

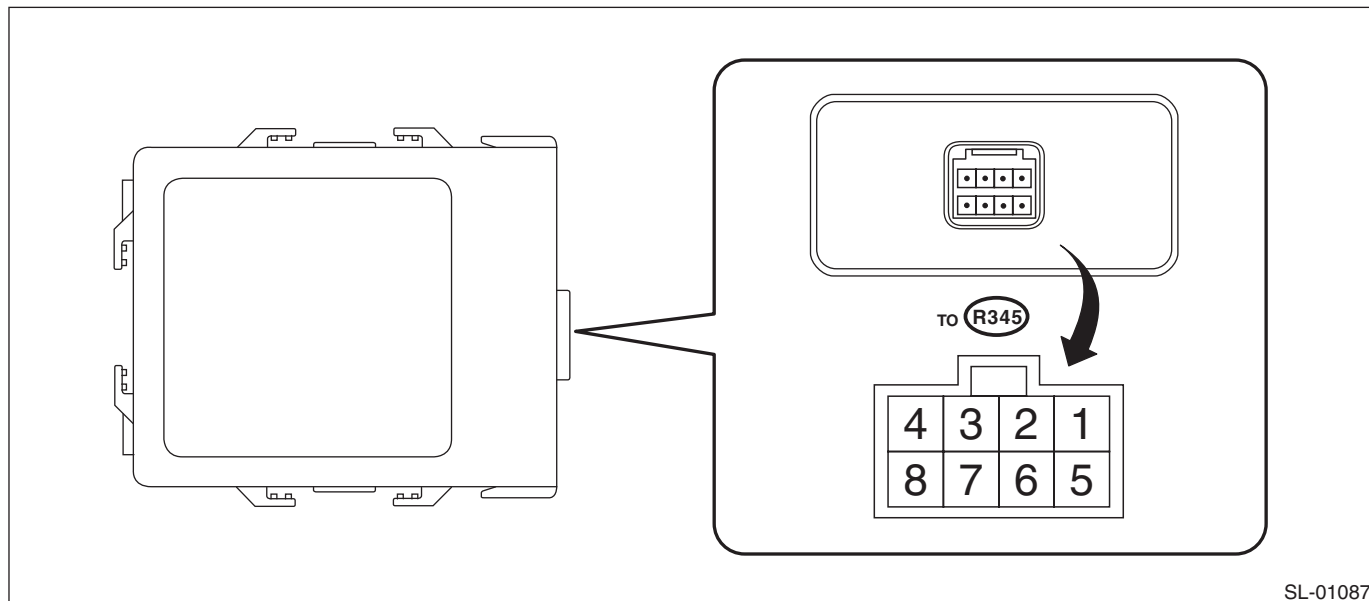
4. Keyless Entry System

A: WIRING DIAGRAM

Refer to “Keyless Entry System” in the wiring diagram. <Ref. to WI-163, WIRING DIAGRAM, Keyless Entry System.>

B: ELECTRICAL SPECIFICATION

1. KEYLESS ENTRY CONTROL MODULE



SL-01087

Content	Terminal No.	Measuring condition
—	1	—
—	2	—
BODY INTEGRATED UNIT	3 (OUTPUT)	Battery voltage cannot be measured because of digital signal.
Power supply (Backup)	4	Battery voltage is constantly present.
—	5	—
—	6	—
Ground	7	0 V is constantly present.
—	8	—

2. BODY INTEGRATED UNIT

Refer to the Control Module I/O Signal of the BODY CONTROL SYSTEM (DIAGNOSIS). <Ref. to BC(diag)-9, ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

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C: INSPECTION

1. SYMPTOM CHART

Symptoms	Repair order	Reference
None of the functions of the keyless entry system operate.	1. Check the keyless transmitter battery.	<Ref. to SL-18, CHECK KEYLESS TRANSMITTER BATTERY AND FUNCTION, INSPECTION, Keyless Entry System.>
	2. Remove and visually check the following fuses. <ul style="list-style-type: none"> • No. 7 (in fuse & relay box) • No. 10 (in main fuse box) • No. 19 (in main fuse box) 	If the fuse is blown out, replace the fuse with a new part. When there is no defective with the fuse, check the power supply and ground circuit. <Ref. to SL-10, CHECK POWER SUPPLY AND GROUND CIRCUIT, INSPECTION, Door Lock Control System.>
	3. Check the keyless entry control module.	<Ref. to SL-19, CHECK KEYLESS ENTRY CONTROL MODULE, INSPECTION, Keyless Entry System.>
	4. Check the power supply and ground circuit for body integrated unit.	<Ref. to SL-19, CHECK BODY INTEGRATED UNIT POWER SUPPLY AND GROUND CIRCUIT, INSPECTION, Keyless Entry System.>
	5. Check the key warning switch.	<Ref. to SL-22, CHECK KEY WARNING SWITCH., INSPECTION, Keyless Entry System.>
	6. Check the door lock switch signal.	<Ref. to SL-20, CHECK DOOR SWITCH, INSPECTION, Keyless Entry System.>
	7. Check the body integrated unit.	<Ref. to BC(diag)-2, Basic Diagnostic Procedure.>
The keyless transmitter cannot be registered.	1. Check the keyless transmitter battery.	<Ref. to SL-18, CHECK KEYLESS TRANSMITTER BATTERY AND FUNCTION, INSPECTION, Keyless Entry System.>
	2. Check the key warning switch.	<Ref. to SL-22, CHECK KEY WARNING SWITCH., INSPECTION, Keyless Entry System.>
	3. Check the door lock switch signal.	<Ref. to SL-25, CHECK DOOR LOCK SWITCH, INSPECTION, Keyless Entry System.>
	4. Check the body integrated unit.	<Ref. to BC(diag)-2, Basic Diagnostic Procedure.>

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Symptoms	Repair order	Reference
Door lock or unlock does not operate. NOTE: If the door lock control system does not operate when using the door lock switch, check the door lock control system. <Ref. to SL-9, INSPECTION, Door Lock Control System.>	1. Check the keyless transmitter battery.	<Ref. to SL-18, CHECK KEYLESS TRANSMITTER BATTERY AND FUNCTION, INSPECTION, Keyless Entry System.>
	2. Check the keyless entry control module.	<Ref. to SL-19, CHECK KEYLESS ENTRY CONTROL MODULE, INSPECTION, Keyless Entry System.>
	3. Check the key warning switch.	<Ref. to SL-22, CHECK KEY WARNING SWITCH., INSPECTION, Keyless Entry System.>
	4. Check the door lock switch signal.	<Ref. to SL-20, CHECK DOOR SWITCH, INSPECTION, Keyless Entry System.>
	5. Check the body integrated unit.	<Ref. to BC(diag)-2, Basic Diagnostic Procedure.>
The keyless buzzer and hazard light does not operate.	1. Check the keyless buzzer operation.	<Ref. to SL-24, CHECK KEYLESS BUZZER, INSPECTION, Keyless Entry System.>
	2. Check the hazard light operation.	<Ref. to SL-24, CHECK HAZARD LIGHT OPERATION, INSPECTION, Keyless Entry System.>
Room light does not operate.	Check the room light operation.	<Ref. to SL-23, CHECK ROOM LIGHT OPERATION, INSPECTION, Keyless Entry System.>
Ignition switch illumination does not operate.	1. Check the ignition switch illumination.	<Ref. to SL-26, CHECK IGNITION SWITCH ILLUMINATION, INSPECTION, Keyless Entry System.>
	2. Check the body integrated unit.	<Ref. to BC(diag)-2, Basic Diagnostic Procedure.>

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2. CHECK KEYLESS TRANSMITTER BATTERY AND FUNCTION

CAUTION:

Be sure to reset keyless transmitter of other vehicles registered to the inspection target vehicle, and vehicles to which keyless transmitters were registered for inspection, to the condition before performing the inspection. (Re-register the keyless transmitters.)

Step	Check	Yes	No
1 CHECK KEYLESS TRANSMITTER BATTERY. 1) Remove the battery from the keyless transmitter. <Ref. to SL-73, REMOVAL, Keyless Transmitter.> 2) Check the battery voltage. <Ref. to SL-73, INSPECTION, Keyless Transmitter.>	Is the voltage 2.5 V or more?	Go to step 2.	Replace the keyless transmitter battery. <Ref. to SL-73, Keyless Transmitter.>
2 CHECK KEYLESS TRANSMITTER. Register the keyless transmitter which operates normally on other vehicles to the inspection target vehicle. <Ref. to SL-73, REGISTRATION OF KEYLESS TRANSMITTER WITH SUBARU SELECT MONITOR, REPLACEMENT, Keyless Transmitter.> 1) Close all the doors and rear gate (OUTBACK model) or trunk lid (sedan model) of inspection target vehicle. 2) Using the keyless transmitter, lock and unlock the doors and rear gate of vehicle. For 4 door model, release the trunk lid lock.	Does the inspection target vehicle operate lock, unlock and trunk lid unlock normally?	Go to step 3.	Due to vehicle malfunction, continue the keyless entry system diagnosis.
3 CHECK KEYLESS TRANSMITTER. Register the keyless transmitter of inspection target vehicle to the another vehicle on which the keyless system operates normally. <Ref. to SL-73, REGISTRATION OF KEYLESS TRANSMITTER WITH SUBARU SELECT MONITOR, REPLACEMENT, Keyless Transmitter.>	Is the keyless transmitter registered correctly?	Go to step 4.	Replace the keyless transmitter. <Ref. to SL-73, REGISTRATION OF KEYLESS TRANSMITTER WITH SUBARU SELECT MONITOR, REPLACEMENT, Keyless Transmitter.>
4 CHECK KEYLESS TRANSMITTER. Check the registered keyless transmitter. 1) Close all the doors and rear gate of the vehicle which keyless system operates normally. 2) Using the keyless transmitter, lock and unlock the doors and rear gate of vehicle. For 4 door model, release the trunk lid lock.	Does the inspection target vehicle operate lock, unlock and trunk lid unlock normally?	Keyless transmitter is OK.	Replace the keyless transmitter. <Ref. to SL-73, REGISTRATION OF KEYLESS TRANSMITTER WITH SUBARU SELECT MONITOR, REPLACEMENT, Keyless Transmitter.>

3. CHECK KEYLESS ENTRY CONTROL MODULE

Step	Check	Yes	No
1 CHECK DIAGNOSTIC TROUBLE CODE (DTC). 1) Prepare the Subaru Select Monitor kit. 2) Turn the ignition switch to ON (engine OFF) and run the "PC application for Subaru Select Monitor". 3) On «System Selection Menu» display, select {Integ. unit mode}. 4) Select the {Diagnostic Code(s) Display}.	Is DTC B1500 "Keyless UART com. Malfunction" displayed?	Go to step 2.	Keyless entry control module is normal.
2 CHECK POWER SUPPLY. 1) Disconnect the keyless entry control module connector. 2) Measure the voltage between keyless entry control module connector and chassis ground. <i>Connector & terminal</i> <i>(R345) No. 4 (+) — Chassis ground (-):</i>	Is the voltage 10 V or more?	Go to step 3.	Check the harness for open or short circuits between the keyless entry control module and the fuse.
3 CHECK GROUND CIRCUIT. Measure the resistance between keyless entry control module connector and chassis ground. <i>Connector & terminal</i> <i>(R345) No. 7 — Chassis ground:</i>	Is the resistance less than 10 Ω ?	Go to step 4.	Repair or replace the harness.
4 CHECK KEYLESS ENTRY CONTROL MODULE CIRCUIT. 1) Disconnect the connector of body integrated unit. 2) Measure the resistance between keyless entry control module connector and body integrated unit connector. <i>Connector & terminal</i> <i>(i171) No. 11 — (R345) No. 3:</i>	Is the resistance less than 10 Ω ?	Replace the keyless entry control module.	Repair or replace the harness.

4. CHECK BODY INTEGRATED UNIT POWER SUPPLY AND GROUND CIRCUIT

For the detailed procedure, refer to the INSPECTION of POWER SUPPLY AND GROUND CIRCUIT of the Door Lock Control System. <Ref. to SL-10, CHECK POWER SUPPLY AND GROUND CIRCUIT, INSPECTION, Door Lock Control System.>

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5. CHECK DOOR SWITCH

	Step	Check	Yes	No
1	CHECK INPUT CIRCUIT. 1) Prepare the Subaru Select Monitor kit. 2) Turn the ignition switch to ON (engine OFF) and run the “PC application for Subaru Select Monitor”. 3) On «System Selection Menu» display, select {Integ. unit mode}. 4) Select the {Current Data Display}. 5) Select the {Driver’s door SW input}, {P-door SW input}, {Rear right door SW input}, {Rear left door SW input}, and {R Gate SW input}.	Does the display switch between OFF ⇔ ON when each door or rear gate, trunk lid is opened/closed?	The door switches, trunk lid latch switch or rear gate latch switch are normal.	Go to step 2.
2	CHECK HARNESS. 1) Disconnect the connector of body integrated unit. 2) Disconnect the door switch connector that the display does not change. 3) Check the harness for open or short circuit between body integrated unit connector and faulty door switch connector. Connector & terminal Front door RH <i>(i84) No. 13 — (R12) No. 2:</i> Front door LH <i>(i84) No. 14 — (R9) No. 2:</i> Rear door RH <i>(i84) No. 25 — (R16) No. 2:</i> Rear door LH <i>(i84) No. 24 — (R22) No. 2:</i> Trunk lid <i>(i84) No. 33 — (R186) No. 3:</i> Rear gate latch <i>(i84) No. 33 — (D46) No. 3:</i>	Is harness normal?	Go to step 3.	Repair or replace the harness.
3	CHECK HARNESS. Measure the resistance between the faulty door switch connector and chassis ground. Connector & terminal Front door RH <i>(R12) No. 3 — Chassis ground:</i> Front door LH <i>(R9) No. 3 — Chassis ground:</i> Rear door RH <i>(R16) No. 3 — Chassis ground:</i> Rear door LH <i>(R22) No. 3 — Chassis ground:</i> Trunk lid <i>(R186) No. 2 — Chassis ground:</i> Rear gate latch <i>(D47) No. 4 — Chassis ground:</i>	Is the resistance less than 10 Ω?	Go to step 4.	Repair or replace the harness.

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	Step	Check	Yes	No
4	<p>CHECK DOOR SWITCH. Measure the resistance between terminals of faulty door switch, trunk lid switch or rear gate latch switch.</p> <p>Connector & terminal Front RH door switch <i>(R12) No. 2 — No. 3:</i> Front LH door switch <i>(R9) No. 2 — No. 3:</i> Rear RH door switch <i>(R16) No. 2 — No. 3:</i> Rear LH door switch <i>(R22) No. 2 — No. 3:</i> Trunk lid latch switch <i>(R186) No. 3 — No. 2:</i> Rear gate latch switch <i>(D47) No. 3 — No. 4:</i></p>	Is the resistance 1 M Ω or more when the door switch is pushed, or the trunk lid or rear gate is closed?	Go to step 5.	Replace the faulty parts. <ul style="list-style-type: none"> • Door switch • Trunk lid latch & actuator ASSY • Rear gate latch & actuator ASSY
5	<p>CHECK DOOR SWITCH. Measure the resistance between terminals of faulty door switch, trunk lid switch or rear gate latch switch.</p> <p>Connector & terminal Front RH door switch <i>(R12) No. 2 — No. 3:</i> Front LH door switch <i>(R9) No. 2 — No. 3:</i> Rear RH door switch <i>(R16) No. 2 — No. 3:</i> Rear LH door switch <i>(R22) No. 2 — No. 3:</i> Trunk lid latch switch <i>(R186) No. 3 — No. 2:</i> Rear gate latch switch <i>(D47) No. 3 — No. 4:</i></p>	Is the resistance less than 10 Ω when switch is released?	Replace the body integrated unit. <Ref. to SL-72, Body Integrated Unit.>	Replace the faulty parts. <ul style="list-style-type: none"> • Door switch • Trunk lid latch & actuator ASSY • Rear gate latch & actuator ASSY

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6. CHECK KEY WARNING SWITCH.

	Step	Check	Yes	No
1	CHECK KEY WARNING SWITCH. 1) Prepare the Subaru Select Monitor kit. 2) On «System Selection Menu» display, select {Integ. unit mode}. 3) Select the {Current Data Display & Save}. 4) Select the {key-lock warning SW}.	Is the normal input signal displayed when the key is inserted in/removed from the ignition switch?	The key warning switch is OK.	Go to step 2.
2	CHECK FUSE. Remove and visually check fuse No. 18 (in the main fuse box).	Is the fuse blown out?	Replace the fuse with a new part.	Go to step 3.
3	CHECK KEY WARNING SWITCH CIRCUIT. 1) Disconnect the connector of body integrated unit. 2) Insert the key into ignition switch. (LOCK position) 3) Measure the voltage between body integrated unit connector and chassis ground. Connector & terminal (B280) No. 4 (+) — Chassis ground (-):	Is the voltage 10 V or more?	Go to step 4.	Go to step 5.
4	CHECK KEY WARNING SWITCH CIRCUIT. 1) Remove the key from ignition switch. 2) Measure the voltage between body integrated unit connector and chassis ground. Connector & terminal (B280) No. 4 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Replace the body integrated unit. <Ref. to SL-72, Body Integrated Unit.>	Go to step 5.
5	CHECK KEY WARNING SWITCH. 1) Disconnect the key warning switch connector. 2) Insert the key into ignition switch. (LOCK position) 3) Measure the resistance between key warning switch terminals. Connector & terminal (B350) No. 3 — No. 4:	Is the resistance less than 1 Ω?	Go to step 6.	Replace the key warning switch.
6	CHECK KEY WARNING SWITCH. 1) Remove the key from ignition switch. 2) Measure the resistance between key warning switch terminals. Connector & terminal (B350) No. 3 — No. 4:	Is the resistance 1 MΩ or more?	Check the following: <ul style="list-style-type: none"> • Harness for open circuits or shorts between the key warning switch and fuse. • Harness for open or short between the body integrated unit and key warning switch 	Replace the key warning switch.

7. CHECK ROOM LIGHT OPERATION

	Step	Check	Yes	No
1	CHECK ROOM LIGHT OPERATION. Make sure the room light illuminates when the room light switch is ON, and goes off when the switch is OFF.	Does the room light illuminate or go off?	Go to step 2.	Check the room light circuit. <Ref. to LI-65, INSPECTION, Room Light.>
2	CHECK ROOM LIGHT OPERATION. 1) Turn the room light switch to the "DOOR" position. 2) Open and close any door.	Does the room light illuminate ⇔ go off (including off delay) when the door is opened and closed?	Go to step 3.	Go to step 4.
3	CHECK KEYLESS ENTRY OPERATION. Press the LOCK/UNLOCK button of the keyless transmitter.	Does it operate properly?	Replace the body integrated unit. <Ref. to SL-72, Body Integrated Unit.>	Check the keyless entry control module. <Ref. to SL-16, SYMPTOM CHART, INSPECTION, Keyless Entry System.>
4	CHECK ROOM LIGHT. 1) Disconnect the room light connector. 2) Check the room light. <Ref. to LI-65, INSPECTION, Room Light.>	Is room light normal?	Go to step 5.	Replace the bulb or room light assembly.
5	CHECK HARNESS. 1) Disconnect the connector of body integrated unit. 2) Check the harness between body integrated unit connector and room light connector. <i>Connector & terminal</i> <i>(i84) No. 4 — (R52) No. 2:</i>	Is harness normal?	Go to step 6.	Repair or replace the harness.
6	CHECK HARNESS. Measure the voltage between room light connector and chassis ground. <i>Connector & terminal</i> <i>(R52) No. 3 (+) — Chassis ground (-):</i>	Is the voltage 10 V or more?	Replace the body integrated unit. <Ref. to SL-72, Body Integrated Unit.>	Repair or replace the harness.

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8. CHECK HAZARD LIGHT OPERATION

	Step	Check	Yes	No
1	CHECK HAZARD LIGHT OPERATION. Make sure the hazard light blinks when hazard switch is turned to ON.	Does the hazard light blink?	Go to step 2.	Check the hazard light circuit.
2	CHECK BODY INTEGRATED UNIT. 1) Prepare the Subaru Select Monitor kit. 2) Turn the ignition switch to ON (engine OFF) and run the "PC application for Subaru Select Monitor". 3) On «System Selection Menu» display, select {Integ. unit mode}. 4) Select {Hazard answer-back setup} from {ECM customizing}.	Is the setting ON?	Go to step 3.	Change the setting to ON.
3	CHECK HAZARD LIGHT CIRCUIT. 1) Disconnect the connector of body integrated unit. 2) Disconnect the turn signal & hazard unit connector. 3) Measure the resistance between body integrated unit connector and turn signal&hazard unit connector. Connector & terminal (i171) No. 18 — (i170) No. 8:	Is the resistance less than 10 Ω?	Go to step 4.	Repair or replace the harness.
4	CHECK OUTPUT TO HAZARD LIGHT. 1) Remove the key from ignition switch. 2) Prepare the Subaru Select Monitor kit. 3) On «System Selection Menu» display, select {Integ. unit mode}. 4) From {Current Data Display & Save}, select {Hazard Output}.	Is output signal present when operating the transmitter LOCK/UNLOCK button?	System is normal.	Inspect the keyless entry system. If there are no problems, replace the body integrated unit. • Inspection:<Ref. to SL-16, SYMPTOM CHART, INSPECTION, Keyless Entry System.> • Replacement:<Ref. to SL-72, Body Integrated Unit.>

9. CHECK KEYLESS BUZZER

	Step	Check	Yes	No
1	CHECK KEYLESS BUZZER SETTING. 1) Prepare the Subaru Select Monitor kit. 2) Turn the ignition switch to ON (engine OFF) and run the "PC application for Subaru Select Monitor". 3) On «System Selection Menu» display, select {Integ. unit mode}. 4) Select {Answer-back buzzer setup} from {ECM customizing}.	Is the setting ON?	Go to step 2.	Change the setting to ON.
2	CHECK BODY INTEGRATED UNIT. 1) Select the {Function check} from {Integ. unit mode}. 2) Select the {Keyless Buzzer Output} and execute it.	Does the keyless buzzer sound?	Check the keyless control module.	Go to step 3.

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Step	Check	Yes	No
3 CHECK KEYLESS BUZZER CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the body integrated unit connector and keyless buzzer connector. 3) Measure the resistance between body integrated unit connector and keyless buzzer connector. Connector & terminal (B280) No. 20 — (B490) No. 1:	Is the resistance less than 10 Ω ?	Go to step 4.	Repair or replace the harness.
4 CHECK KEYLESS BUZZER CIRCUIT. Measure the resistance between keyless buzzer connector and chassis ground. Connector & terminal (B490) No. 2 — Chassis ground:	Is the resistance less than 10 Ω ?	Go to step 5.	Repair or replace the harness.
5 CHECK KEYLESS BUZZER. 1) Remove the keyless buzzer. 2) Connect the battery positive (+) terminal to terminal No. 2 of keyless buzzer, and negative (-) terminal to terminal No. 1 and check if buzzer sounds. <Ref. to SL-71, INSPECTION, Keyless Buzzer.>	Does the keyless buzzer sound?	Go to step 6.	Replace the keyless buzzer.
6 CHECK BODY INTEGRATED UNIT. 1) Prepare the Subaru Select Monitor kit. 2) Select the {Function check} from {Integ. unit mode}. 3) Select the {Keyless Buzzer Output} and execute it. 4) Measure the voltage between body integrated unit connector and chassis ground.	Is the voltage 9 V or more?	Go to step 7.	Replace the body integrated unit. <Ref. to SL-72, Body Integrated Unit.>
7 CHECK OUTPUT OF BODY INTEGRATED UNIT. 1) Select the {Current Data Display & Save} from {Integ. unit mode}. 2) Select the {Keyless Buzzer Output}. 3) Press the LOCK/UNLOCK button of the keyless transmitter.	Is output signal present when operating the LOCK/UNLOCK button?	System is normal.	Inspect the keyless entry system. If there are no problems, replace the body integrated unit. <ul style="list-style-type: none"> • Inspection:<Ref. to SL-16, SYMPTOM CHART, INSPECTION, Keyless Entry System.> • Replacement:<Ref. to SL-72, Body Integrated Unit.>

10.CHECK DOOR LOCK SWITCH

For operation procedures, refer to the INSPECTION of DOOR LOCK SWITCH of the Door Lock Control System. <Ref. to SL-11, CHECK DOOR LOCK SWITCH, INSPECTION, Door Lock Control System.>

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11.CHECK IGNITION SWITCH ILLUMINATION

	Step	Check	Yes	No
1	CHECK IGNITION CIRCUIT. Check the ignition switch circuit.	Is the circuit normal?	Go to step 2.	Repair or replace.
2	CHECK DOOR SWITCH CIRCUIT. Check the door switch circuit.	Is the circuit normal?	Go to step 3.	Repair or replace.
3	CHECK FUSE. Remove and visually check fuse No. 18 (in the main fuse box).	Is the fuse blown out?	Replace the fuse with a new part.	Go to step 4.
4	CHECK HARNESS. 1) Disconnect the ignition switch illumination connector. 2) Measure the voltage between ignition switch illumination connector and chassis ground. Connector & terminal (B350) No. 1 (+) — Chassis ground (-):	Is the voltage 10 V or more?	Go to step 5.	Check the harness for open circuits or shorts between the ignition switch illumination and fuse.
5	CHECK IGNITION SWITCH ILLUMINATION CIRCUIT. 1) Disconnect the connector of body integrated unit. 2) Check the harness for open or short circuit between body integrated unit connector and ignition switch illumination connector. Connector & terminal (B280) No. 25 — (B350) No. 2:	Is harness normal?	Go to step 6.	Check the harness for open circuits and shorts between the body integrated unit and ignition switch illumination.
6	CHECK IGNITION SWITCH ILLUMINATION BULB. Apply battery voltage to the bulb.	Does the bulb illuminate?	Replace the body integrated unit. <Ref. to SL-72, Body Integrated Unit.>	Replace the ignition switch illumination bulb. <Ref. to LI-71, REMOVAL, Ignition Switch Illumination.>