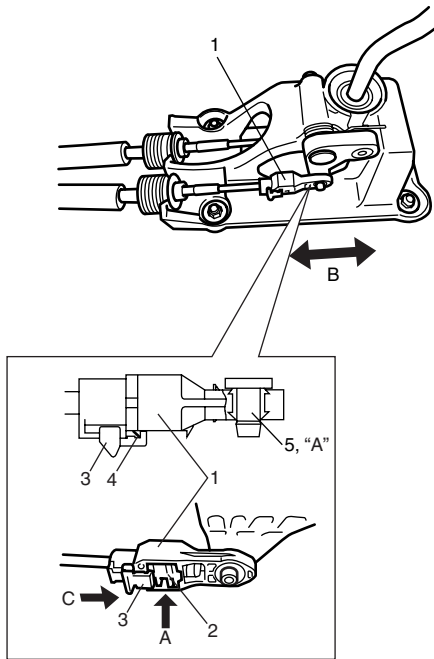
“A”: Grease 99000–25011 (SUZUKI Super Grease A)

- 4) Push cable end holder (2) in the direction of A.

NOTE

At this time, do not apply force in the cable operation direction B to adjuster.

- 5) Slide lock plate (3) in the direction of C, until it gets over the claw (4) of cable end holder.



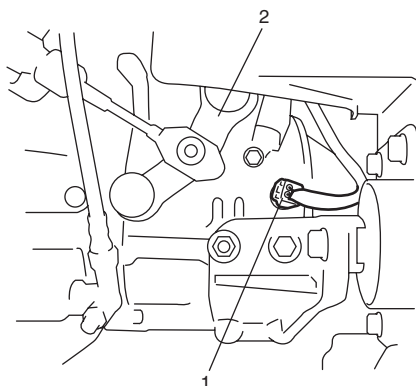
I4RS0A520005-01

Back Up Light Switch Removal and Installation

S7RW0C5206007

Removal

- 1) Remove battery and tray with ECM.
- 2) Disconnect back up light switch coupler (1).
- 3) Remove back up light switch.



I5RW0A520009-01

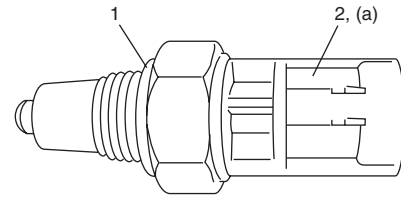
2. Gear shift and select shaft assembly

Installation

- 1) Apply oil to new O-ring (1) and tighten back up light switch (2) to specified torque.

Tightening torque

Back up light switch (a): 23 N·m (2.3 kgf·m, 17.0 lb-ft)



I3RH0A520006-01

- 2) Connect back up light switch coupler.
- 3) Install battery and tray with ECM.

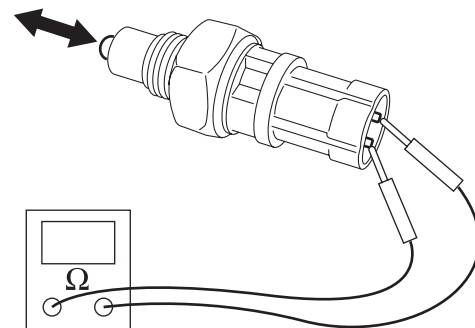
Back Up Light Switch Inspection

S7RW0C5206008

Check backup light switch for function using ohmmeter.

Switch ON (Push): Continuity

Switch OFF (Release): No continuity



I5RW0A520050-01

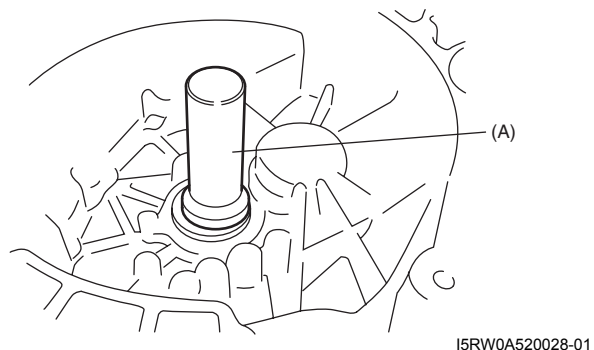
Reassembly

- 1) Install input shaft oil seal facing its spring side upward until it becomes flush with case surface. Use special tool and hammer for installation and apply grease to oil seal lip.

: Grease 99000-25011 (SUZUKI Super Grease A)

Special tool

(A): 09913-76010

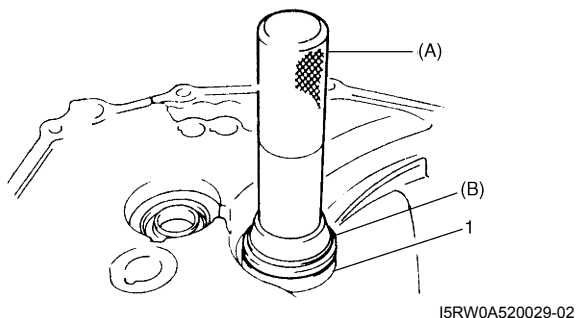


- 2) Install countershaft right bearing outer race (1) by using special tools and hammer.

Special tool

(A): 09913-75821

(B): 09924-84510-004

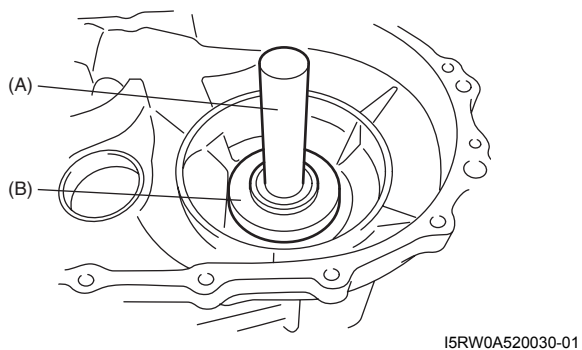


- 3) Install differential side bearing outer race by using special tool and hammer.

Special tool

(A): 09924-74510

(B): 09925-14520

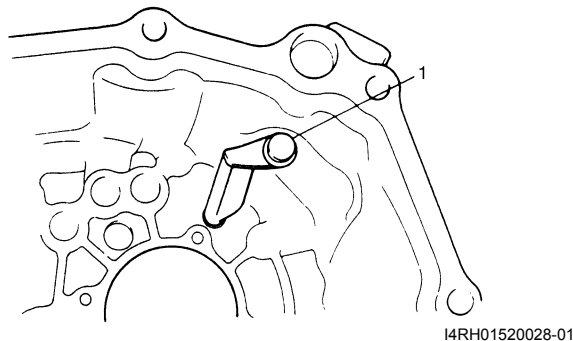


Left Case Disassembly and Reassembly

S7RW0C5206018

Disassembly

- 1) Removal oil gutter (1), if necessary.

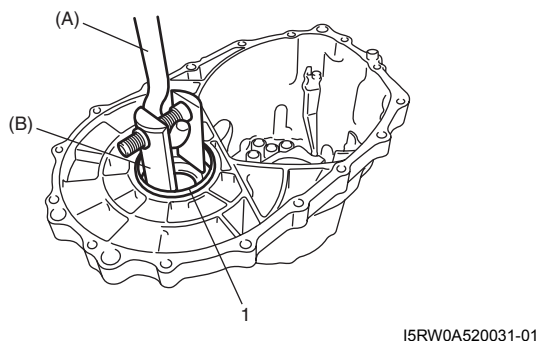


- 2) Remove oil seal using flat end rod or the like.
- 3) Remove differential side bearing outer race (1) using special tools and then remove shim.

Special tool

(A): 09942-15511

(B): 09944-96011



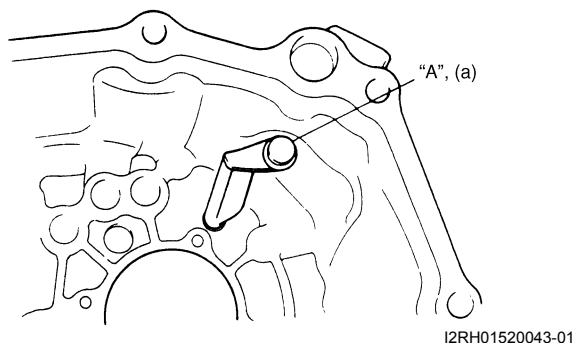
Reassembly


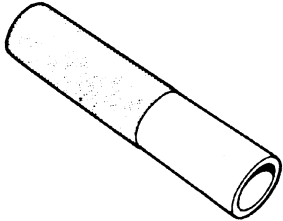
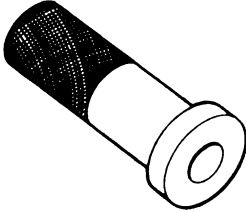
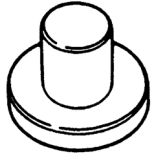
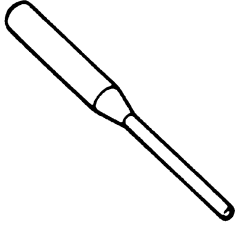
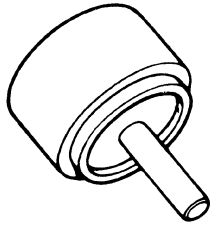
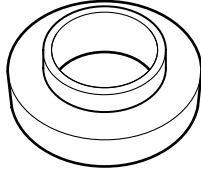
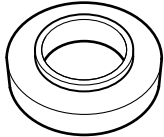
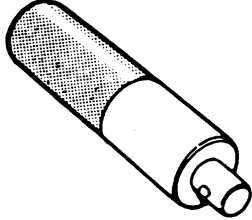
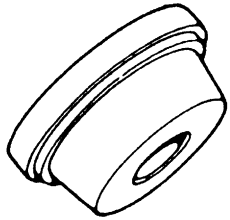

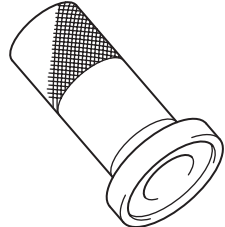
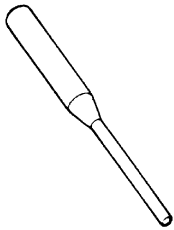
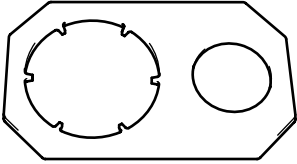
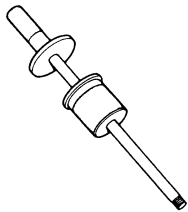
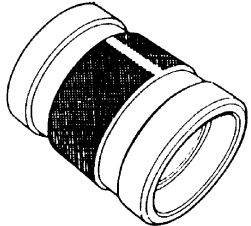
- 1) If oil gutter has been removed, install it with bolt to which thread lock cement has been applied.

“A”: Thread lock cement 99000-32110 (Thread Lock Cement Super 1322)

Tightening torque

Oil gutter bolt (a): 10 N·m (1.0 kgf·m, 7.5 lb·ft)



<p>09913-80113 Bearing installer ☞ / ☞ / ☞</p> 	<p>09913-84510 Bearing installer ☞</p> 
<p>09913-85210 Bearing installer ☞ / ☞</p> 	<p>09913-85230 Bearing remover tool ☞ / ☞ / ☞</p> 
<p>09922-85811 Spring pin remover (4.5 mm) ☞ / ☞ / ☞</p> 	<p>09923-78210 Bearing installer ☞ / ☞ / ☞</p> 
<p>09924-07710 Synchronizer hub installer ☞</p> 	<p>09924-07720 Synchronizer hub installer ☞ / ☞</p> 
<p>09924-74510 Bearing and oil seal handle ☞ / ☞</p> 	<p>09924-84510-004 Bearing installer attachment ☞</p> 
<p>09925-14520 Bearing and oil seal installer (80 x 50 mm) ☞ / ☞</p> 	<p>09925-15410 Oil seal installer ☞</p> 
<p>09925-78210 Spring pin remover (6 mm) ☞</p> 	<p>09927-76060 Gear holder ☞ / ☞</p> 
<p>09930-30104 Sliding shaft ☞</p> 	<p>09940-54910 Front fork oil seal install driver ☞</p> 

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Power Assisted Steering System

Precautions

P/S System Note

S7RW0C6300001

NOTE

All steering gear fasteners are important attaching parts in that they could affect the performance of vital parts and systems, and/or could result in major repair expense. They must be replaced with one of the same part number or with an equivalent part if replacement becomes necessary. Do not use a replacement part of lesser quality or substitute design. Torque values must be used as specified during reassembly to assure proper retention of these parts.

Precautions in Diagnosing Troubles

S7RW0C6300002

- Take a note of DTC indicated on the SUZUKI scan tool.
- Before inspection, be sure to read "Precautions for Electrical Circuit Service in Section 00" and understand what is written there.
- DTC C1122 (engine speed signal failure) is indicated when ignition switch is at ON position and engine is not running, but it means there is nothing abnormal if indication changes to a normal one when engine is started.
- As DTC is stored in memory of the P/S control module, be sure to clear memory after repair by performing the procedure described in "DTC Clearance".

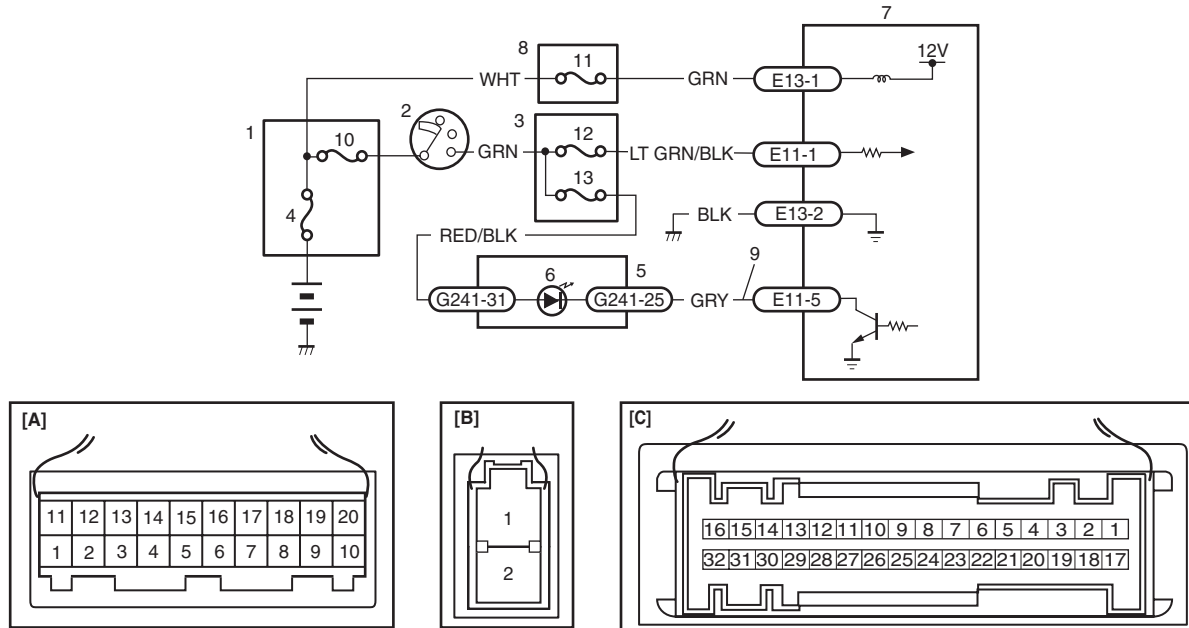
6C-16 Power Assisted Steering System:

Step	Action	Yes	No
8	Scan tool operation check 1) Check if communication is possible by making communication with other vehicles. <i>Is it possible to communicate with the other vehicle?</i>	Scan tool is in good condition, check intermittent trouble referring to "Intermittent and Poor Connection Inspection in Section 00".	Recheck PCMCIA card and DLC cable for faulty condition. If they are OK, scan tool is faulty.

"EPS" Warning Light Does Not Come ON with Ignition Switch Turned ON before Engine Starts

S7RW0C6304010

Wiring Diagram



i6RW0C630003-01

[A]: P/S control module connector No.1 "E11" (viewed from harness side)	4. Main fuse	10. "IGN" fuse
[B]: P/S control module connector No.2 "E13" (viewed from harness side)	5. Combination meter	11. "P/S" fuse
[C]: Combination meter connector "G241" (viewed from harness side)	6. "EPS" warning light	12. "IG1 SIG" fuse
1. Main fuse box	7. P/S control module	13. "MTR" fuse
2. Ignition switch	8. Individual circuit fuse box No.1	
3. Junction block assembly	9. "EPS" warning light circuit	

Circuit Description

Operation (ON/OFF) of "EPS" warning light is controlled by P/S control module through combination meter. If the P/S system is in good condition, P/S control module turns "EPS" warning light ON at the ignition switch ON, and then turns it OFF at the engine start. If an abnormality in the system is detected, "EPS" warning light is turned ON continuously by P/S control module. If P/S control module is disconnected, "EPS" warning light is not turned ON.

Inspection of P/S Control Module and Its Circuits

The P/S control module and its circuits can be checked at the P/S control module wiring couplers by measuring voltage and resistance.

⚠ CAUTION

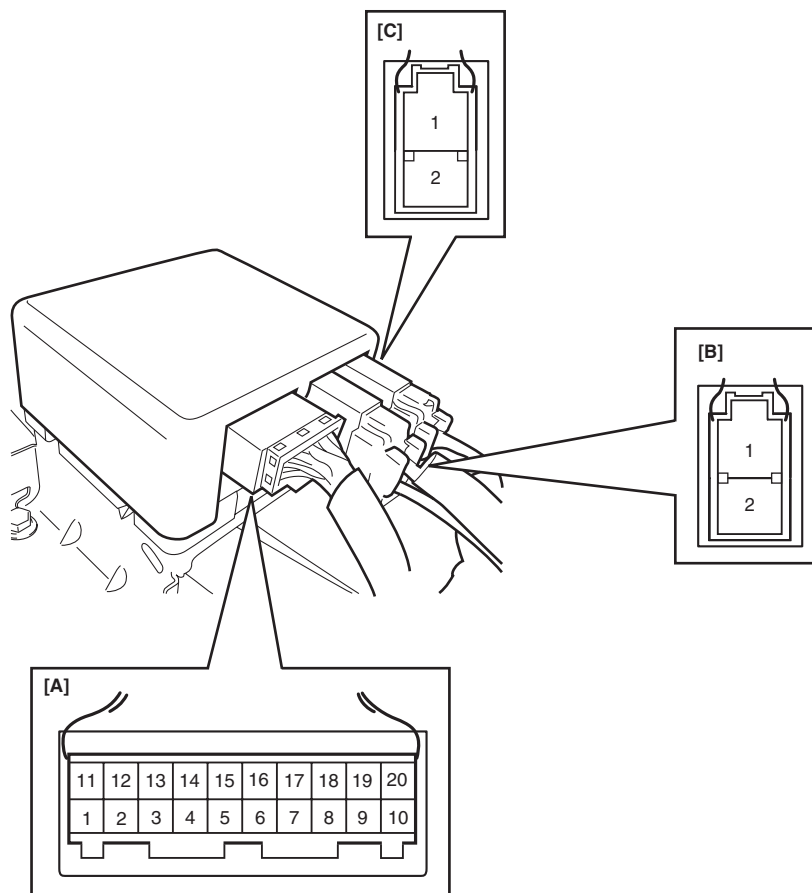
P/S control module cannot be checked by itself. It is strictly prohibited to connect voltmeter or ohmmeter to the P/S control module with connectors disconnected from the P/S control module.

Voltage Check

- 1) Remove console box.
- 2) Check for voltage at each terminal with connectors connected to the P/S control module.

NOTE

As each terminal voltage is affected by the battery voltage, confirm if the battery voltage is 11 V or more when ignition switch is ON.

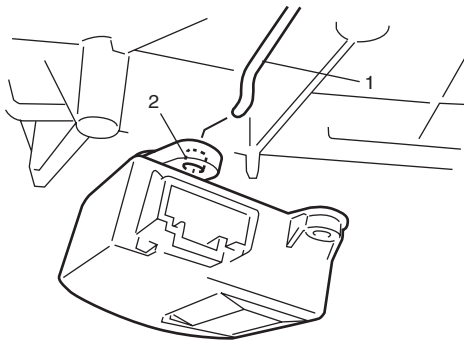


[A]: P/S control module connector No.1 "E11" (viewed from harness side)
[B]: P/S control module connector No.2 "E13" (viewed from harness side)
[C]: P/S control module connector No.3 "E12" (viewed from harness side)

Installation

Reverse removal procedure noting the following instruction.

- Be sure to insert the linkage rod (1) into the hole (2) of air intake control actuator.



I7RW01710017-02

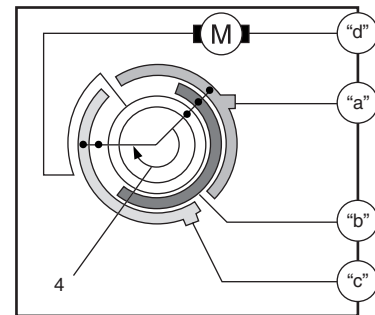
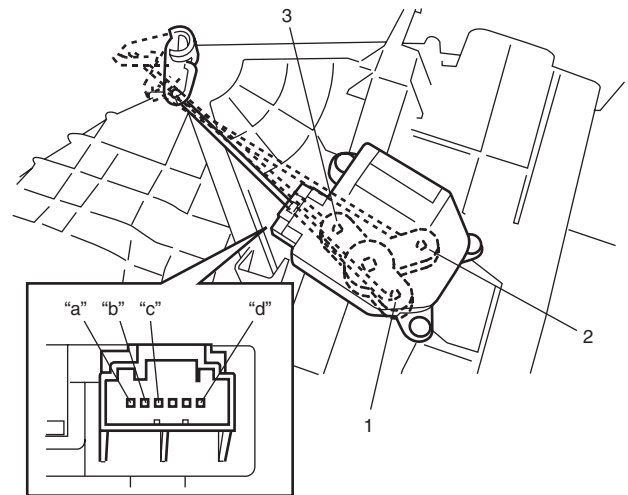
Air Intake Control Actuator Inspection

S7RW0C7106013

Check air intake control actuator as follows:

- 1) Using service wire, connect battery positive terminal to "d" terminal and battery negative terminal to terminal "a". And, check if air intake selector link operates smoothly and it stops at "FRE" position (1).
- 2) Using service wire, connect battery positive terminal to "d" terminal and battery negative terminal to terminal "c". And, check if air intake selector link operates smoothly and it stops at "REC" position (2).
- 3) For auto A/C model, using service wire, connect battery positive terminal to "d" terminal and battery negative terminal to "b" terminal. And, check air intake selector link operates smoothly and it stops at MIX position (3).

If malfunction is found, replace air intake control actuator.



I7RW01710018-05

4. Motor rotation direction

A/C System Symptom Diagnosis

Condition	Possible cause	Correction / Reference Item
No cool air comes out (A/C compressor does not operate)	No refrigerant	Perform recovery, evacuation and charge referring to "Operation Procedure for Refrigerant Charge: Manual Type".
	Fuse blown	Check related fuses, and then check for short circuit to ground.
	A/C switch faulty	Check A/C switch referring to "A/C Switch Inspection: Manual Type".
	Blower speed selector faulty	Check blower speed selector referring to "Blower Speed Selector Inspection in Section 7A".
	Evaporator temperature sensor faulty	Check evaporator temperature sensor referring to "Evaporator Temperature Sensor Inspection: Manual Type".
	A/C refrigerant pressure sensor faulty	Check A/C refrigerant pressure sensor referring to "A/C Refrigerant Pressure Sensor and Its Circuit Inspection: Manual Type".
	Wiring or grounding faulty	Repair as necessary.
	ECM faulty	Check ECM referring to "A/C System Inspection at ECM: Manual Type".
	Magnet clutch faulty	Check magnet clutch referring to "Magnet Clutch Inspection: Manual Type".
	Compressor drive belt loosened or broken	Adjust or replace drive belt.
	Compressor faulty	Check compressor.
	Compressor relay faulty	Check compressor relay referring to "A/C System Relay Inspection: Manual Type".
BCM faulty	Check BCM referring to "Inspection of BCM and Its Circuits in Section 10B".	
No cool air comes out (radiator cooling fan motor does not operate)	Fuse blown	Check related fuses, and then check for short circuit to ground.
	Wiring or grounding faulty	Repair as necessary.
	Condenser cooling fan relay faulty	Check condenser cooling fan motor relay referring to "A/C System Relay Inspection: Manual Type".
	Condenser cooling fan motor faulty	Check condenser cooling fan motor referring to "Condenser Cooling Fan Inspection: Manual Type".
	ECM faulty	Check ECM referring to "A/C System Inspection at ECM: Manual Type".
No cool air comes out (blower motor does not operate)	Fuse blown	Check related fuses, and then check for short circuit to ground.
	Blower motor relay faulty	Check blower motor relay referring to "Blower Motor Relay Inspection in Section 7A".
	Blower motor resistor faulty	Check blower motor resistor referring to "Blower Motor Resistor Inspection in Section 7A".
	Blower speed selector faulty	Check blower speed selector referring to "Blower Speed Selector Inspection in Section 7A".
	Wiring or grounding faulty	Repair as necessary.
	Blower motor faulty	Check blower motor referring to "Blower Motor Inspection in Section 7A".

Evaporator Temperature Sensor Inspection

S7RW0C7216011

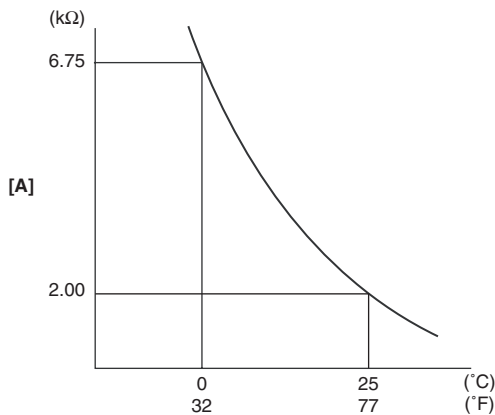
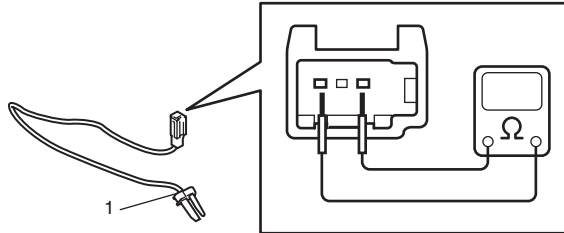
Check resistance between terminals of evaporator temperature sensor (1).

If check results are as not specified, replace evaporator temperature sensor.

Evaporator temperature sensor resistance

0 °C (32 °F): 6.6 – 6.8 kΩ

25 °C (77 °F): 2.0 – 2.1 kΩ



[B]

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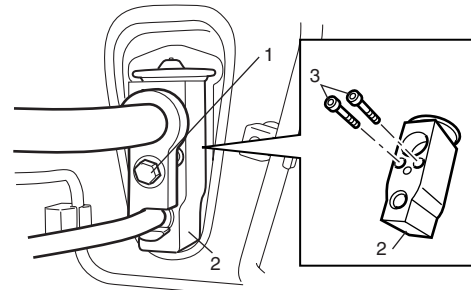
[A]: Resistance	[B]: Temperature
-----------------	------------------

Expansion Valve Removal and Installation

S7RW0C7216012

Removal

- 1) Recover refrigerant from the A/C system with recovery and recycling equipment referring to "Recovery" in "Operation Procedure for Refrigerant Charge: Manual Type".
- 2) Loosen a bolt (1) and remove pipes from expansion valve (2).
- 3) Loosen bolts (3) and remove expansion valve.



I4RS0A720028-01

Installation

Reverse removal procedure noting the following instructions.

- Apply compressor oil to O-ring of expansion valve and pipes.
- Tighten expansion valve bolts to specified torque.

Tightening torque

Expansion valve bolt: 4.5 N·m (0.45 kgf·m, 3.5 lb-ft)

- Evacuate and charge the A/C system referring to "Evacuation" and "Charge" in "Operation Procedure for Refrigerant Charge: Manual Type".

Expansion Valve Inspection

S7RW0C7216013

Refer to "A/C System Performance Inspection: Manual Type".

Diagnostic Information and Procedures

Air Conditioning System Check

S7RW0C7224001

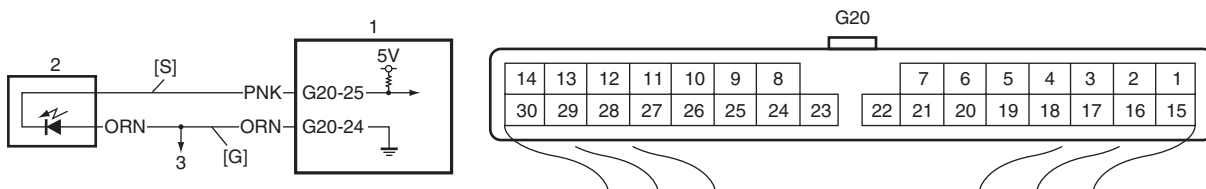
Step	Action	Yes	No
1	Customer complaint analysis 1) Perform ☞ "Customer complaint analysis". <i>Was customer complaint analysis performed?</i>	Go to Step 2.	Perform customer complaint analysis.
2	Visual inspection 1) Perform ☞ "Visual inspection". <i>Is there any faulty condition?</i>	Repair or replace malfunction part.	Go to Step 3.
3	DTC check 1) Perform ☞ "DTC check". <i>Is there any DTC code?</i>	Go to Step 4.	Go to Step 5.
4	DTC troubleshooting 1) Perform ☞ "DTC Troubleshooting". <i>Is there any faulty condition?</i>	Repair or replace malfunction part, and go to Step 7.	Go to Step 5.
5	A/C system performance inspection 1) Perform ☞ "A/C system performance inspection". <i>Is there any faulty condition?</i>	Repair or replace malfunction part, and go to Step 8.	Go to Step 6.
6	Perform A/C system symptom diagnosis 1) Inspect and repair referring to "A/C System Symptom Diagnosis: Automatic Type". <i>Is there any faulty condition?</i>	Repair or replace malfunction part, and go to Step 7.	Go to Step 8.
7	Check for intermittent problem 1) Check for intermittent troubles referring to "Intermittent and Poor Connection Inspection in Section 00". <i>Is there any faulty condition?</i>	Repair or replace malfunction part, and go to Step 8.	Go to Step 8.
8	Final confirmation test 1) Perform ☞ "Final confirmation test". <i>Is there any malfunction code?</i>	Go to Step 4.	End.

Step	Action	Yes	No
3	Evaporator temperature sensor reference voltage check 1) Connect connector to HVAC control module with ignition switch turned OFF. 2) Turn ignition switch to ON position. 3) Measure voltage between signal terminal and ground terminal of evaporator temperature sensor connector. <i>Is voltage 4.5 – 5.5 V?</i>	Go to Step 4.	Substitute a known-good HVAC control module and recheck.
4	Evaporator temperature sensor check 1) Check evaporator temperature sensor for performance referring to “Evaporator Temperature Sensor Inspection: Automatic Type”. <i>Is it in good condition?</i>	Substitute a known-good HVAC control module and recheck.	Replace evaporator temperature sensor.

DTC B1504: Sunload Sensor Circuit Malfunction

S7RW0C7224012

Wiring Diagram



I7RW01722006-01

[S]: Sunload sensor signal circuit	1. HVAC control module	3. To other sensors
[G]: Sunload sensor ground circuit	2. Sunload sensor	

DTC Detecting Condition and Trouble Area

NOTE

When DTC B1502, B1503, B1511 and B1512 are indicated together, it is possible that sensor ground circuit is open.

DTC Detecting Condition	Trouble Area
<ul style="list-style-type: none"> Sunload sensor signal voltage is higher than or lower than specified value for specified time continuously. Without sunlight 	<ul style="list-style-type: none"> Sunload sensor circuit Sunload sensor HVAC control module

7B-73 Air Conditioning System: Automatic Type**DTC B1570: Engine Type Signal Failure**

S7RW0C7224027

DTC Detecting Condition and Trouble Area

DTC detecting condition	Trouble area
HVAC control module receives invalid data of engine type signal from BCM.	<ul style="list-style-type: none"> • CAN communication circuit • HVAC control module • ECM

DTC Troubleshooting

Step	Action	Yes	No
1	<i>Was "Air Conditioning System Check" performed?</i>	Go to Step 2.	Go to "Air Conditioning System Check: Automatic Type".
2	Scan tool data check 1) Connect scan tool with ignition switch turned OFF position. 2) Ignition switch turned ON and select "DATA LIST" mode. 3) Check "ENGINE TYPE" displayed on scan tool. <i>Is value of engine type signal within specified ranges indicated in "Scan Tool Data"?</i>	Substitute a known good HVAC control module and recheck.	Go to step 3.
3	Scan tool data check 1) Check "ENGINE TYPE" displayed on scan tool. <i>Is "CAN Err" displayed on scan tool data?</i>	Check CAN communication circuit referring to "Troubleshooting for CAN-DTC in Section 1A".	Substitute a known good ECM and recheck.

DTC B1571: Combination Meter Spec Signal Failure

S7RW0C7224028

DTC Detecting Condition and Trouble Area

DTC detecting condition	Trouble area
HVAC control module receives invalid data of Combination meter spec signal from BCM.	<ul style="list-style-type: none"> • CAN communication circuit • Combination meter • HVAC control module

DTC Troubleshooting

Step	Action	Yes	No
1	<i>Was "Air Conditioning System Check" performed?</i>	Go to Step 2.	Go to "Air Conditioning System Check: Automatic Type".
2	Scan tool data check 1) Connect scan tool with ignition switch turned OFF position. 2) Ignition switch turned ON and select "DATA LIST" mode. 3) Check "METER SPEC" displayed on scan tool. <i>Is value of combination meter spec signal within specified ranges indicated in "Scan Tool Data"?</i>	Substitute a known good HVAC control module and recheck.	Go to step 3.
3	Scan tool data check 1) Check "METER SPEC" displayed on scan tool. <i>Is "CAN Err" displayed on scan tool data?</i>	Check CAN communication circuit referring to "Troubleshooting for CAN-DTC in Section 1A".	Substitute a known good combination meter and recheck.

Section 8

Restraint

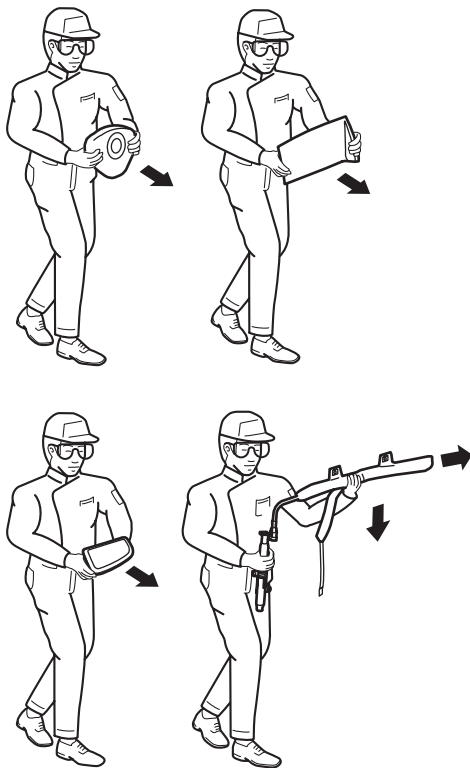
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▲ WARNING

- For handling and storage of a live air bag (inflator) module, select a place where the ambient temperature below 65 °C (150 °F), without high humidity and away from electric noise.
- When carrying a live air bag (inflator) module, make sure the bag opening is pointed away from you. In case of an accidental deployment, the bag will then deploy with minimal chance of injury. Never carry the air bag (inflator) module by the wires or connector on the underside of the module.

Otherwise, personal injury may result.



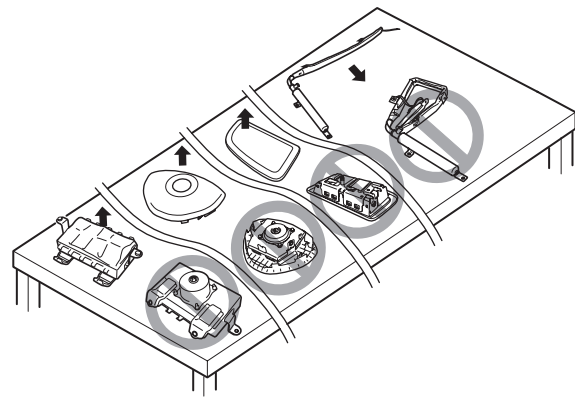
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▲ WARNING

When leaving or storing live air bag (inflator) module unattended on bench or other surface, always its bag (trim cover) facing up and away from surface.

It is also prohibited to place anything on top of the trim cover and stack air bag (inflator) modules.

This is necessary so that a free space is provided to allow the air bag to expand in the unlikely event of accidental deployment. Otherwise, personal injury may result.



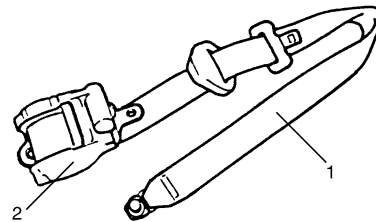
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Live (Inactivated) Seat Belt Pretensioner

Special care is necessary when handling and storing a live (inactivated) seat belt pretensioners.

Also, when the seat belt pretensioners activate, gas is generated and the seat belt (1) is retracted into the retractor assembly (2) quickly.

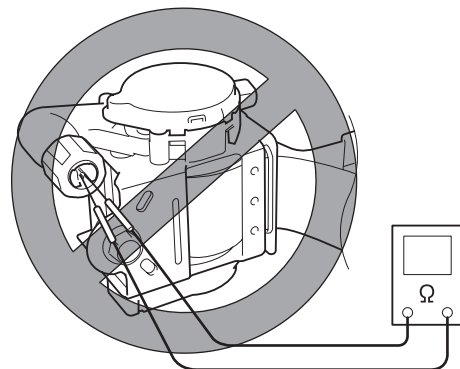
Note, therefore, that if they activate accidentally, the seat belt pretensioners and other object(s) around them may be thrown through the air.



I3JA01820043-01

▲ WARNING

Never attempt to measure the resistance of the seat belt pretensioners. It is very dangerous as the electric current from the tester may activate pretensioner.



I5RW0A820005-03

Scan Tool Data Definition

Buck Up Volt (V)

This parameter indicates the capacity of the backup capacitor installed to maintain the ignition current (as much as possible) even when the power supply to SDM that ignites the inflator is shut off.

Battery Voltage (V)

Battery voltage is an analog input signal read by SDM.

Dirv Air Bag Ini Res (Driver air bag initiator resistance) (ohm)

This parameter indicates the resistance of the driver air bag initiator circuit.

Pass Air Bag Ini Res (Passenger air bag initiator resistance) (ohm)

This parameter indicates the resistance of the passenger air bag initiator circuit.

Dirv Preten Ini Res (Driver pretensioner initiator resistance) (ohm)

This parameter indicates the resistance of the driver seat belt pretensioner initiator circuit.

Pass Preten Ini Res (Passenger pretensioner initiator resistance) (ohm)

This parameter indicates the resistance of the passenger seat belt pretensioner initiator circuit.

Dirv Sidebag Ini Res (Driver side-air bag initiator resistance) (ohm)

This parameter indicates the resistance of the driver side-air bag initiator circuit.

Pass Sidebag Ini Res (Passenger side-air bag initiator resistance) (ohm)

This parameter indicates the resistance of the passenger side-air bag initiator circuit.

Dirv curtain Ini RES (Driver side curtain-air bag initiator resistance) (ohm)

This parameter indicates the resistance of the driver side curtain-air bag initiator circuit.

Pass curtain Ini RES (Passenger side curtain-air bag initiator resistance) (ohm)

This parameter indicates the resistance of the passenger side curtain-air bag initiator circuit.

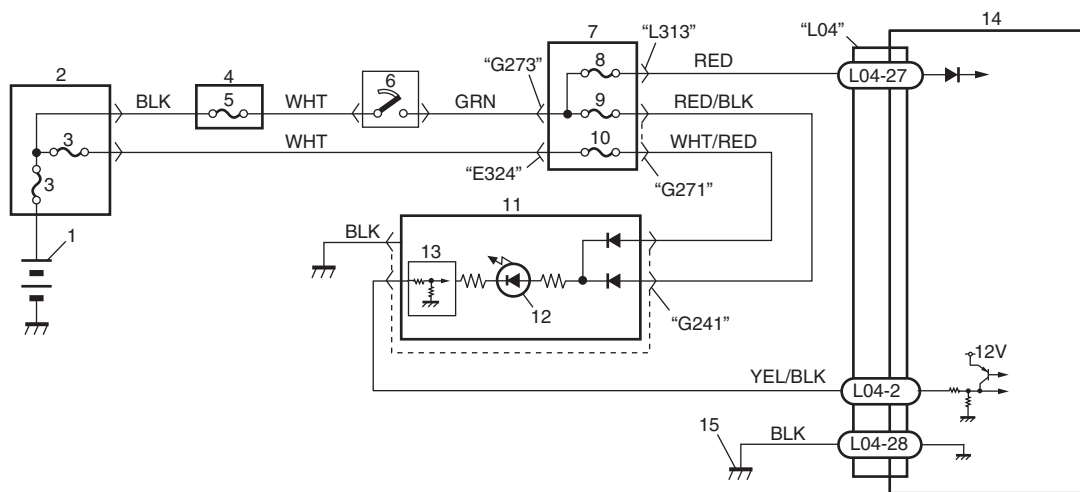
System ID (4ch/8ch)

This parameter indicates the number of initiator circuits.

“AIR BAG” Warning Light Comes ON Steady

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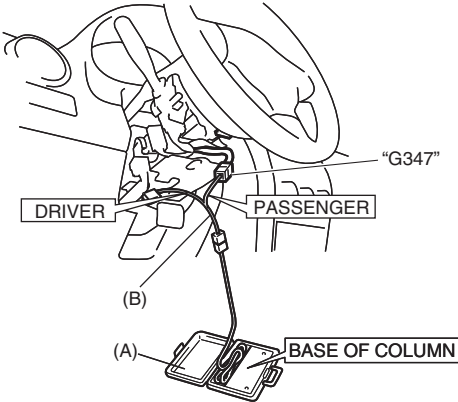
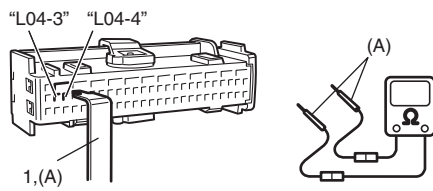
Wiring Diagram



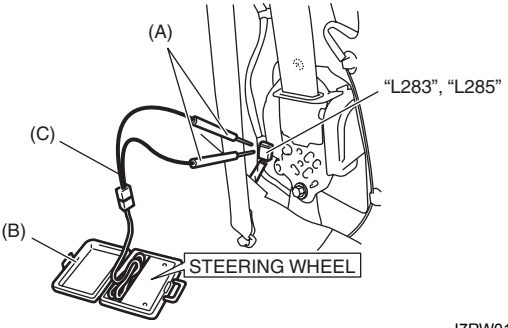
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1. Battery	5. "IGN" fuse	9. "METER" fuse	13. Light driver
2. Main fuse box	6. Ignition switch	10. "DOME" fuse	14. SDM
3. Fuse	7. Junction block assembly	11. Combination meter	15. Ground for SDM
4. Individual circuit fuse box No.1	8. "A/B" fuse	12. "AIR BAG" warning light	

DTC Troubleshooting

Step	Action	Yes	No
1	<p>Was "Air Bag Diagnostic System Check Flow" performed?</p>	Go to Step 2.	Go to "Air Bag Diagnostic System Check Flow".
2	<p>Driver air bag circuit check</p> <ol style="list-style-type: none"> 1) With ignition switch turned OFF, disconnect contact coil connector located under the steering column. 2) Check for proper connection to contact coil at terminal in "G347" connector. 3) If OK, then connect special tools (A) and (B) to "G347" connector disconnected in Step 1). <p>Special tool (A): 09932-75010 (B): 09932-78340</p>  <p style="text-align: right; font-size: small;">17RW01821018-02</p> <ol style="list-style-type: none"> 4) Check SDM for DTC. <p>With ignition switch turned ON, is DTC B1032 indicated?</p>	Go to Step 3.	Go to Step 5.
3	<p>Driver air bag circuit check</p> <ol style="list-style-type: none"> 1) Disconnect SDM connector "L04". 2) Check for proper connection to SDM connector at terminal "L04-3" and "L04-2". 3) If OK, release shorting bar in SDM connector inserting release tool (1) included in special tool (A). <p>Special tool (A): 09932-76010</p> <ol style="list-style-type: none"> 4) Measure resistance between "G347-1" and "G347-2" terminals.  <p style="text-align: right; font-size: small;">17RW01821019-01</p> <p>Is measured resistance infinity?</p>	Substitute a known-good SDM and recheck.	Go to Step 4.

DTC Troubleshooting

Step	Action	Yes	No
1	Was "Air Bag Diagnostic System Check Flow" performed?	Go to Step 2.	Go to "Air Bag Diagnostic System Check Flow".
2	<p>Seat belt pretensioner circuit check</p> <ol style="list-style-type: none"> 1) With ignition switch turned OFF, remove center pillar lower trim of applicable side and disconnect seat belt pretensioner connector "L283" or "L285". 2) Check for proper connection to applicable seat belt pretensioner at terminals in "L283" or "L285" connector. 3) If OK, then connect special tools (A), (B) and (C) to "L283" or "L285" connector disconnected in Step 1). <p>Special tool (A): 09932-76010 (B): 09932-75010 (C): 09932-78310</p>  <p style="text-align: center;">I7RW01822057-01</p> <ol style="list-style-type: none"> 4) Check SDM for DTC. <p><i>With ignition switch turned ON, is DTC B1051 or B1055 still indicated?</i></p>	Go to Step 3.	Replace defective seat belt pretensioner referring to "Front Seat Belt Removal and Installation in Section 8A".

DTC B1064 / B1068: Side-Air Bag Circuit Shorted to Power Supply

DTC B1064: Driver Side-Air Bag Circuit Shorted to Power Supply

DTC B1068: Passenger Side-Air Bag Circuit Shorted to Power Supply

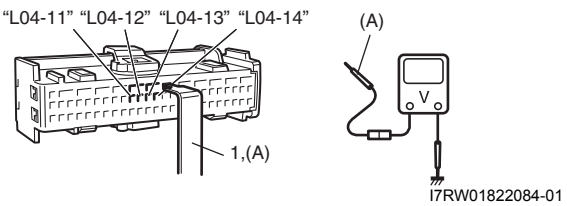
Wiring Diagram

Refer to “DTC B1061 / B1065: Side-Air Bag Circuit High Resistance”.

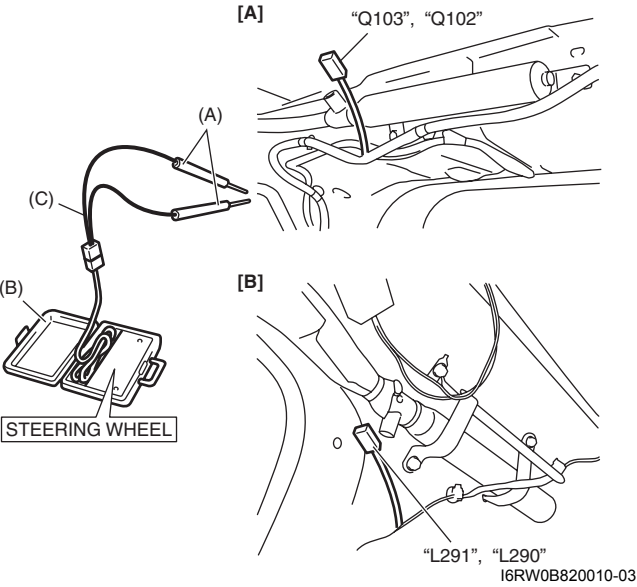
DTC Detecting Condition and Trouble Area

DTC detecting condition	Trouble area
<p>DTC B1064: Driver side-air bag circuit has been shorted to power supply for more than 4 sec.</p> <p>DTC B1068: Passenger side-air bag circuit has been shorted to power supply for more than 4 sec.</p>	<ul style="list-style-type: none"> • Driver / passenger side-air bag circuit • SDM

DTC Troubleshooting

Step	Action	Yes	No
1	Was “Air Bag Diagnostic System Check Flow” performed?	Go to Step 2.	Go to “Air Bag Diagnostic System Check Flow”.
2	<p>Side-air bag circuit check</p> <ol style="list-style-type: none"> 1) Remove applicable driver / passenger side-air bag (inflator) module from seat back referring to “Side-Air Bag (Inflator) Module Removal and Installation”. 2) Disconnect SDM connector “L04”. 3) Check for proper connection to applicable side-air bag (inflator) module at terminal in connector “Q104” or “Q105”. 4) Check for proper connection to SDM connector at terminal “L04-11” and “L04-12” (for DTC B1064) or terminal “L04-13” and “L04-14” (for DTC B1068). 5) If OK, release shorting bar in SDM connector inserting release tool (1) included in special tool (A). <p>Special tool (A): 09932-76010</p> <ol style="list-style-type: none"> 6) With ignition switch turned ON, measure voltage between “L04-11” terminal and body ground, and between “L04-12” terminal and body ground (for DTC B1064). 7) Measure voltage between “L04-13” terminal and body ground, and between “L04-14” terminal and body ground (for DTC B1068).  <p><i>Is each measured voltage 0 V?</i></p>	Substitute a known-good SDM and recheck.	Go to Step 3.

DTC Troubleshooting

Step	Action	Yes	No
1	Was "Air Bag Diagnostic System Check Flow" performed?	Go to Step 2.	Go to "Air Bag Diagnostic System Check Flow".
2	<p>Driver / passenger curtain-air bag circuit check</p> <ol style="list-style-type: none"> 1) With ignition switch turned OFF, remove rear quarter upper trim (hatchback model [A]) or rear pillar inner trim (sedan model [B]) of applicable side and disconnect applicable side curtain-air bag (inflator) module connector. 2) Check for proper connection to applicable side curtain-air bag (inflator) module at terminals in connector "Q103" or "Q102" (hatchback model), "L291" or "L290" (sedan model). 3) If OK, then connect special tools (A), (B) and (C) to applicable side curtain-air bag (inflator) module connector. <p>Special tool (A): 09932-76010 (B): 09932-75010 (C): 09932-78310</p>  <ol style="list-style-type: none"> 4) Check SDM for DTC. <p><i>With ignition switch turned ON, is DTC B1362 or B1366 still indicated?</i></p>	Go to Step 3.	Replace side curtain-air bag (inflator) module referring to "Side Curtain-Air Bag (Inflator) Module Removal and Installation".

Repair Instructions

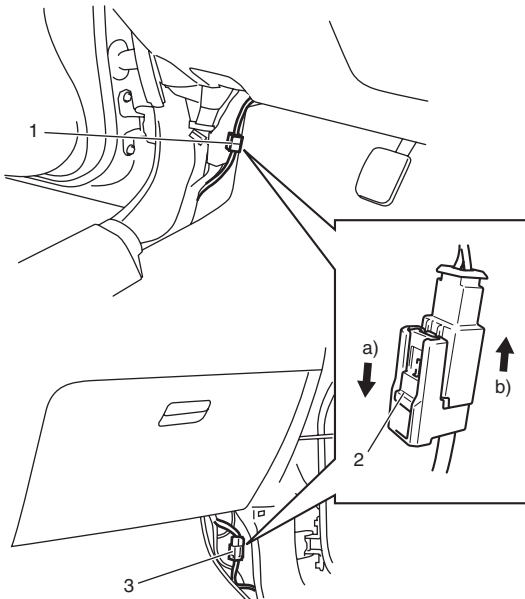
Disabling Air Bag System

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NOTE

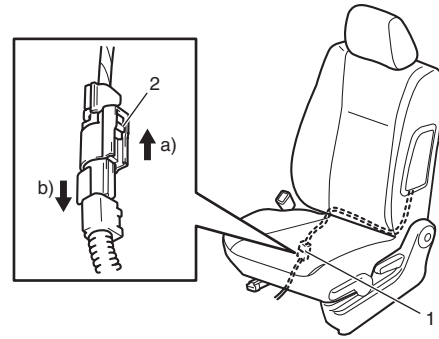
With "A/B" fuse removed and ignition switch ON, "AIR BAG" warning light will be ON. This is normal operation and does not indicate air bag system malfunction.

- 1) Turn steering wheel so that vehicle's wheels (front tires) are pointing straight ahead.
- 2) Disconnect negative (-) cable at battery.
- 3) Turn ignition switch to "LOCK" position and remove key.
- 4) Remove "A/B" fuse from junction block assembly.
- 5) Remove driver side front pillar lower trim and disconnect yellow connector (1) for driver air bag as follows.
 - a) Release locking of lock slider (2).
 - b) After unlocked, disconnect connector.
- 6) Remove passenger side front pillar lower trim and disconnect yellow connector (3) for passenger air bag as follows.
 - a) Release locking of lock slider (2).
 - b) After unlocked, disconnect connector.



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- 7) Disconnect yellow connector of side-air bag (inflator) module under front seat cushion (1).
 - a) Release locking of lock slider (2).
 - b) After unlocked, disconnect connector.

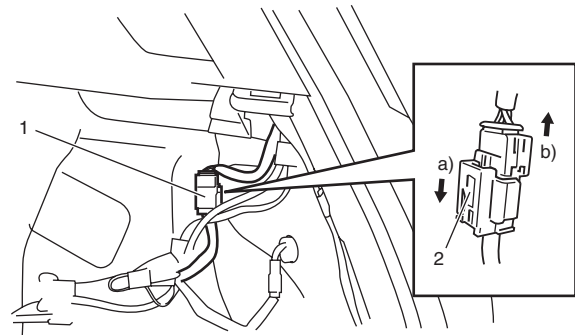


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- 8) Disconnect connector of side curtain-air bag (inflator) module as follows.

For hatchback model:

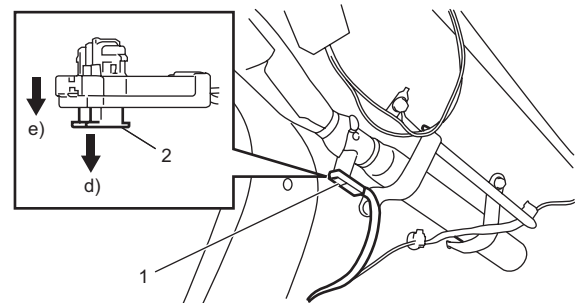
- a) Remove right-side rear quarter lower trim.
- b) Release locking of lock slider (2) of yellow connector (1).
- c) With unlocked, disconnect connector.



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For sedan model

- a) Remove rear side sill scuff referring to step 3) of "Floor Carpet Removal and Installation in Section 9H".
- b) Remove rear seat side back.
- c) Remove rear pillar inner trim.
- d) Unlock lock button (2) of black connector (1).
- e) With lock button unlocked, disconnect connector.



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- 7) Install passenger air bag (inflator) module referring to "Passenger Air Bag (Inflator) Module Removal and Installation".
- 8) Enabling air bag system referring to "Enabling Air Bag System".
- 9) Confirm that there is no DTC detected to SDM with ignition switch turned ON.

Air Bag (Inflator) Module and Seat Belt Pretensioner Disposal

S7RW0C8206018

▲ WARNING

Failure to follow proper air bag (inflator) module and seat belt pretensioner disposal procedures can result in air bag deployment and pretensioner activation which may cause personal injury. Do not dispose of live (undeployed) air bag (inflator) modules and seat belt pretensioners. Because undeployed air bag (inflator) module / inactivated seat belt pretensioner must not be disposed of through normal refuse channels. Undeployed air bag (inflator) module and inactivated seat belt pretensioner contain substances that can cause severe illness or personal injury if sealed container is damaged during disposal.

Air bag (inflator) module / seat belt pretensioner can be deployed / activated inside or outside of vehicle. Deployment / Activation method used depends upon final disposition of vehicle. Review the following instructions in order to determine which will work best in a given situation.

Deployment / Activation Outside of Vehicle: When you intend to return the vehicle to service, deploy the air bag (inflator) module(s) and/or activate seat belt pretensioner(s) outside of the vehicle.

Deployment / Activation Inside of Vehicle: When the vehicle will be destroyed, or salvaged for component parts, deploy the air bag module(s) and/or activate seat belt pretensioner(s) installed on vehicle.

▲ WARNING

The following precautions must be observed for this work. Failure to observe any of them may result in personal injury.

- Procedure should be followed strictly as described here.
- Be sure to read "Precautions on Service and Diagnosis of Air Bag System" beforehand.
- To avoid accidental deployment / activation, this work should be performed by no more than one person.
- Since smoke is produced when air bag (inflator) module is deployed and pretensioner is activated, select well-ventilated area.
- Air bag (inflator) module and seat belt pretensioner will immediately deploy / activate when 12 volts vehicle battery is connected to it. Wear safety glasses throughout this entire deployment / activation and disposal procedure.
- Wear suitable ear protection when deploying air bag (inflator) module / activating seat belt pretensioner. Also, advise those who are in area close to deployment / activation site to wear suitable ear protection.
- Do not deploy / activate two or more air bag system components (air bag (inflator) modules and seat belt pretensioners) at the same time.
- Never connect deployment harness to any 12 volts vehicle battery before connecting deployment harness to air bag (inflator) module and seat belt pretensioner. Deployment harness shall remain shorted and not be connected to 12 volts vehicle battery till you are ready to deploy air bag (inflator) module or activate seat belt pretensioner.

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[D]: Terminals-in-one-connector mark

[E]: Wire color

[F]: Shield wire

[G]: Ground point

[H]: "From" or "To" (With ID letter (s))

[I]: Specification variation

The white arrow between A and B means "or".

[J]: "From" (With ID letter (s))

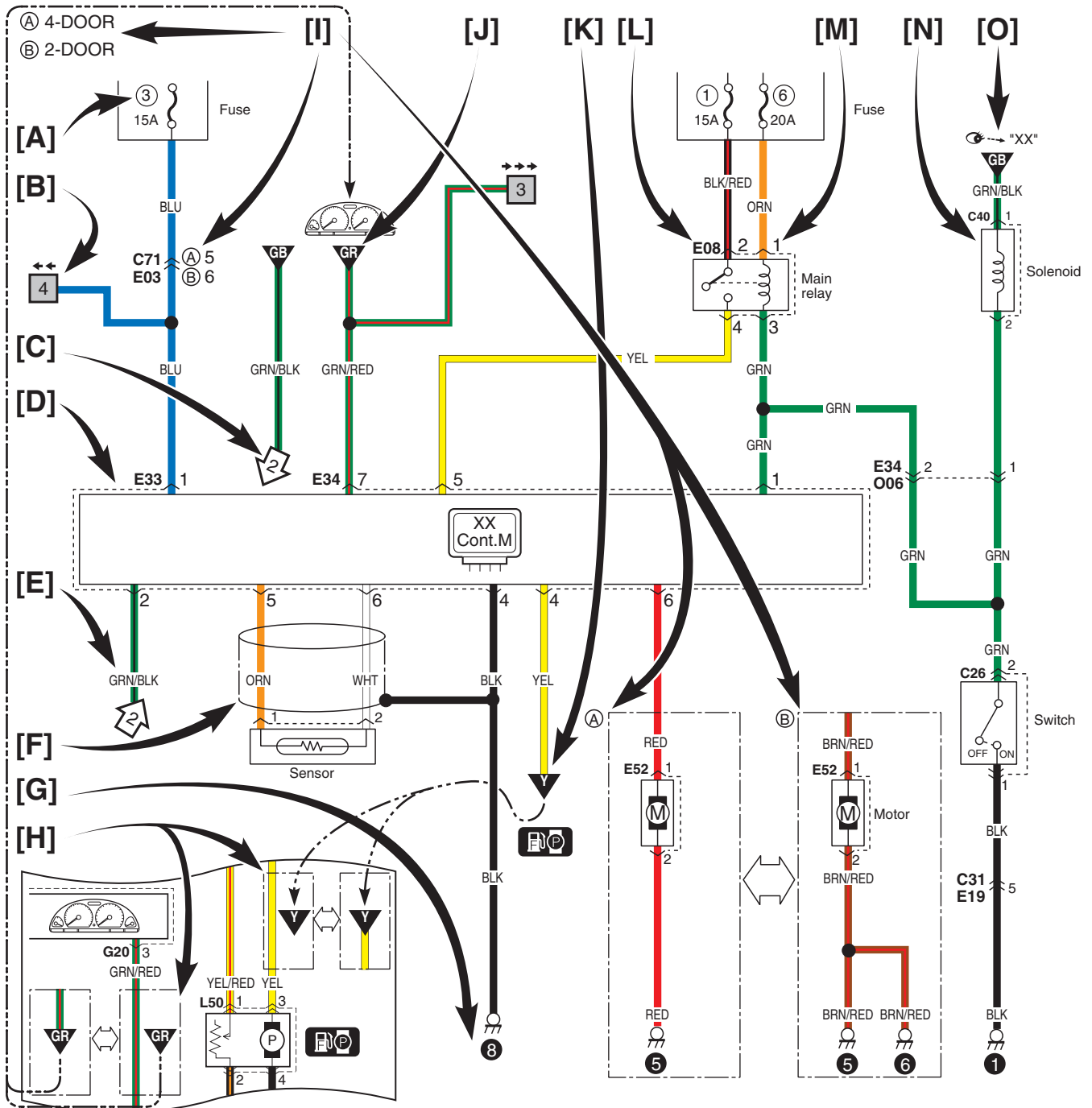
[K]: "To" (With ID letter (s))

[L]: Connector code

[M]: Terminal No.

[N]: Symbol mark

[O]: "SEE" mark



9A-25 Wiring Systems:

No.	Color	Connective position	Remarks
G253	GRN	Multi information display	
G254	N	Keyless receiver	IF EQPD
G255	BLK	Diode #1	Auto A/C
G259	ORN	Passenger inflator	
G271	N	J/B	
G272	N	J/B	
G273	N	J/B	
G306	N	J/C	
G307	N	J/C	IF EQPD
G308	N	J/C	
G309	GRY	J/C	
G310	N	J/C	Auto A/C
G311	GRY	J/C	
G333	GRY	Main harness (To E381)	
G334	BRN	Main harness (To E382)	
G335	GRN	Main harness (To E383)	IF EQPD
G341	BLU	Floor harness (To L374)	
G342	N	Floor harness (To L375)	IF EQPD
G343	N	Floor harness (To L376)	
G344	YEL	Floor harness (To L377)	
G345	YEL	Floor harness (To L378)	
G346	N or BLK	Contact coil (To S171)	
G347	YEL	Contact coil (To S172)	
G348	N	Roof audio antenna wire (To K153)	

G: Instrument panel antenna wire

No.	Color	Connective position	Remarks
G266	GRY	Navigation	IF EQPD
G267	GRY	Audio (Navigation)	
G354	BLK	Roof audio antenna wire (To K154)	
G355	GRY	Floor antenna wire (To L409)	IF EQPD

S: Contact coil

No.	Color	Connective position	Remarks
S61	-	Steering switch (Horn, Auto cruise, Audio control)	
S121	-	Driver inflator	
S171	-	Instrument panel harness (To G346)	
S172	-	Instrument panel harness (To G347)	

No.	Color	Connective position	Remarks
L170	N	Seat belt switch	
L171	YEL	Seat heater switch (Driver side)	
L172	GRN	Seat heater switch (Passenger side)	
L173	N	Trunk room light switch	
L233	BLK	Rear defogger relay	
L283	BLK	Pretensioner (Driver side)	
L285	BLK	Pretensioner (Passenger side)	
L290	BLK	Side curtain air-bag (R)	
L291	BLK	Side curtain air-bag (L)	
L292	GRY	Back antenna	IF EQPD
L293	BRN	Luggage antenna	IF EQPD
L294	BRN	Inside antenna	IF EQPD
L299	BLK	Rear defogger (+)	
L300	BLK	Rear defogger (-)	
L301	N	Diode	
L303	N	Condenser (+)	
L312	N	J/B	
L313	YEL	J/B	
L314	N	J/B	
L315	N	J/B	
L317	N	Individual circuit fuse box No.3	
L346	N	J/C	
L347	N	J/C	
L348	GRY	J/C	
L371	N	Main harness (To E387)	
L372	YEL	Main harness (To E388)	
L374	BLU	Instrument panel harness (To G341)	
L375	N	Instrument panel harness (To G342)	IF EQPD
L376	N	Instrument panel harness (To G343)	
L377	YEL	Instrument panel harness (To G344)	4ch
L378	YEL	Instrument panel harness (To G345)	4ch
L379	GRY	Door harness (Driver side) (To J215)	
L380	GRY	Door harness (Passenger side) (To J216)	
L381	N	Rear door wire (To J217)	
L382	N	Rear door wire (To J218)	
L383	N	Roof wire (To K152)	
L384	YEL	Side air-bag (R) harness (To Q133)	8ch
L385	YEL	Side air-bag (L) harness (To Q134)	8ch
L389	GRY	Fuel pump wire (To R151)	
L394	BLK	Trunk room harness (To M152)	
L396	GRY	Fuel pump wire (To R152)	IF EQPD

M: Trunk room harness

No.	Color	Connective position	Remarks
M53	N	License plate light #1	
M54	N	License plate light #2	
M81	N	Trunk room lock solenoid	
M82	N	Trunk room request switch	
M152	BLK	Floor harness (To L394)	

Q: Side air-bag (R) harness

No.	Color	Connective position	Remarks
Q104	BLK	Side air-bag inflator (R)	10ch
Q133	YEL	Floor harness (To L384)	10ch

Q: Side air-bag (L) harness

No.	Color	Connective position	Remarks
Q105	BLK	Side air-bag inflator (L)	10ch
Q134	YEL	Floor harness (To L385)	10ch

To instrument panel harness (G273)

To floor harness (L312)

*: Not used

To instrument panel harness (G271, G272)

- * G272 ⑬
- RR FOG(+B) G272 ⑭
- DEF IND G271 ⑦
- * G271 ④
- TAIL(+B) G272 ⑬
- TAIL SW G272 ⑦
- TURN SW-L G272 ⑬
- TURN SW-R G272 ①
- METER (L) G271 ⑫
- METER (R) G271 ⑩
- HAZARD SW G272 ⑪
- HORN SW G272 ③
- * G272 ②
- H/LV/L SW G272 ⑥
- ANGLE SENSOR G272 ⑫
- MTR (IG) G271 ⑥
- IG COIL G272 ⑥
- DOME +B G271 ⑤
- 4WD CONT G271 ④
- * G271 ⑩
- ACC 1 G272 ⑫
- ACC 2 G271 ⑪
- A/B IND G272 ⑬
- * G272 ①
- F-WIP (RLY) G271 ①
- R-WASHER G272 ②
- * G271 ②
- GND (IP) G272 ⑨
- SIGNAL GND (IP) G271 ③
- * G272 ⑫
- * G272 ⑬
- * E323 ⑩
- IG COIL E325 ⑫
- EPS AT E325 ⑫
- ABS CONT E325 ⑫
- BACK E325 ⑫
- STOP SW E325 ①
- * E325 ③
- EPI E325 ②
- BUL IN E325 ①
- HORN E325 ③
- FR TURN (R) E323 ③
- FR TURN (L) E323 ③
- POSI LP E325 ⑩
- * E325 ⑦
- EPI E323 ①
- STOP SW E323 ②
- * E323 ②
- F-WIP E323 ③
- HTR FUSE E323 ⑦
- ST RLY COIL E325 ⑩

To main harness (E323, E325)

- ⑥ HTR
- ④ ST
- ① IG2
- ⑤ ACC
- ③ IG SW (+B)
- ② IG1

- ⑥ DOME LP (+B)
- ⑤ DOME LP DOOR
- ④ SPARE-1
- ③ GND

- ① SIGNAL GND (FL) L314
- ② SEAT HTR L314
- ③ PW L314
- * L314 ④
- * L314 ⑤
- * L314 ⑥
- ACC 2 L314 ②
- ACC 1 L315 ②
- * L315 ③
- * L315 ④
- * L315 ⑤
- DOME (+B) L314 ④
- * L314 ⑤
- * L315 ⑥
- * L315 ⑦
- RR DEF L314 ⑦
- HTR MR (L) L314 ⑦
- HTR MR (R) L314 ⑦
- POWER DR L314 ⑦
- TAIL LP LICENSE L314 ⑦
- RR-TURN (L) L314 ⑦
- RR-TURN (R) L314 ⑦
- D/L-1 L315 ⑦
- D/L-1 L315 ⑦
- D/S-L-1 L315 ⑦
- BUL-L L315 ⑦
- STOP LP L315 ⑦
- IG1 ABS L315 ⑦
- * L315 ⑧
- * L315 ⑨

To floor harness (L314, L315)

To main harness (E324)

To floor harness (L313)

BCM

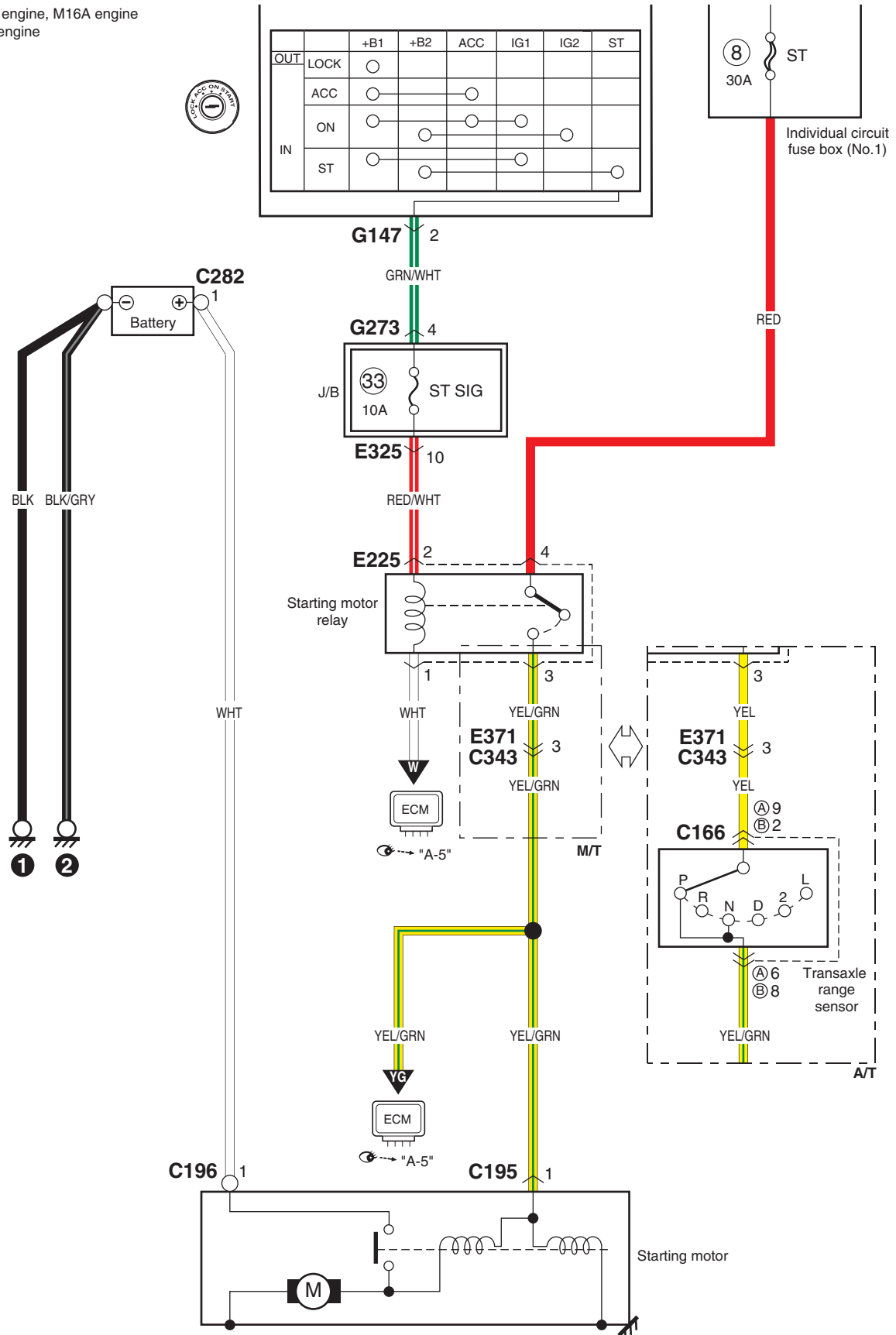
To flasher relay

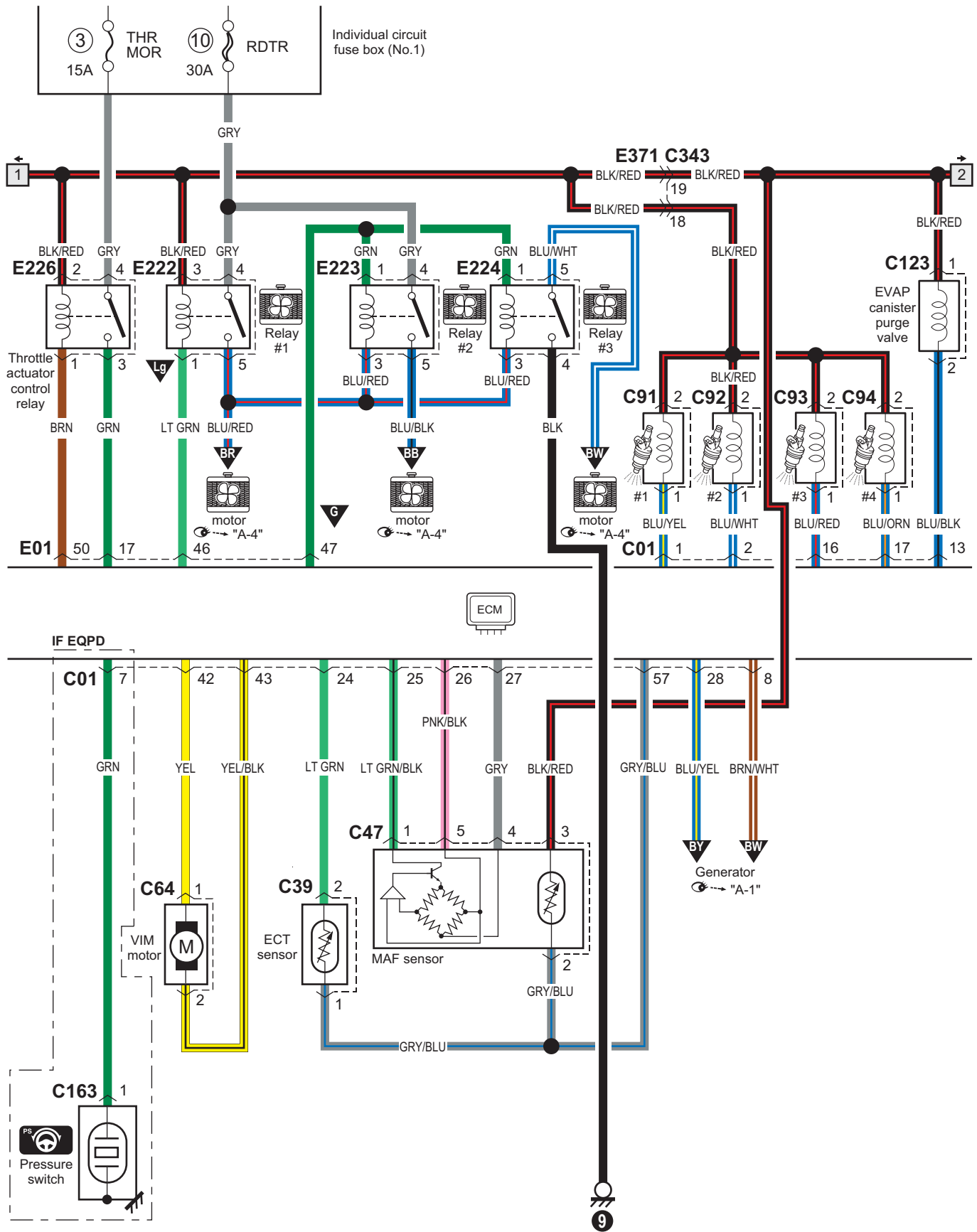
- ② LAMP FL
- ① IG2 SW
- ④ A/B IND
- ① A/B CONT
- ② A/B SIGNAL
- ③ K-LINE
- ⑧ K-LINE
- ⑩ A/B SIGNAL
- ⑪ BCM IG1
- ⑫ D/SL-IN
- ⑬ D/L-IN
- ⑭ D/JUL-1
- ⑯ *
- ⑰ SECURITY IN
- ⑱ HAZARD
- ⑲ TAIL BCM
- ⑲ D/L (BCM)
- ⑲ RR DEF RLY
- ⑲ *
- ⑲ BCM (+B)
- ⑲ DOME LP CONT
- ⑲ ACC
- ⑲ R/WIP
- ⑲ GND
- ⑲ SIGNAL GND (BCM)

- ① IG
- ② LP-R
- ③ LP-L
- ④ +B
- ⑤ SW-L
- ⑥ SW-R
- ⑦ GND
- ⑧ HAZ

A-1 Cranking System Circuit Diagram

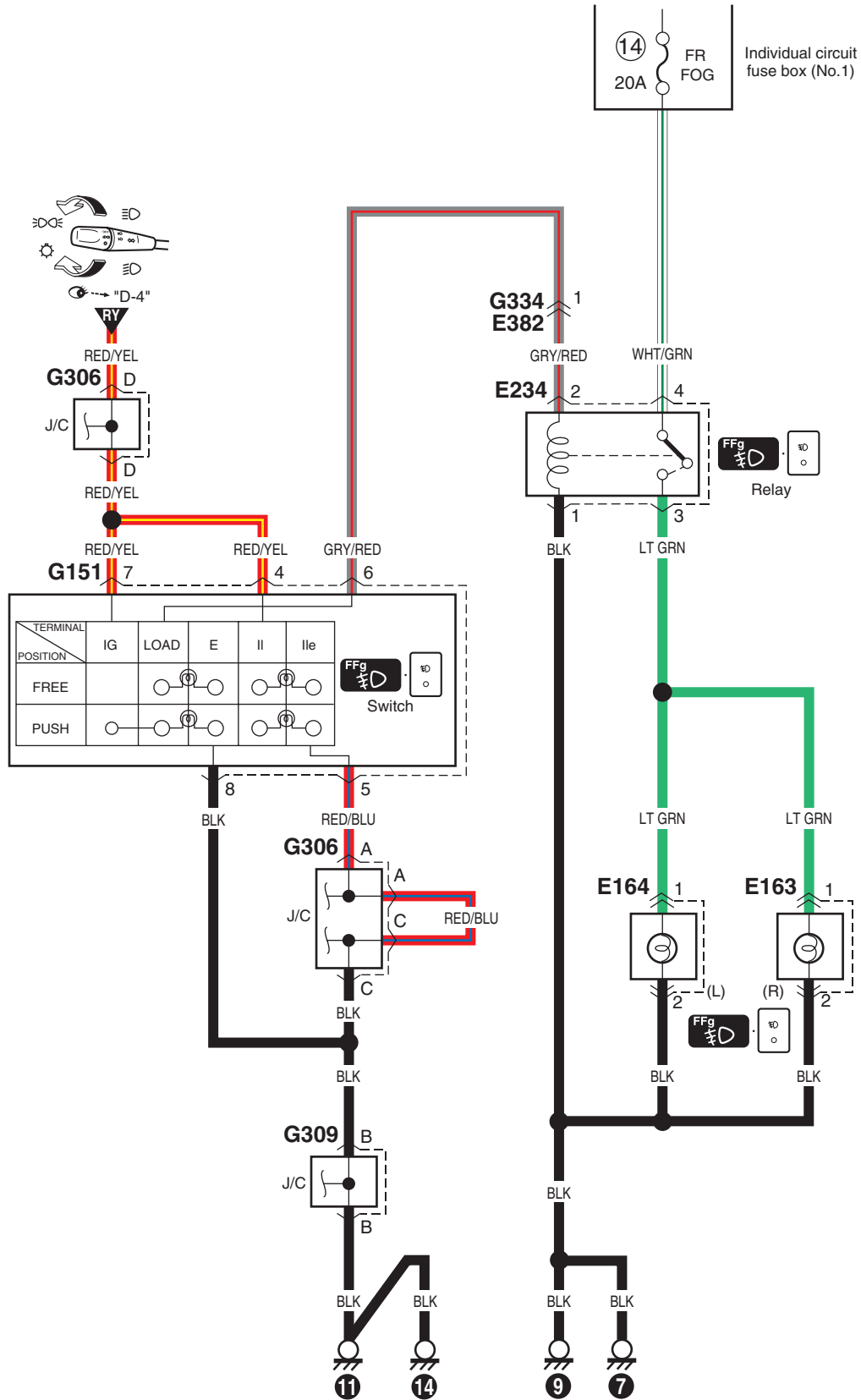
- Ⓐ M15A engine, M16A engine
- Ⓑ J20A engine

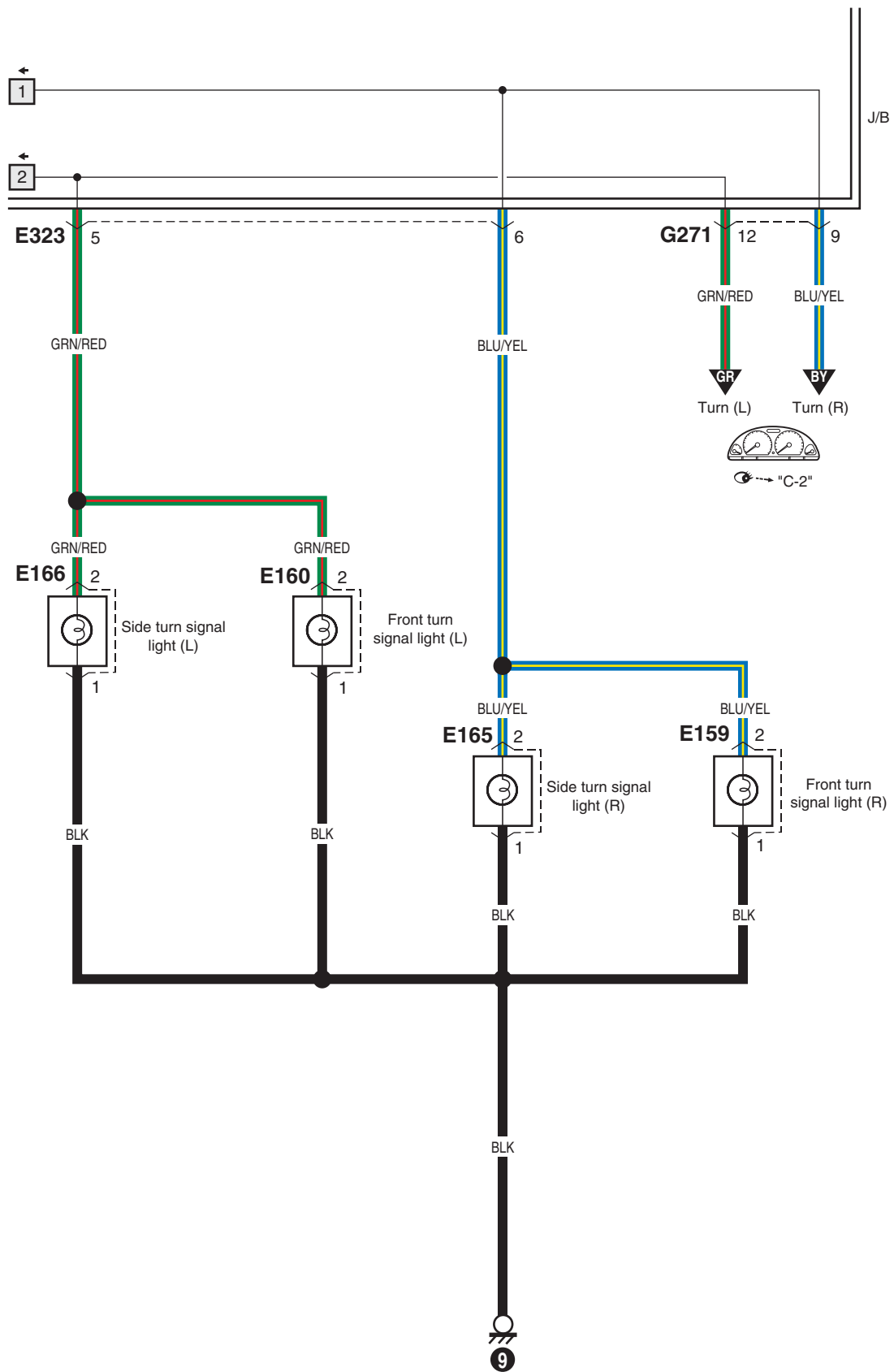




D-3 Front Fog Light System Circuit Diagram (Except Taiwan)

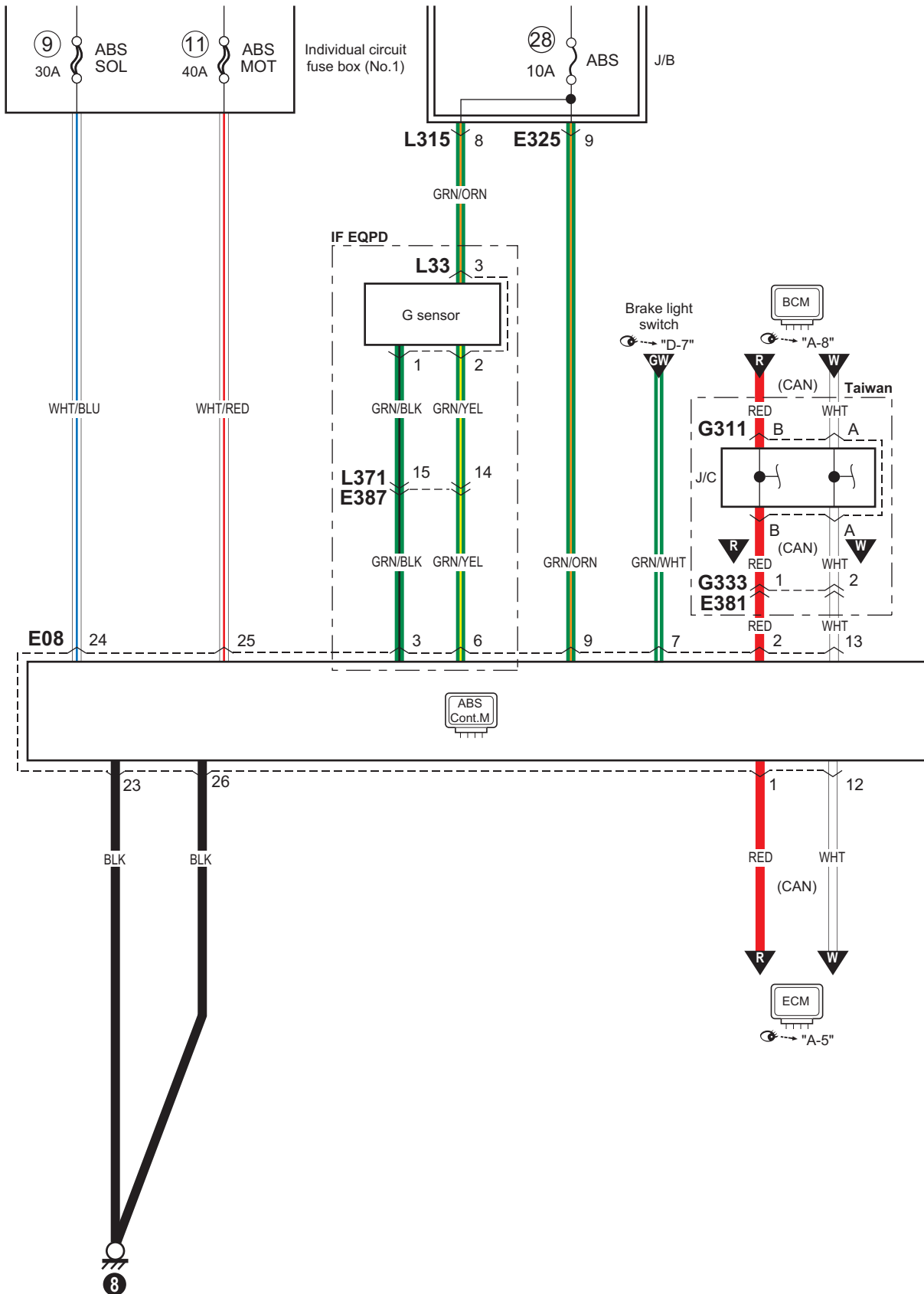
S7RW0C910E036





F-2 Anti-Lock Brake System Circuit Diagram

S7RW0C910E052



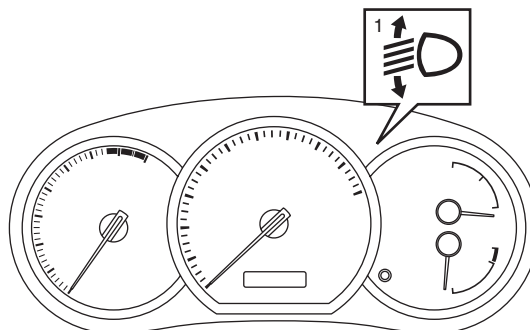
9A-175 Wiring Systems:

<p>G65</p> <p>MCONF040009-01</p> <p>Auto A/C</p>	<p>G65</p> <p>MCONF040142-01</p> <p>Manual A/C</p>	<p>G141</p> <p>MCONF100038-01</p>	<p>G144</p> <p>MCONF130010-01</p>		
<p>G146</p> <p>MCONF080050-01</p>	<p>G147</p> <p>MCONF060063-01</p>	<p>G150</p> <p>MCONF080002-01</p> <p>IF EQPD</p>	<p>G151</p> <p>MCONF080002-01</p> <p>IF EQPD</p>	<p>G152</p> <p>MCONF060025-01</p> <p>IF EQPD</p>	<p>G153</p> <p>MCONF040098-01</p>
<p>G154</p> <p>MCONF140018-01</p> <p>Manual A/C</p>		<p>G155</p> <p>MCONF070016-01</p> <p>Manual A/C</p>	<p>G211</p> <p>MCONF160023-01</p>		<p>G214</p> <p>MCONF100060-01</p> <p>IF EQPD</p>
<p>G241</p> <p>MCONF320015-01</p>			<p>G243</p> <p>MCONF050021-01</p> <p>IF EQPD</p>	<p>G248</p> <p>MCONF200012-01</p>	
<p>G251</p> <p>MCONF020304-01</p>	<p>G253</p> <p>MCONF070004-01</p>		<p>G254</p> <p>MCONF040096-01</p> <p>IF EQPD</p>	<p>G255</p> <p>MCONF020147-01</p> <p>Auto A/C</p>	<p>G259</p> <p>MCONF020235-01</p>
<p>G265</p> <p>MCONF010010-01</p> <p>Taiwan</p>	<p>G266</p> <p>MCONF040146-01</p> <p>IF EQPD</p>	<p>G267</p> <p>MCONF020305-01</p> <p>With Navigation</p>	<p>G267</p> <p>MCONM010040-01</p> <p>Without Navigation</p>	<p>G271</p> <p>MCONF120028-01</p>	
<p>G272</p> <p>MCONF200020-01</p>		<p>G273</p> <p>MCONF060064-01</p>	<p>G306</p> <p>MCONF220018-01</p>		
<p>G307</p> <p>MCONF130019-01</p> <p>IF EQPD</p>		<p>G308</p> <p>MCONF130019-01</p>		<p>G309</p> <p>MCONF130021-01</p>	

Headlight Leveling Warning Light Check

S7RW0C9204002

- 1) Turn ignition switch to ON position.
- 2) Check that headlight leveling warning light (1) lights for about 2 seconds and then goes OFF. If the headlight leveling warning light lights up again 10 seconds after it turned off, go to "Headlight Auto Leveling System Symptom Diagnosis (If Equipped)". If headlight leveling warning light flashes, go to "Initialization of Headlight Auto Leveling System".



I6RW0C920009-01

Headlight Symptom Diagnosis (Discharge Headlight Model)

S7RW0C9204003

Condition	Possible cause	Correction / Reference Item
Only one low beam does not light up	Circuit fuse blown	Replace fuse and check for short circuit.
	Headlight low beam relay faulty	Check headlight relay referring to "Tail Light Relay, Headlight Relay, Front Fog Light Relay Inspection (If Equipped)".
	Bulb faulty	Replace bulb.
	Igniter faulty	Replace igniter.
	Ballast faulty	Replace ballast.
Low beam does not light up	Wiring or ground faulty	Repair circuit.
	Circuit fuses blown	Replace fuses and check for short circuit.
	Headlight low beam relay faulty	Check headlight relay referring to "Tail Light Relay, Headlight Relay, Front Fog Light Relay Inspection (If Equipped)".
	Lighting or dimmer switch faulty	Check lighting and dimmer switch referring to "Headlight Switch (in Lighting Switch) Inspection".
	Bulbs faulty	Replace bulbs.
	Igniters faulty	Replace igniters.
	Ballasts faulty	Replace ballasts.
Only one high beam does not light up	Wiring or ground faulty	Repair circuit.
	Circuit fuse blown	Replace fuse and check for short circuit.
	Headlight high beam relay faulty	Check headlight relay referring to "Tail Light Relay, Headlight Relay, Front Fog Light Relay Inspection (If Equipped)".
	Bulb blown	Replace bulb.
High beam does not light up	Wiring or ground faulty	Repair circuit.
	Circuit fuses blown	Replace fuses and check for short circuit.
	Headlight high beam relay faulty	Check headlight relay referring to "Tail Light Relay, Headlight Relay, Front Fog Light Relay Inspection (If Equipped)".
	Lighting or dimmer switch faulty	Check lighting and dimmer switch referring to "Headlight Switch (in Lighting Switch) Inspection".
	Bulbs blown	Replace bulbs.
	Wiring or ground faulty	Repair circuit.

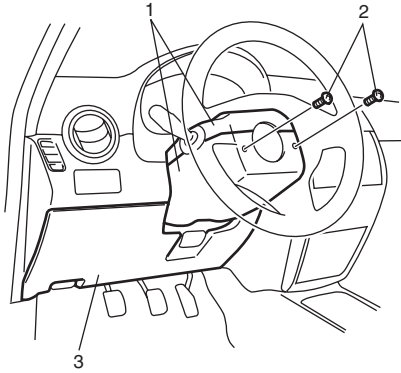
9B-24 Lighting Systems:

Headlight Switch (in Lighting Switch) Removal and Installation

S7RW0C9206006

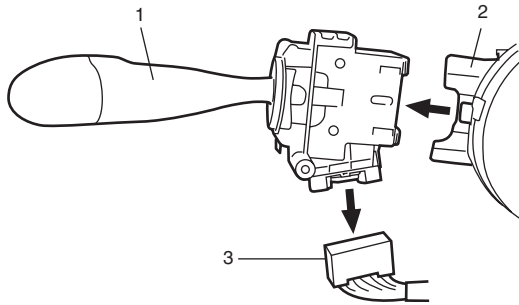
Removal

- 1) Disconnect negative (-) cable at battery.
- 2) Remove steering column hole cover (3).
- 3) Remove steering column covers (1).
Turn steering wheel to access steering column cover screws (2).



I5RW0A920007-02

- 4) Remove lighting switch (1) from combination switch assembly (2) and disconnect its coupler (3).



I5RW0A920008-01

Installation

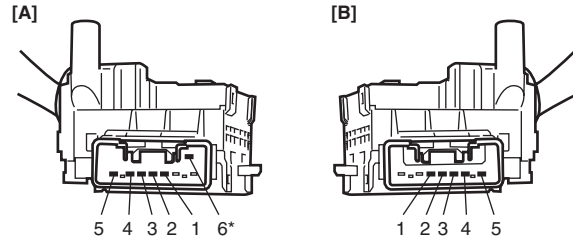
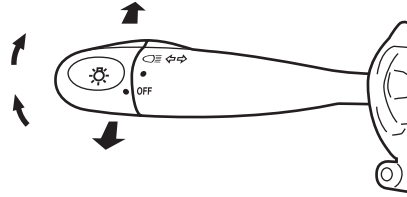
Reverse removal procedure for installation.

Headlight Switch (in Lighting Switch) Inspection

S7RW0C9206007

Check for continuity between terminals at each switch position. If check result is not as specified, replace switch.

Without rear fog light switch and auto-on headlight switch

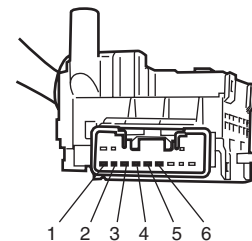
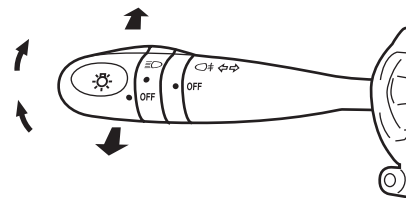


[D]	[C]	[C]					
		5	3	1	2	4	6*
OFF	LOW			○			○
	PASS				○	○	○
	HI				○		○
●	LOW	○	○	○			○
	PASS	○	○		○	○	○
	HI	○	○		○		○
☰	LOW	○	○	○		○	○
	PASS	○	○		○	○	○
	HI	○	○		○		○

I6JB0B920003-02

[A]: LHD	[D]: Shaft condition
[B]: RHD	*: If equipped
[C]: Terminal	

With rear fog light switch



[B]	[A]	[A]					
		1	4	2	3	5	6
OFF	LOW						
	PASS				○	○	
	HI						
●	LOW	○	○				
	PASS	○	○		○	○	
	HI	○	○				
☰	LOW	○	○	○	○		○
	PASS	○	○	○	○	○	
	HI	○	○	○	○		

I5JB0D920011-04

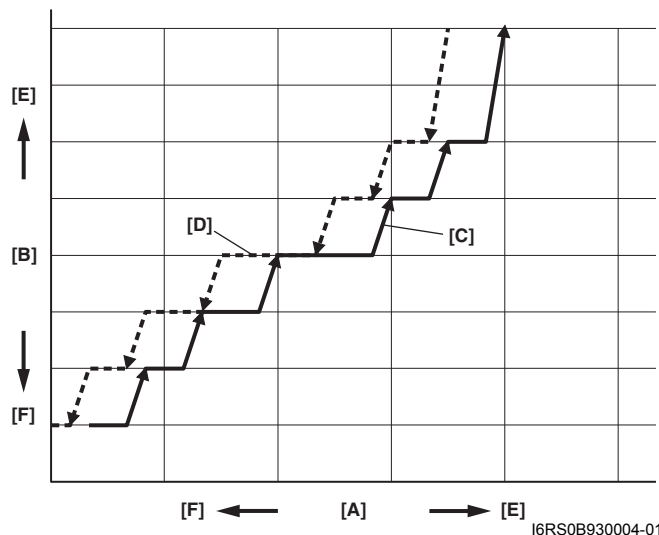
[A]: Terminal
[B]: Shaft condition

Auto Volume Control System Description (If Equipped)

S7RW0C9301002

Function of auto volume control system is to vary sound volume according to changes of vehicle speed. How much sound volume varies depends on selected level.

Reference Correlation Chart of Vehicle Speed and Sound Volume



[A]: Vehicle speed	[C]: Acceleration	[E]: Increase
[B]: Sound volume	[D]: Deceleration	[F]: Decrease

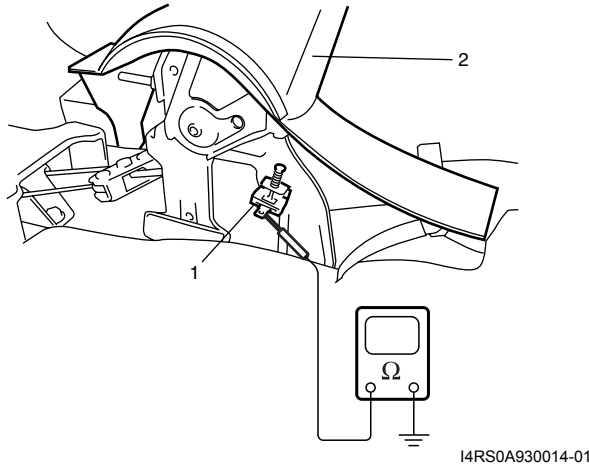
Parking Brake Switch Inspection

S7RW0C9306010

Check for continuity between parking brake switch terminal and body ground as shown in figure. If found defective, replace switch.

Parking brake switch specification

OFF position (parking brake released): No continuity
ON position (parking brake lever pulled up): Continuity



I4RS0A930014-01

- | | |
|-------------------------|------------------------|
| 1. Parking brake switch | 2. Parking brake lever |
|-------------------------|------------------------|

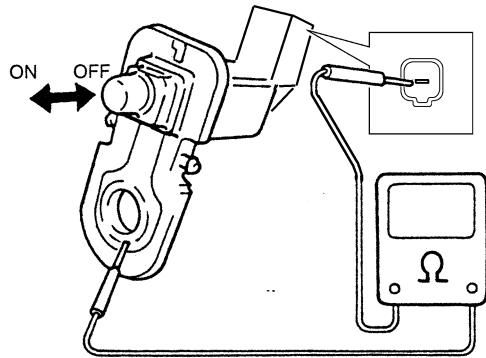
Door Switch (Front / Rear Door) Inspection

S7RW0C9306011

Remove door switch from body and check switch for continuity. If found defective, replace switch.

Door switch (front / rear door) specification

OFF position (Door closed): No continuity
ON position (Door open): Continuity



I3RH0A930004-01

Rear End Door Switch Inspection (Hatchback)

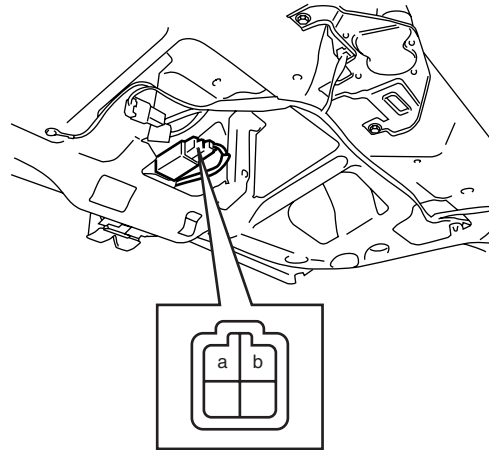
S7RW0C9306012

Check for continuity between terminal "a" and "b" shown in the following.

If check result is not as specified, replace switch.

Rear end door switch specification

Rear end door closed: No continuity
Rear end door opened: Continuity



I4RS0A930015-01

Trunk Lid Switch Inspection (Sedan)

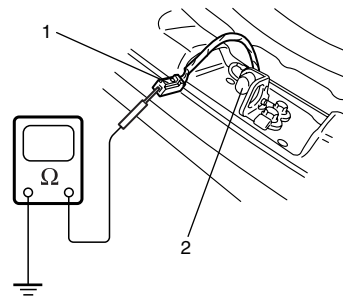
S7RW0C9306028

Check for continuity between trunk lid connector terminal (1) and body ground.

If check result is not as specified, replace switch.

Trunk lid switch specification

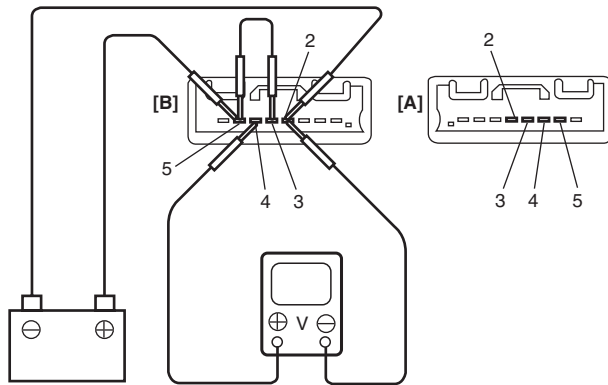
Trunk lid switch (2) is pushed: No continuity
Trunk lid switch (2) is free: Continuity



I2RH01920026-01

Intermittent Wiper Relay Circuit

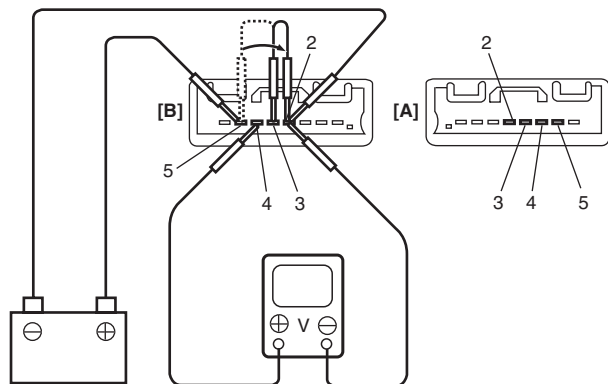
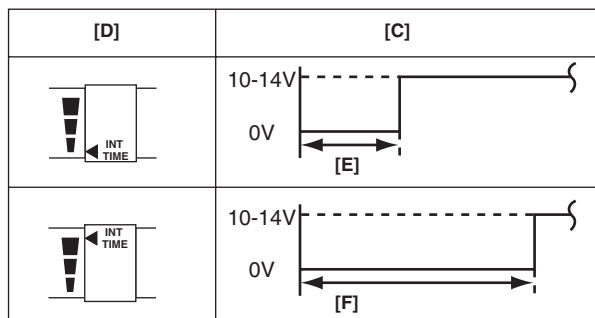
- 1) Turn the windshield wiper switch to "INT" position.
- 2) Connect battery positive (+) terminal to terminal "5" and its negative (-) terminal to terminal "2".
- 3) Connect voltmeter positive lead to terminal "4" and its negative lead to terminal "2".
- 4) Check that the voltmeter indicates the battery voltage (10 – 14 V).
- 5) Connect terminal "3" and terminal "5" by a jumper wire.



I5JB0D940002-02

- [A]: RHD without rear fog light
- [B]: Other than RHD without rear fog light

- 6) Disconnect end of the jumper wire from terminal "5".
 - 7) Connect disconnected jumper wire end to terminal "2", then check that voltage between terminal "4" and terminal "2" changes as shown.
- If check result is not satisfied, replace switch.



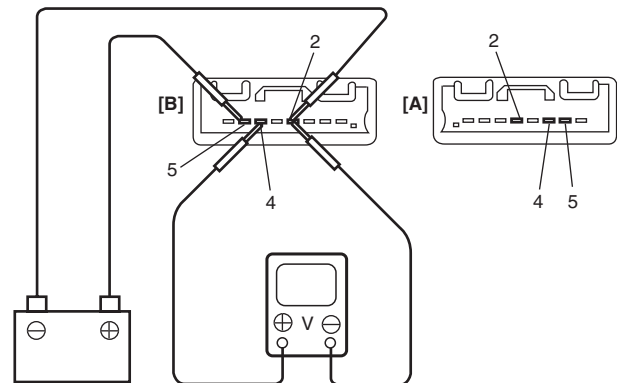
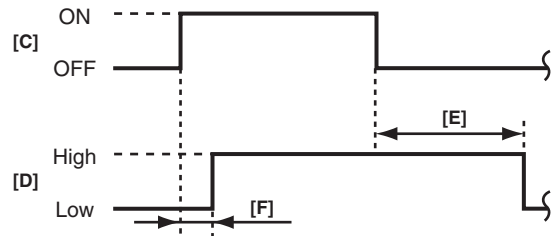
I5JB0D940003-02

- [A]: RHD without rear fog light
- [B]: Other than RHD without rear fog light

[C]: Voltage
[D]: INT time control switch position
[E]: 1.6 ± 1 sec.
[F]: 10.7 ± 5 sec.

Washer Linked Circuit

- 1) Make sure that front wiper switch is at "OFF" position.
 - 2) Connect battery positive (+) terminal to terminal "5" and its negative (-) terminal to terminal "2".
 - 3) Connect voltmeter positive lead to terminal "4" and its negative lead to terminal "2".
 - 4) When front washer switch is ON, check that voltage changes as shown in figure.
- If check result is not satisfied, replace switch.



I5JB0D940004-02

[A]: RHD without rear fog light
[B]: Other than RHD without rear fog light
[C]: Wiper switch
[D]: Voltage
[E]: Approx. 2.2 sec.
[F]: Approx 0.3 se.

9E-13 Glass / Windows / Mirrors:

Installation

Reverse removal procedure noting the following instruction.

- Apply grease to sliding portions of window regulator.
: Grease 99000-25011 (SUZUKI Super Grease A)

Front Door Window Regulator Inspection

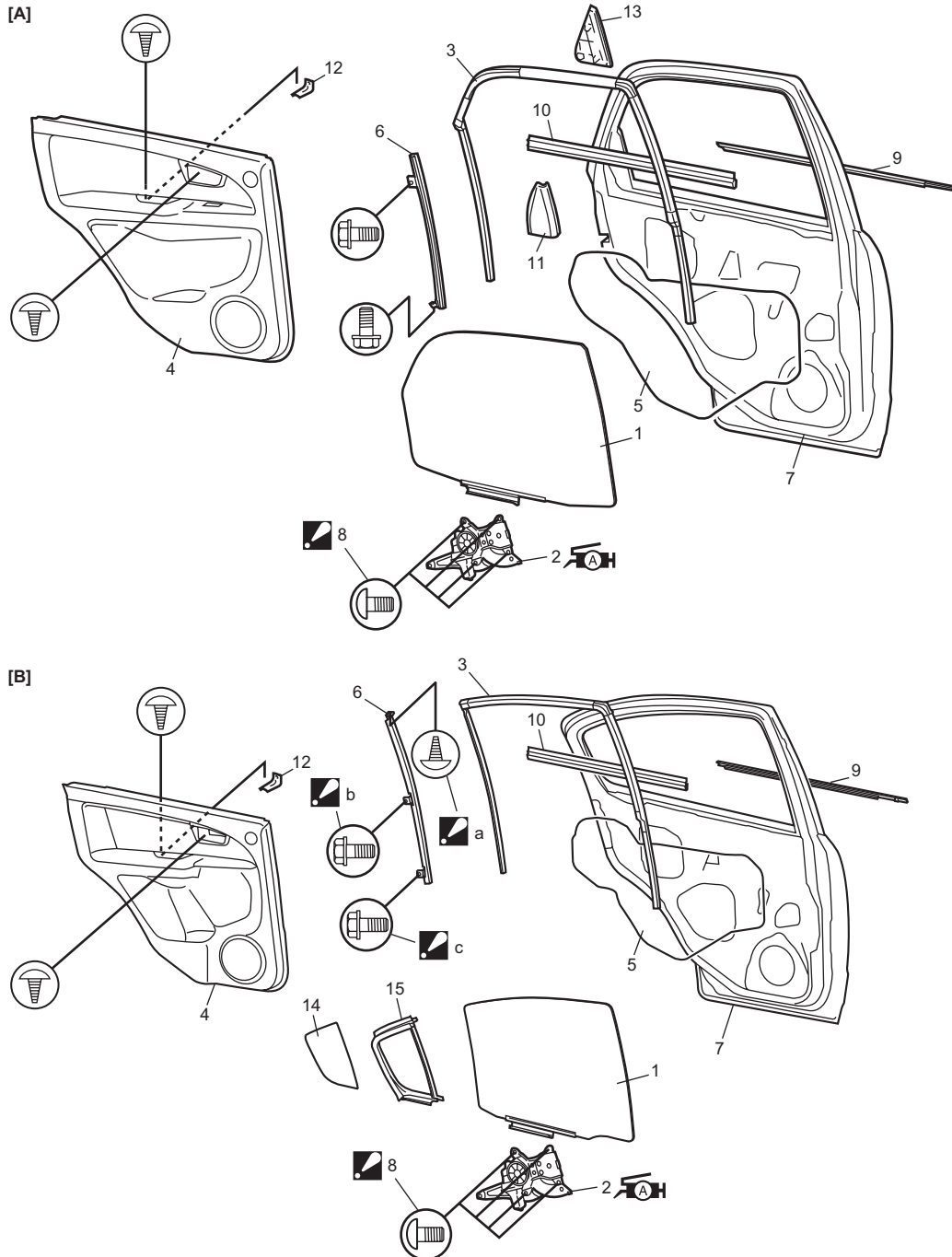
S7RW0C9506012

Check the following parts for wear, damage, smooth operation and lubrication:

- Check regulator sliding and rotating parts.
- Check rollers.

Rear Door Window Components

S7RW0C9506013

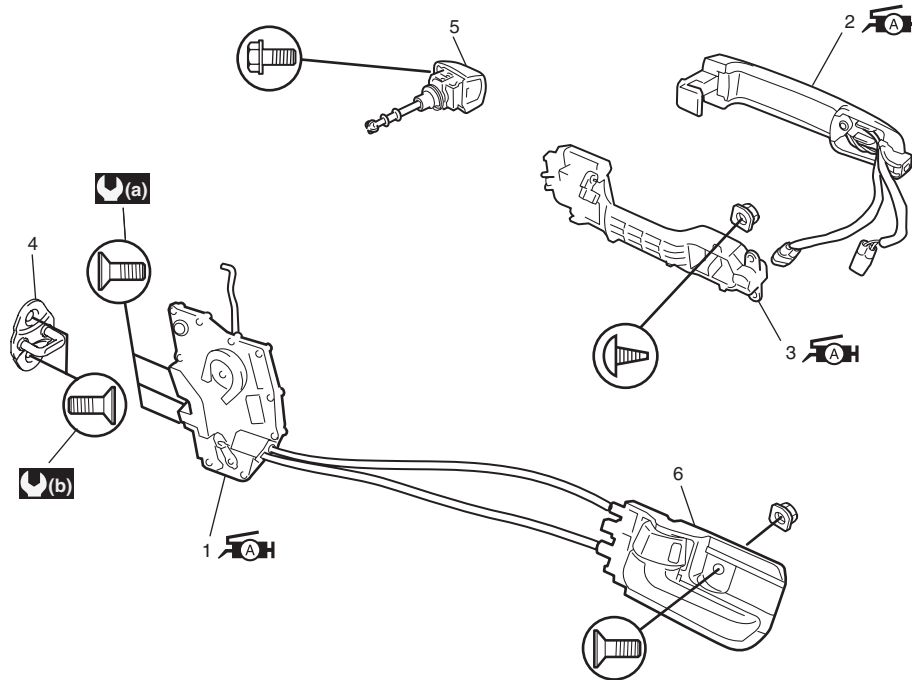


I8RW01950001-02

Repair Instructions

Front Door Lock Assembly Components

S7RW0C9606001



I5RW0A960003-01

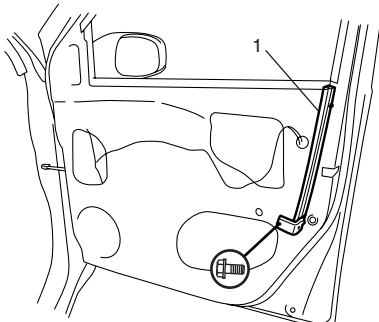
1. Front door latch assembly : Apply lithium grease 99000-25011 to sliding and rotating parts and spring if any.	4. Latch striker	: 5.0 N-m (0.5 kgf-m, 4.0 lb-ft)
2. Outside handle assembly : Apply lithium grease 99000-25011 to sliding part.	5. Key cylinder	: 10 N-m (1.0 kgf-m, 7.5 lb-ft)
3. Outside handle frame : Apply lithium grease 99000-25011 to sliding part and spring.	6. Inside handle bezel	

Front Door Lock Assembly Removal and Installation

S7RW0C9606002

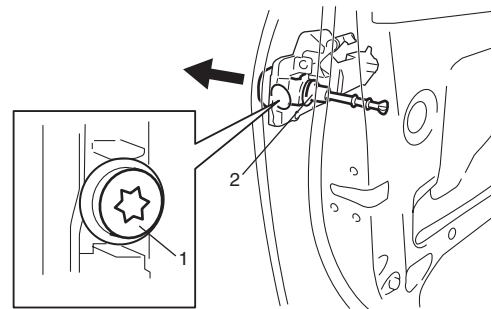
Removal

- 1) Remove door trim and door sealing cover referring to step 1) to 6) of "Front Door Glass Removal and Installation in Section 9E".
- 2) Raise window all the way up.
- 3) Remove door sash (1).



I4RS0A960007-01

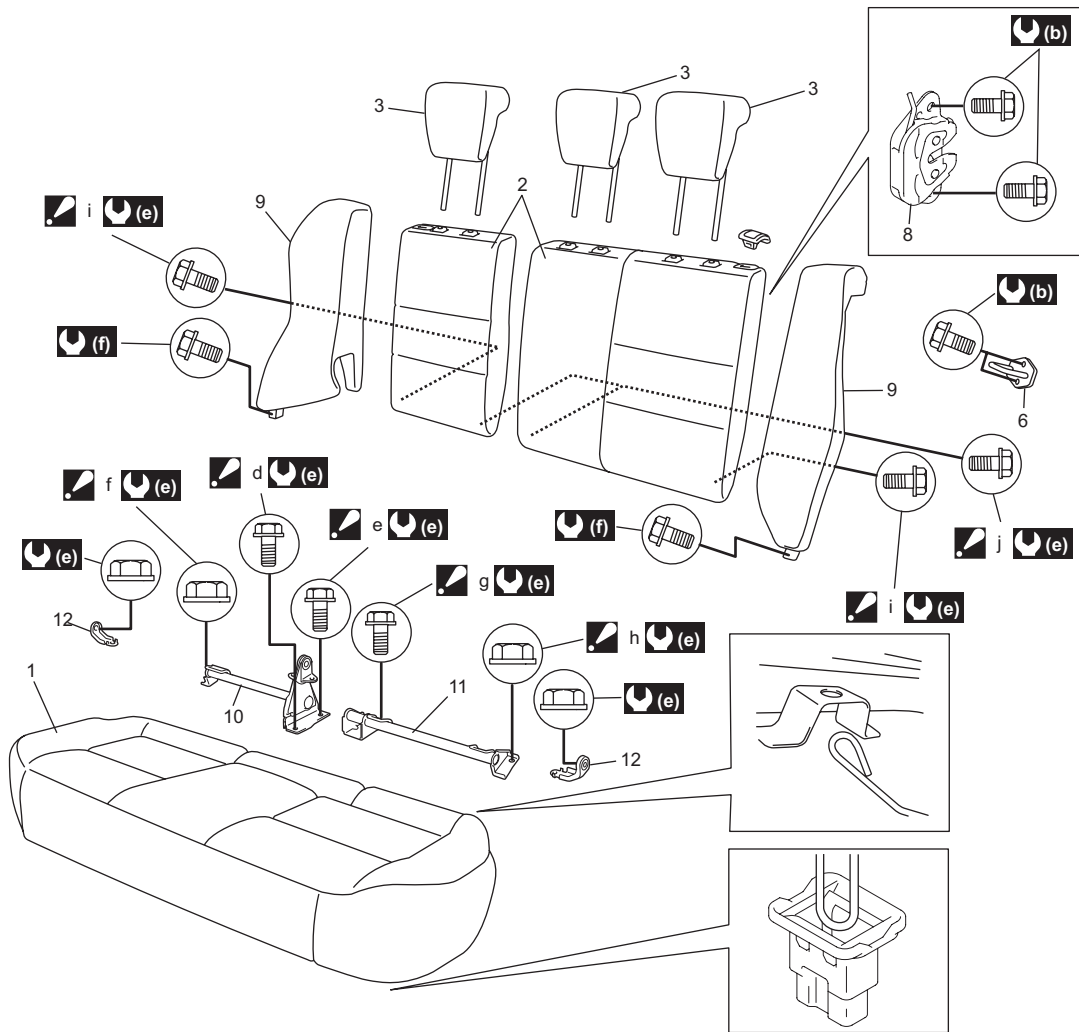
- 4) Remove key cylinder mounting bolt (1), and then remove key cylinder (2).



I4RS0B960005-01

9G-3 Seats:

[B]



17RW0C970002-02

[A]: Hatchback model	11. Child anchorage left bracket
[B]: Sedan model	12. Rear seat side hinge
1. Seat cushion	(a) : 35 N·m (3.5 kgf·m, 25.5 lb·ft)
2. Seat back	(b) : 23 N·m (2.3 kgf·m, 17.0 lb·ft)
3. Head rest (if equipped)	(c) : 25 N·m (2.5 kgf·m, 18.0 lb·ft)
4. Cover	(d) : 45 N·m (4.5 kgf·m, 33.0 lb·ft)
5. Rear center seat belt (if equipped)	(e) : 43 N·m (4.3 kgf·m, 31.5 lb·ft)
6. Seat back striker	(f) : 5.5 N·m (0.55 kgf·m, 4.0 lb·ft)
7. Rear cushion leg : Apply lithium grease to 99000-25011 to cushion leg.	a, b, c: Seat back striker mounting bolt : Tightening order (Left side): a→b→c : Tightening order (Right side): b→a→c
8. Rear seat back lock	d, e, f: Rear seat center hinge mounting bolt : Tightening order: d→e→f
9. Rear seat side back	g, h: Child anchorage bracket mounting bolt : Tightening order: g→h
10. Rear seat center hinge	i, j: Seat back mounting bolt : Tightening order: i→j

Installation

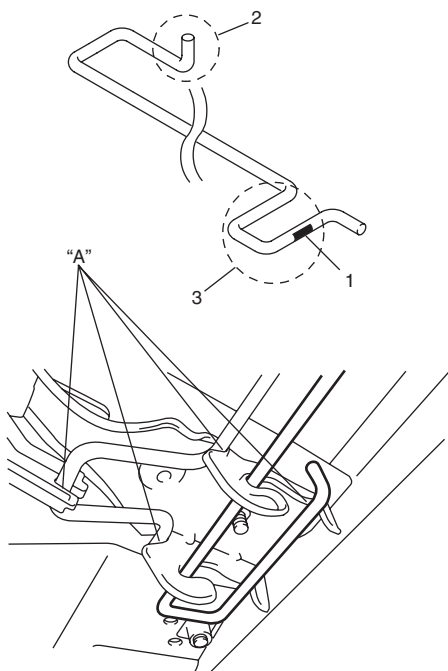
Reverse removal procedure noting the following.

- Install torsion bars as following:
 - a. Open trunk lid and hold it.
 - b. Distinguish left side torsion bar (marking color: yellow) from right side torsion bar (marking color: blue) by marking color (1).
 - c. Apply grease to rotating part "A" of torsion bar.

"A": Grease 99000-25050 (SUZUKI Super Grease E)
 - d. Install edge (2) of torsion bar to upward and fit end (3) to groove of right side hinge bracket.
 - e. Install edge (2) of torsion bar to upward and fit end (3) to groove of left side hinge bracket.

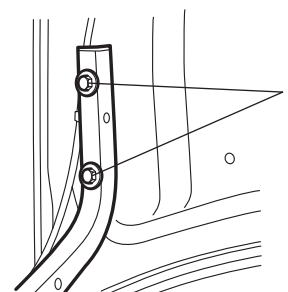
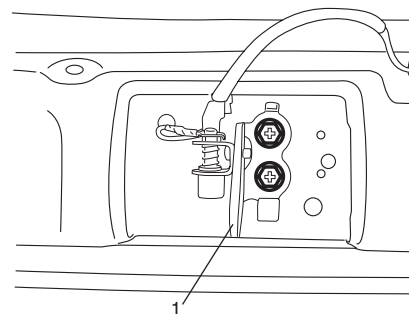
NOTE

Be sure to wipe off excess grease thoroughly as it may stain trunk interior and luggage in it.



I6RW0B9A0011-02

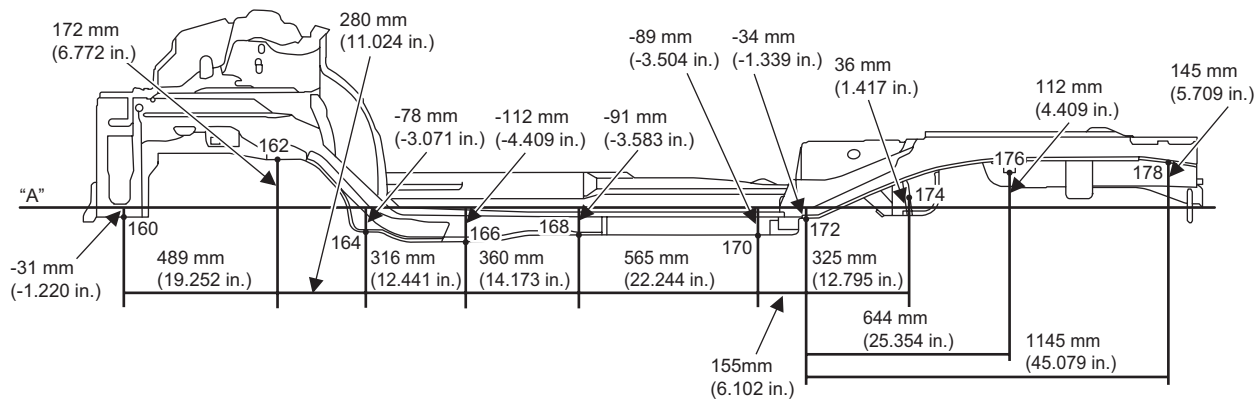
- Fore-and-aft and right-and-left adjustment. Adjust trunk lid clearance by loosening trunk lid mounting bolts (2).
- Adjust trunk lid latch striker (1) so that striker shaft approximately aligns with the center of groove of trunk lid latch.



I6RW0B9A0012-01

- Tighten rear seat bolts referring to "Rear Seat Components in Section 9G".

9K-14 Body Structure:

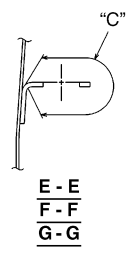
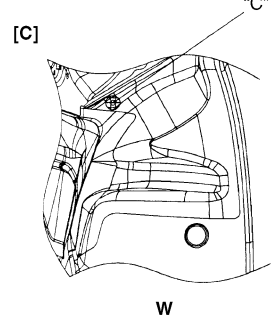
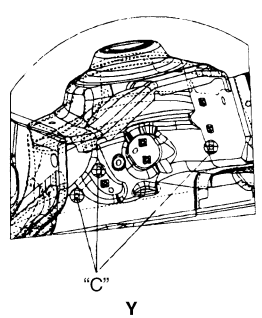
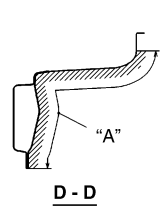
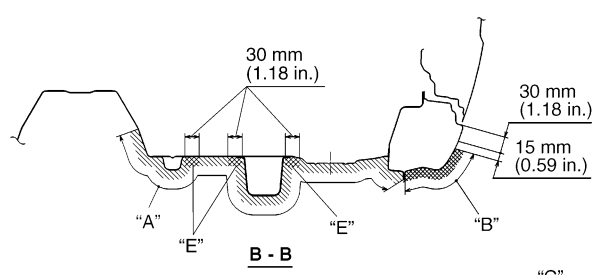
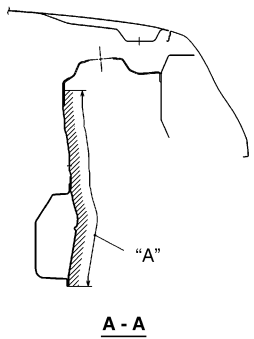
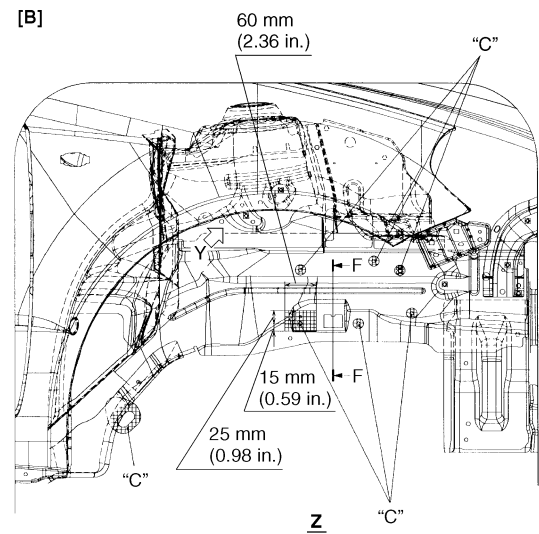
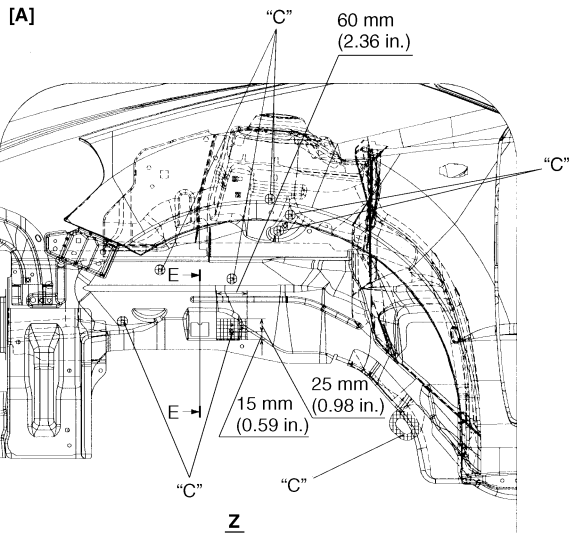
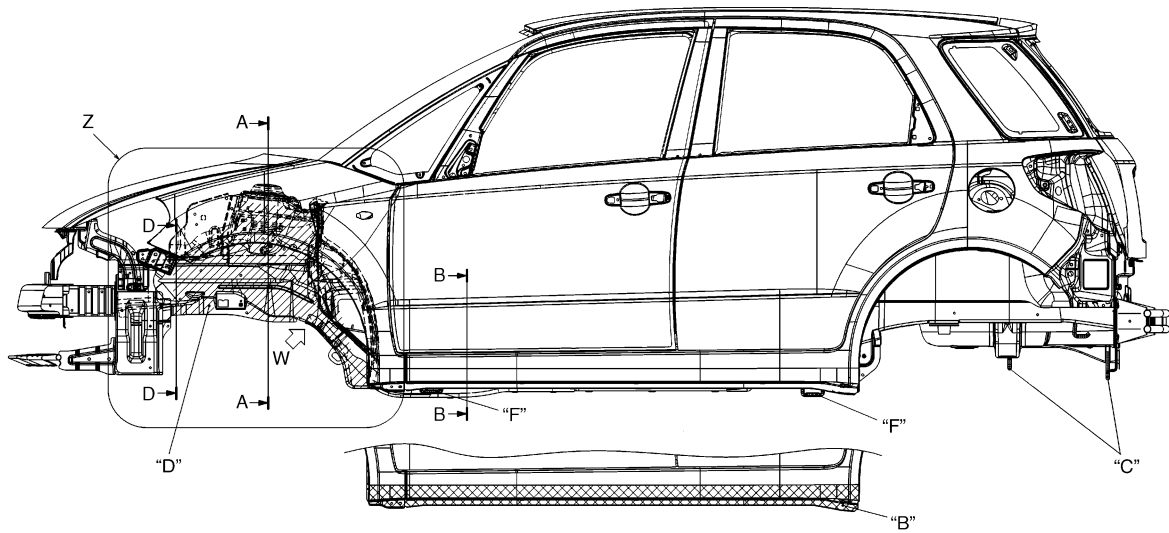


I7RW0A9B0011-01

Point	position		
160	Jig hole	L	φ20
162	Front suspension frame installation hole	L	
164	↑	L	
166	Jig hole	L	φ10
168	↑	L	↑
170	↑	L	φ15
172	↑	L	φ25
174	Rear axle housing installation inside hole	L	
176	Drain hole	L	φ10
178	Jig hole	L	φ12

Under Coating Application Areas

S7RW0C9C03002



I8RW019C0008-01

[A]: LH side	"C": Do not apply undercoating.
[B]: RH side	"D": Apply under coating (PVC, 400 μm or more) after painting black color.
[C]: Both side	"E": Apply under coating (PVC, 600 μm or more).
"A": Apply undercoating (PVC, 400 μm or more).	"F": Do not apply under coating and anti-clip coat.

Repair Instructions

Cruise Control Switch Removal and Installation

S7RW0CA106001

For removal and installation, refer to "Remote Audio Control Switch Removal and Installation (If Equipped) in Section 9C".

Cruise Control Switch Inspection

S7RW0CA106002

NOTE

Never disassemble cruise control switch. Disassembly will spoil its original functions.

- 1) Remove driver air bag (inflator) module referring to "Passenger Air Bag (Inflator) Module Removal and Installation in Section 8B".
- 2) Disconnect cruise control switch connector (1) from control coil.
- 3) Check cruise control switch as follows.

For MAIN (ON/OFF) Switch

Check for continuity between "1" and "8" terminals under each condition below.

If check result is not satisfactory, replace cruise control switch (2).

Cruise MAIN (ON/OFF) switch (3) specification: [B]

Switch button released: Infinity

Switch button pressed: Continuity

For SET/COAST, RES/ACC and CANCEL Switch

Check for resistance between "7" and "9" terminals under each condition below.

If check result is not satisfactory, replace cruise control switch (2).

SET/COAST, RES/ACC and CANCEL switches

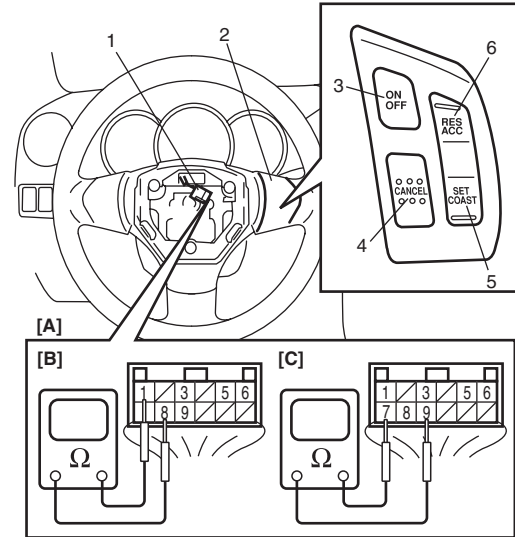
resistance: [C]

All switches released (OFF): Infinity

CANCEL switch (4) pressed (ON): About 0 Ω

SET/COAST switch (5) pressed (ON): 213 – 227 Ω

RES/ACC switch (6) pressed (ON): 882 – 938 Ω



I7RW01A10005-01

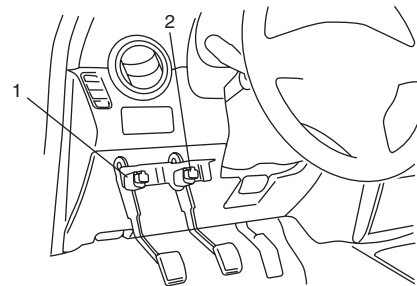
[A]: Cruise control switch connector viewed from harness side

CPP Switch (for Cruise Control) Removal and Installation

S7RW0CA106003

Removal

- 1) Disconnect connector of CPP switch (for cruise control) (1) with ignition switch OFF.
- 2) Remove CPP switch (for cruise control) (1) from pedal bracket.



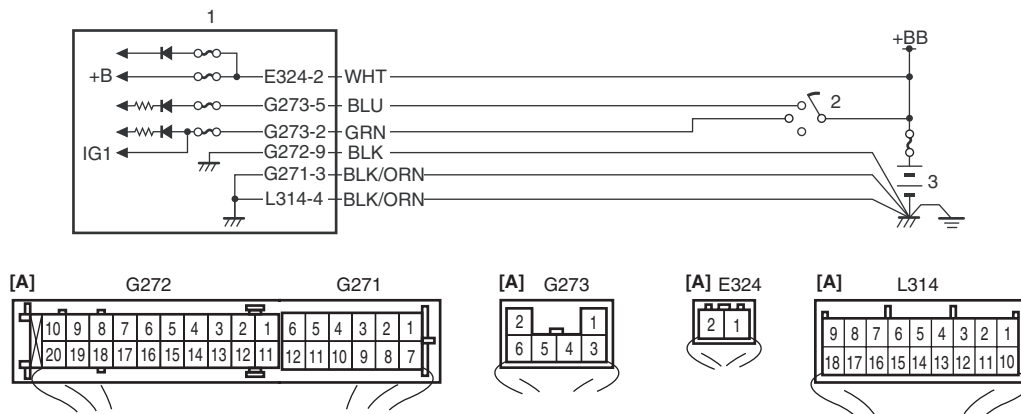
I7RW01A10006-01

2. Brake light switch

BCM Power Circuit and Ground Circuit Check

S7RW0CA204007

Wiring Diagram



I6RW0CA20006-02

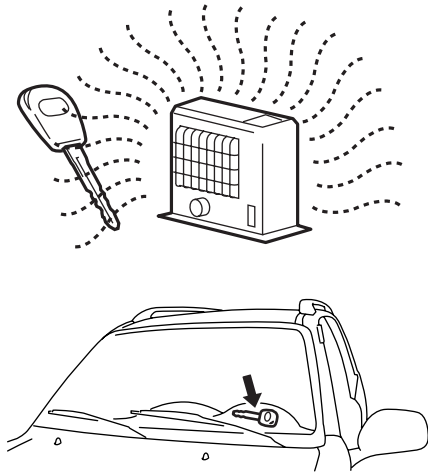
[A]: Junction block connector viewed from harness side	2. Ignition switch
1. Junction block	3. Battery

Troubleshooting

Step	Action	Yes	No
1	<p>Fuse check</p> <p>1) Turn ignition switch to OFF position.</p> <p>2) Check circuit fuses for condition.</p> <p><i>Are circuit fuses in good condition?</i></p>	Go to Step 2.	Replace fuse and check for short circuit to ground.
2	<p>Power supply circuit check</p> <p>1) Disconnect connectors from junction block.</p> <p>2) Check for proper connection to junction block connector at terminal "E324-2".</p> <p>3) If OK, then measure voltage between "E324-2" terminal of junction block connector and vehicle body ground.</p> <p><i>Is voltage 10 – 14 V?</i></p>	Go to Step 3.	Repair power supply circuit.
3	<p>Power supply circuit check</p> <p>1) Check for proper connection to junction block connector at terminals "G273-2" and "G273-5".</p> <p>2) If OK, turn ignition switch to ON position.</p> <p>3) Measure voltage between following terminals.</p> <ul style="list-style-type: none"> Between "G273-2" terminal of junction block connector and vehicle body ground Between "G273-5" terminal of junction block connector and vehicle body ground <p><i>Is each voltage 10 – 14 V?</i></p>	Go to Step 4.	Repair power supply circuit.

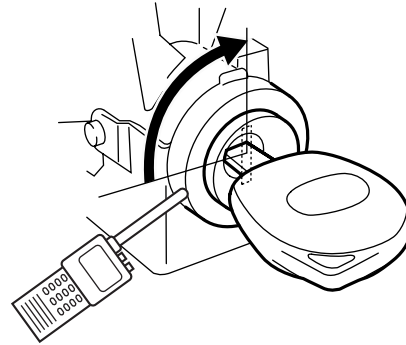
10C-2 Immobilizer Control System:

- Do not leave ignition key in a place where temperature is high. High temperature may cause damage to the transponder built in the ignition key.



I3RH0AA30003-01

- Do not turn ignition switch to ON position by bringing radio antenna close to coil antenna. Or, the immobilizer control system may detect some abnormal condition and prevent the engine from starting.



I3RH0AA30004-01

General Description

Immobilizer Control System Introduction

S7RW0CA301001

The immobilizer control system is an anti-theft device that immobilizes the vehicle. It stops the engine from working and prevents the vehicle from being stolen. It mainly consists of the following components. For immobilizer control system components location, refer to "Immobilizer Control System Components Location".

- ECM
- ICM with the built-in coil antenna
- Ignition key with the built-in transponder

A code called the transponder code is memorized in the transponder. And, the code is registered with ECM. Basically, when the ignition switch is turned ON, ECM reads the code by the coil antenna. Then, if the code in transponder in the ignition key does not match with the one registered with ECM, ECM stops the operation of the fuel injection so as not to start up the engine and turns the immobilizer indicator light ON and OFF using CAN communication lines. (In addition to the above operation, ECM also turns the immobilizer indicator light ON and OFF when some trouble is detected in the keyless start system.)

On-Board Diagnostic System Description (Self-diagnosis Function)

S7RW0CA301002

ECM diagnoses if there is any trouble with the immobilizer control system. The diagnostic information is stored as the diagnostic trouble code (DTC) in ECM. To read the diagnostic information, use SUZUKI scan tool referring to "DTC Check".

With the ignition switch turned ON (but the engine at stop) regardless of the condition of the engine and emission control system, ECM indicates whether there is any trouble with the immobilizer control system or not by either lighting ON or flashing ON and OFF the immobilizer indicator light.

Immobilizer indicator light lights ON:

No trouble exists in the immobilizer control system. (After starting up the engine, the light turns OFF.)

Immobilizer indicator light flashes ON and OFF:

There is some trouble in the immobilizer control system or in the keyless start system. Its diagnostic information is stored in ECM.

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