

3. Keyless Entry System

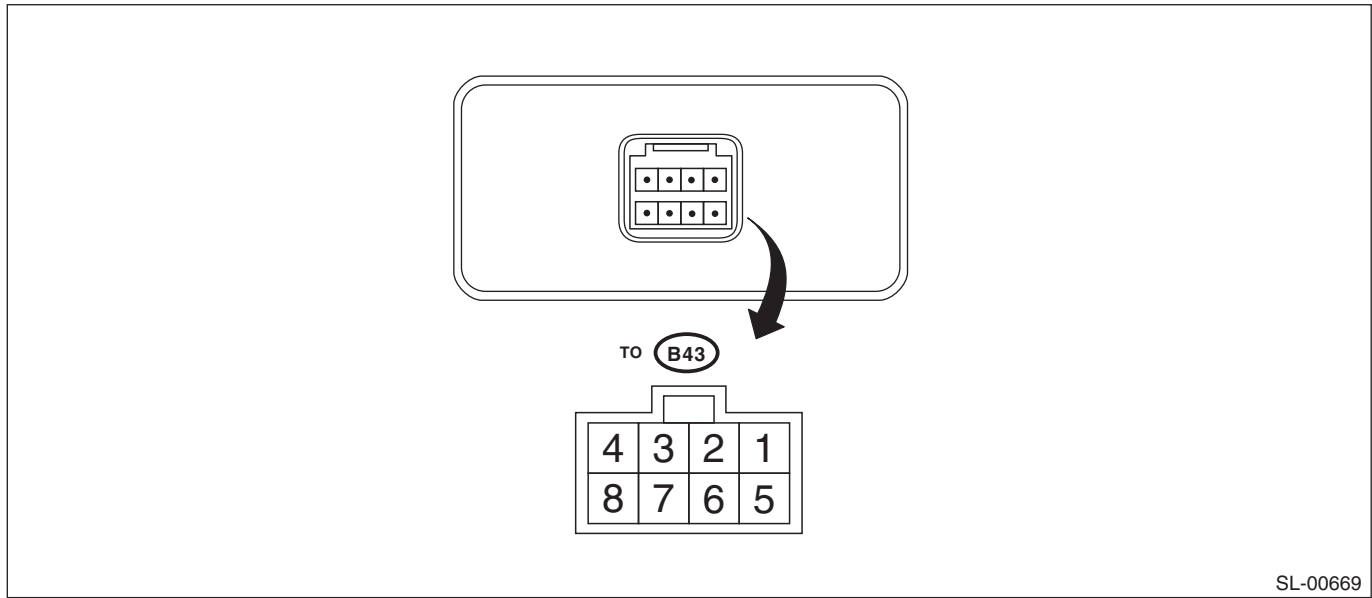
A: WIRING DIAGRAM

1. KEYLESS ENTRY

<Ref. to WI-154, WIRING DIAGRAM, Keyless Entry System.>

B: ELECTRICAL SPECIFICATION

1. KEYLESS ENTRY CONTROL MODULE



Remarks	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.

2. BODY INTEGRATED UNIT

Refer to the “Control Module I/O Signal” of the LAN system (diag). <Ref. to LAN(diag)-10, ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

Keyless Entry System

SECURITY AND LOCKS

C: INSPECTION

1. SYMPTOM CHART

Symptom	Repair order	Reference
None of the functions of the keyless entry system operate.	1. Check the keyless transmitter battery.	<Ref. to SL-15, CHECK KEYLESS TRANSMITTER BATTERY AND FUNCTION, INSPECTION, Keyless Entry System.>
	2. Remove and visually check the fuse No. 31 (in the fuse & relay box) and No. 7 (in the fuse & relay box).	If the fuse is blown out, replace the fuse with a new part. Check the power supply and ground circuit, if the fuse has no abnormality. <Ref. to SL-9, CHECK POWER SUPPLY AND GROUND CIRCUIT, INSPECTION, Door Lock Control System.>
	3. Check the keyless entry control module.	<Ref. to SL-16, CHECK KEYLESS ENTRY CONTROL MODULE, INSPECTION, Keyless Entry System.>
	4. Check the power supply and ground circuit for body integrated unit.	<Ref. to SL-16, CHECK BODY INTEGRATED UNIT POWER SUPPLY AND GROUND CIRCUIT, INSPECTION, Keyless Entry System.>
	5. Check the key warning switch.	<Ref. to SL-18, CHECK KEY WARNING SWITCH, INSPECTION, Keyless Entry System.>
	6. Check the door switch.	<Ref. to SL-17, CHECK DOOR SWITCH, INSPECTION, Keyless Entry System.>
	7. Check the body integrated unit.	<Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>
The keyless transmitter cannot be registered.	1. Check the keyless transmitter battery.	<Ref. to SL-15, CHECK KEYLESS TRANSMITTER BATTERY AND FUNCTION, INSPECTION, Keyless Entry System.>
	2. Check the key warning switch.	<Ref. to SL-18, CHECK KEY WARNING SWITCH, INSPECTION, Keyless Entry System.>
	3. Check the door lock switch signal.	<Ref. to SL-20, CHECK DOOR LOCK SWITCH, INSPECTION, Keyless Entry System.>
	4. Check the body integrated unit.	<Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>
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-8, INSPECTION, Door Lock Control System.>	1. Check the keyless transmitter battery.	<Ref. to SL-15, CHECK KEYLESS TRANSMITTER BATTERY AND FUNCTION, INSPECTION, Keyless Entry System.>
	2. Check the keyless entry control module.	<Ref. to SL-16, CHECK KEYLESS ENTRY CONTROL MODULE, INSPECTION, Keyless Entry System.>
	3. Check the key warning switch.	<Ref. to SL-18, CHECK KEY WARNING SWITCH, INSPECTION, Keyless Entry System.>
	4. Check the door switch.	<Ref. to SL-17, CHECK DOOR SWITCH, INSPECTION, Keyless Entry System.>
	5. Check the body integrated unit.	<Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>
Buzzer and hazard light do not operate.	1. Check the buzzer operation.	<Ref. to SL-20, CHECK KEYLESS BUZZER, INSPECTION, Keyless Entry System.>
	2. Check the hazard light operation.	<Ref. to SL-19, CHECK HAZARD LIGHT OPERATION, INSPECTION, Keyless Entry System.>
	3. Check the body integrated unit.	<Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>
Room light does not operate.	1. Check the room light operation.	<Ref. to SL-19, CHECK ROOM LIGHT OPERATION, INSPECTION, Keyless Entry System.>
	2. Check the body integrated unit.	<Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>
Ignition switch illumination does not operate.	1. Check the ignition switch illumination.	<Ref. to SL-21, CHECK IGNITION SWITCH ILLUMINATION, INSPECTION, Keyless Entry System.>
	2. Check the body integrated unit.	<Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>

2. CHECK KEYLESS TRANSMITTER BATTERY AND FUNCTION

Step	Check	Yes	No
1 CHECK KEYLESS TRANSMITTER BATTERY. 1) Remove the battery from the keyless transmitter. <Ref. to SL-43, REMOVAL, Transmitter.> 2) Check the battery voltage. <Ref. to SL-43, INSPECTION, Transmitter.>	Is the voltage 2.5 V or more?	Go to step 2.	Replace the keyless transmitter battery. <Ref. to SL-43, Transmitter.>
2 CHECK KEYLESS TRANSMITTER. Register the keyless transmitter which operates normally on other vehicles to the inspection target vehicle. <Ref. to SL-43, REGISTRATION OF KEYLESS TRANSMITTER WITH SUBARU SELECT MONITOR, REPLACEMENT, Transmitter.> 1) Close all the doors and the rear gate of vehicle to be checked. 2) Using the keyless transmitter, lock and unlock the doors and rear gate of the vehicle.	Can all doors of the car being checked be locked and unlocked 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-43, REGISTRATION OF KEYLESS TRANSMITTER WITH SUBARU SELECT MONITOR, REPLACEMENT, Transmitter.>	Is the keyless transmitter registered correctly?	Go to step 4.	Replace the keyless transmitter. <Ref. to SL-43, REGISTRATION OF KEYLESS TRANSMITTER WITH SUBARU SELECT MONITOR, REPLACEMENT, Transmitter.>
4 CHECK KEYLESS TRANSMITTER. Check the registered keyless transmitter. 1) Close all the doors and the rear gate of the vehicle which operates keyless system normally. 2) Using the keyless transmitter, lock and unlock the doors and rear gate of the vehicle.	Can the vehicle be locked and unlocked correctly?	The keyless transmitter is working properly.	Replace the keyless transmitter. <Ref. to SL-43, REGISTRATION OF KEYLESS TRANSMITTER WITH SUBARU SELECT MONITOR, REPLACEMENT, Transmitter.>

CAUTION:

Be sure to reset keyless transmitters from other vehicles that were registered to the inspection target vehicle, and the vehicle to which keyless transmitters were registered for the inspection, to the condition before performing the inspection. (Register the keyless transmitters again.)

Keyless Entry System

SECURITY AND LOCKS

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 the "System Selection Menu", select {Integ. unit mode}. 4) Select the {Diagnostic Code(s) Display}. 5) Check if the DTC is displayed.	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 harness connector. 2) Measure the voltage between harness connector terminal and chassis ground. Connector & terminal (R80) No. 4 (+) — Chassis ground (-):	Is the voltage 10 V or more?	Go to step 3.	Check the harness for open circuits and shorts between the keyless entry control module and fuse.
3 CHECK GROUND CIRCUIT. Measure the resistance between harness connector terminal and chassis ground. Connector & terminal (iR80) No. 7 — Chassis ground:	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 harness connector of body integrated unit. 2) Measure the resistance between harness connector terminals. Connector & terminal (i84) No. 24 — (R80) No. 3:	Is the resistance less than 10 Ω ?	Replace the keyless entry control module. <Ref. to SL-40, Keyless Entry Control Module.>	Repair or replace the harness.

4. CHECK BODY INTEGRATED UNIT POWER SUPPLY AND GROUND CIRCUIT

Step	Check	Yes	No
1 CHECK POWER SUPPLY OF BODY INTEGRATED UNIT. 1) Disconnect the harness connector of body integrated unit. 2) Measure the voltage between harness connector terminal and chassis ground. Connector & terminal (i84) No. 34 (+) — Chassis ground (-): (B280) No. 6 (+) — Chassis ground (-): (B281) No. 2 (+) — Chassis ground (-):	Is the voltage 10 V or more?	Go to step 2.	Check the harness between the body integrated unit and fuse for open or short circuits.
2 CHECK BODY INTEGRATED UNIT GROUND CIRCUIT. 1) Disconnect the harness connector of body integrated unit. 2) Measure the resistance between harness connector terminal and chassis ground. Connector & terminal (i84) No. 28 — Chassis ground: (B280) No. 17 — Chassis ground: (B281) No. 20 — Chassis ground: (B279) No. 27 — Chassis ground:	Is the resistance less than 10 Ω ?	Check the body integrated unit. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>	Repair or replace the harness.

5. CHECK DOOR SWITCH

Step	Check	Yes	No
1 CHECK INPUT FROM EACH DOOR SWITCH. 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 the "System Selection Menu", select {Integ. unit mode}. 4) Select the {Current Data Display & Save}. 5) Check the input of the doors and rear gate latch switches to the body integrated unit when opening each door (front RH and LH, rear RH and LH, and rear gate).	Is the input signal detected when opening the each door (front RH and LH, rear RH and LH, and rear gate)?	The door and rear gate latch switch circuits are normal.	If there is a door switch or rear gate latch switch where the input signal cannot be detected, Go to step 2.
2 CHECK DOOR SWITCH CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the harness connector of body integrated unit. 3) Disconnect the harness connector of the faulty door or rear gate latch switch. 4) Measure the resistance between harness connector terminals. Connector & terminal <i>(i84) No. 19 — (R12) No. 1: (front door RH)</i> <i>(i84) No. 32 — (R9) No. 1: (front door LH)</i> <i>(i84) No. 6 — (R16) No. 1: (rear door RH)</i> <i>(i84) No. 20 — (R22) No. 1: (rear door LH)</i> <i>(i84) No. 33 — (D46) No. 3: (rear gate)</i>	Is the resistance less than 10 Ω ?	Go to step 3.	Repair or replace the harness.
3 CHECK GROUND CIRCUIT OF DOOR SWITCH. 1) Disconnect the harness connector of the faulty door or rear gate latch switch. 2) Measure the resistance of harness connector and chassis ground. Connector & terminal <i>(R12) No. 3 — Chassis ground: (front door RH)</i> <i>(R9) No. 3 — Chassis ground: (front door LH)</i> <i>(R16) No. 3 — Chassis ground: (rear door RH)</i> <i>(R22) No. 3 — Chassis ground: (rear door LH)</i> <i>(D46) No. 4 — Chassis ground: (rear gate)</i>	Is the resistance less than 10 Ω ?	Go to step 4.	Repair or replace the harness.
4 CHECK DOOR SWITCH. 1) Disconnect the harness connector of the faulty door or rear gate latch switch. 2) Measure the resistance between door switch and rear gate latch switch terminals. Terminals <i>No. 1 — No. 3: (except rear gate)</i> <i>No. 3 — No. 4: (rear gate)</i>	Is the resistance 1 M Ω or more when the door switch is pushed and the rear gate is closed?	Go to step 5.	Replace the door switch, or rear gate latch and actuator assembly.
5 CHECK DOOR SWITCH. Measure the resistance between door switch and rear gate latch switch terminals. Terminals <i>No. 1 — No. 3: (except rear gate)</i> <i>No. 3 — No. 4: (rear gate)</i>	Is the resistance less than 1 Ω when door switch is released and the rear gate is opened?	Check the body integrated unit. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>	Replace the door switch, or rear gate latch and actuator assembly.

Keyless Entry System

SECURITY AND LOCKS

6. CHECK KEY WARNING SWITCH

Step	Check	Yes	No
1 CHECK KEY WARNING SWITCH. Check the input signal from the key warning switch to the body integrated unit using the Subaru Select Monitor. 1) Prepare the Subaru Select Monitor kit. 2) On the "System Selection Menu", select {Integ. unit mode}. 3) Select the {Current Data Display & Save}. 4) Check the input signal to the body integrated unit by operating the ignition switch.	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 the fuse No. 14 (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 harness connector of body integrated unit. 2) Insert the key into ignition switch. (LOCK position) 3) Measure the voltage between harness connector terminal and chassis ground. Connector & terminal (B279) No. 2 (+) — 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 harness connector terminal and chassis ground. Connector & terminal (B279) No. 2 (+) — Chassis ground (-):	Is the voltage 0 V?	Replace the body integrated unit. <Ref. to SL-42, Body Integrated Unit.>?	Go to step 5.
5 CHECK KEY WARNING SWITCH. 1) Disconnect the key warning switch harness 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 M Ω or more?	Check the following: • Harness for open circuits and 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 turned to ON.	Does the room light illuminate?	Go to step 2.	Check the room light circuit.
2 CHECK HARNESS BETWEEN ROOM LIGHT AND BODY INTEGRATED UNIT. 1) Disconnect the body integrated unit harness connector and room light harness connector. 2) Measure the resistance between the body integrated unit harness connector terminal and room light harness connector terminal. Connector & terminal (B279) No. 5 — (R52) No. 2:	Is the resistance less than 10 Ω ?	The room light operation circuit is OK.	Check the harness for open or short between body integrated unit and room light.

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 OUTPUT TO HAZARD LIGHT. 1) Turn the ignition switch to OFF. 2) Disconnect the key warning switch harness connector. 3) Prepare the Subaru Select Monitor kit. 4) Turn the ignition switch to ON (engine OFF), and run the "PC application for Subaru Select Monitor". 5) On the "System Selection Menu", select {Integ. unit mode}. 6) Select {ECM customizing}. 7) Check {Hazard answer-back setup}, and then switch to ON setting if necessary. 8) Select the {Current Data Display & Save}. 9) Remove the key from ignition switch. 10) When operating the LOCK/UNLOCK button of the transmitter, check the hazard output signal of the body integrated unit.	Is output signal present when operating the transmitter LOCK/UNLOCK button?	Go to step 3.	Check the body integrated unit. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>
3 CHECK CIRCUIT OF HAZARD LIGHT. 1) Disconnect the harness connector of body integrated unit. 2) Disconnect the turn signal and hazard unit harness connector. 3) Measure the resistance between harness connector terminals. Connector & terminal (B281) No. 22 — (B32) No. 8:	Is the resistance less than 10 Ω ?	Check the body integrated unit. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>	Repair or replace the harness.

Keyless Entry System

SECURITY AND LOCKS

9. CHECK KEYLESS BUZZER

Step	Check	Yes	No
1 CHECK FUNCTION. Using the Subaru Select Monitor, check the {Answer-back buzzer setup}. <Ref. to LAN(diag)-17, Read Current Data.>	Is it ON?	Go to step 2.	Change the setting to ON. <Ref. to LAN(diag)-22, Function Setting (Customize).>
2 CHECK OUTPUT TO KEYLESS BUZZER. 1) Remove the key from ignition switch. 2) Read the {Keyless Buzzer Output} of the body integrated unit using the Subaru Select Monitor. <Ref. to LAN(diag)-14, Subaru Select Monitor.> 3) Press the LOCK/UNLOCK button of the keyless transmitter. NOTE: Due to the screen refresh timing of the Subaru Select Monitor, repeat the operation a few times to confirm, as there may be no change of OFF → ON at first.	Does display change from OFF → ON?	Go to step 3.	Replace the body integrated unit. <Ref. to SL-42, Body Integrated Unit.>
3 CHECK KEYLESS BUZZER. 1) Remove the keyless buzzer. 2) Install the keyless buzzer to another vehicle with a normally operating buzzer and check buzzer operation.	Does the keyless buzzer sound?	Go to step 4.	Replace the keyless buzzer.
4 CHECK HARNESS. 1) Disconnect the harness connector of body integrated unit. 2) Disconnect the keyless buzzer harness connector. 3) Measure the resistance between harness connector terminals. Connector & terminal (B279) No. 24 — (B164) No. 1:	Is the resistance less than 10 Ω?	Go to step 5.	Repair or replace the harness.
5 CHECK HARNESS. Measure the resistance between the keyless buzzer harness connector and chassis ground. Connector & terminal (B164) No. 2 — Chassis ground:	Is the resistance less than 10 Ω?	Replace the body integrated unit. <Ref. to SL-42, Body Integrated Unit.>	Repair or replace the harness.

10.CHECK DOOR LOCK SWITCH

Refer to the “CHECK DOOR LOCK SWITCH” of the Door Lock Control System. <Ref. to SL-9, CHECK DOOR LOCK SWITCH, INSPECTION, Door Lock Control System.>

11.CHECK IGNITION SWITCH ILLUMINATION

Step	Check	Yes	No
1 CHECK FUSE. Remove and visually check the fuse No. 14 (in the main fuse box).	Is the fuse blown out?	Replace the fuse with a new part.	Go to step 2.
2 CHECK POWER SUPPLY. 1) Disconnect the ignition switch illumination harness connector. 2) Measure the voltage between harness connector terminal and chassis ground. Connector & terminal (B224) No. 2 (+) — Chassis ground (–):	Is the voltage 10 V or more?	Go to step 3.	Check the harness for open circuits and shorts between the ignition switch illumination and fuse.
3 CHECK IGNITION SWITCH ILLUMINATION CIRCUIT. 1) Disconnect the harness connector of body integrated unit and ignition switch illumination harness connector. 2) Measure the resistance between body integrated unit harness connector terminal and ignition switch illumination harness connector terminal. Connector & terminal (B281) No. 23 — (B224) No. 1:	Is the resistance less than 10 Ω ?	Replace the ignition switch illumination bulb with a new bulb. <Ref. to LI-38, REMOVAL, Ignition Switch Illumination.>	Check the harness for open circuits and shorts between the body integrated unit and ignition switch illumination.