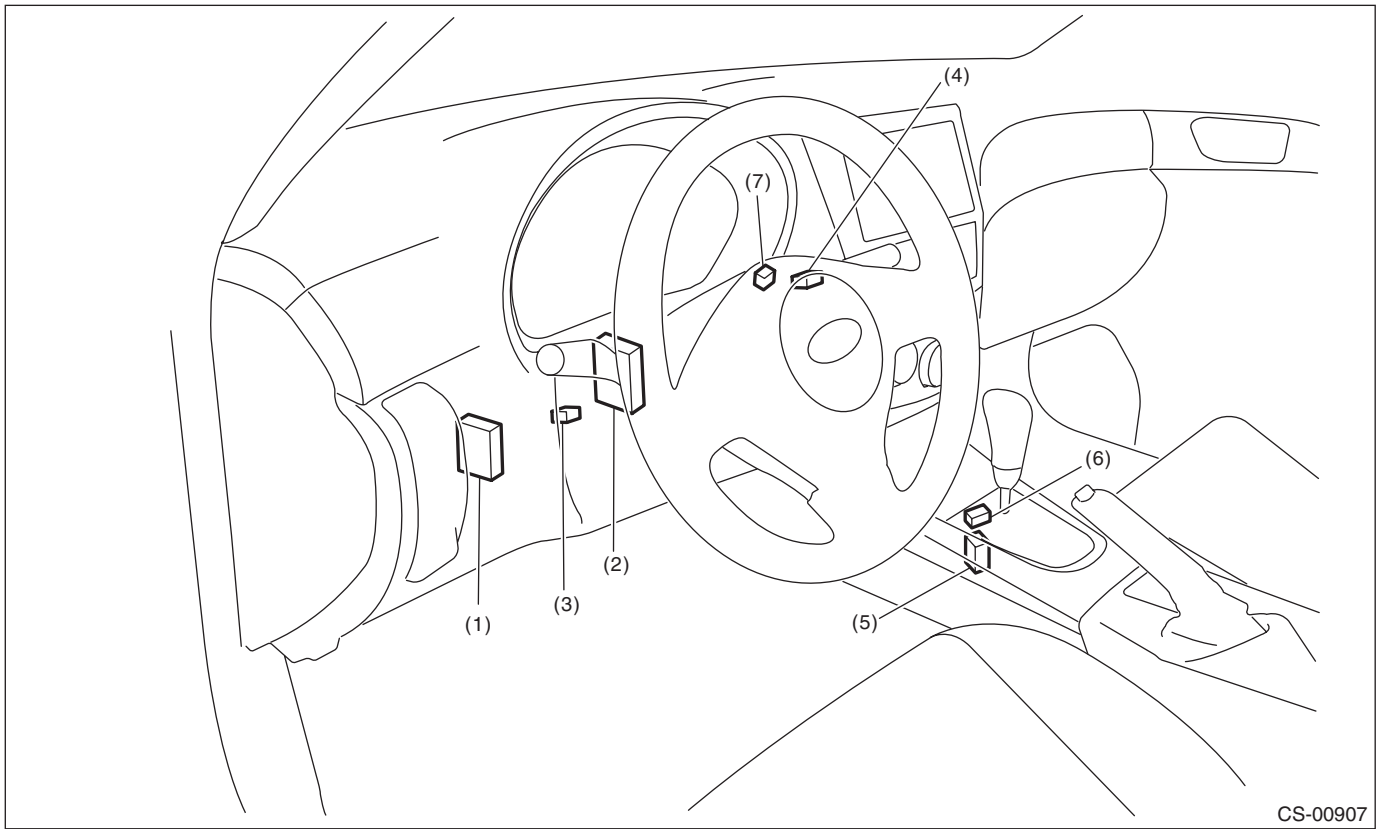
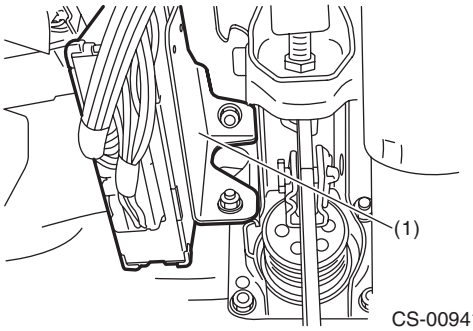
2. AT Shift Lock Control System

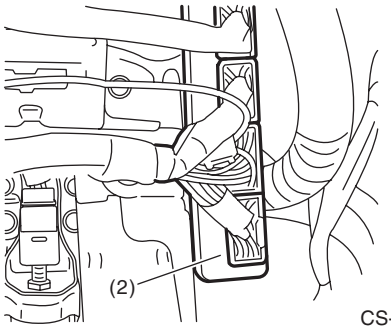
A: LOCATION



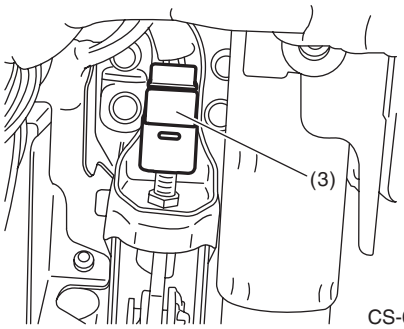
(1) TCM (“P” range)
(2) Body integrated unit
(3) Stop light and brake switch
(4) Key cylinder (with built-in key warning switch)
(5) Shift lock solenoid ASSY
(6) “P” range switch
(7) Key lock solenoid



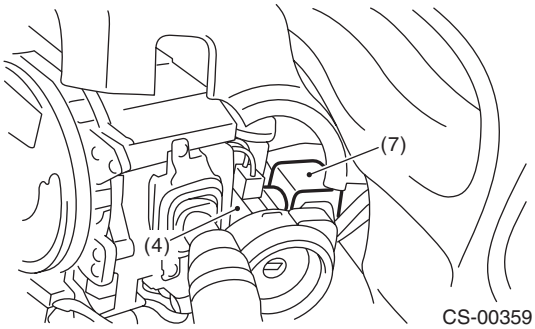
CS-00941



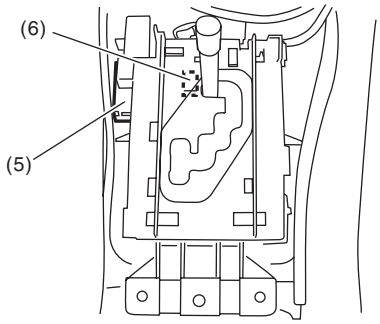
CS-00945



CS-00943

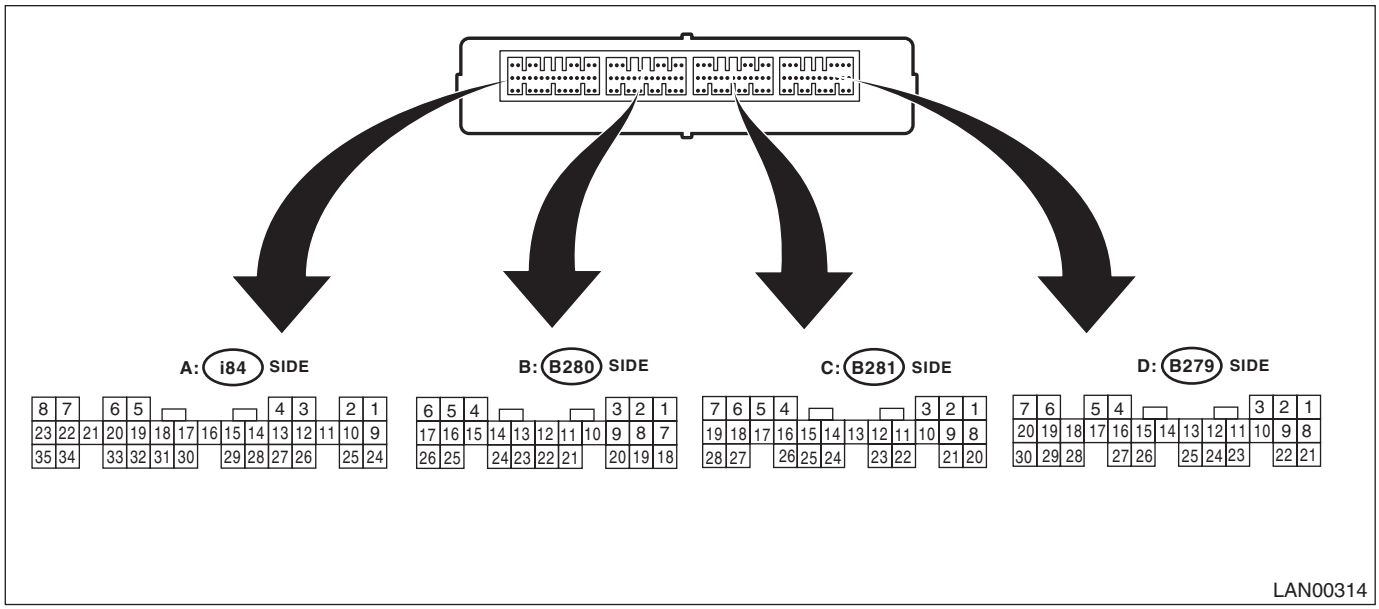


CS-00359



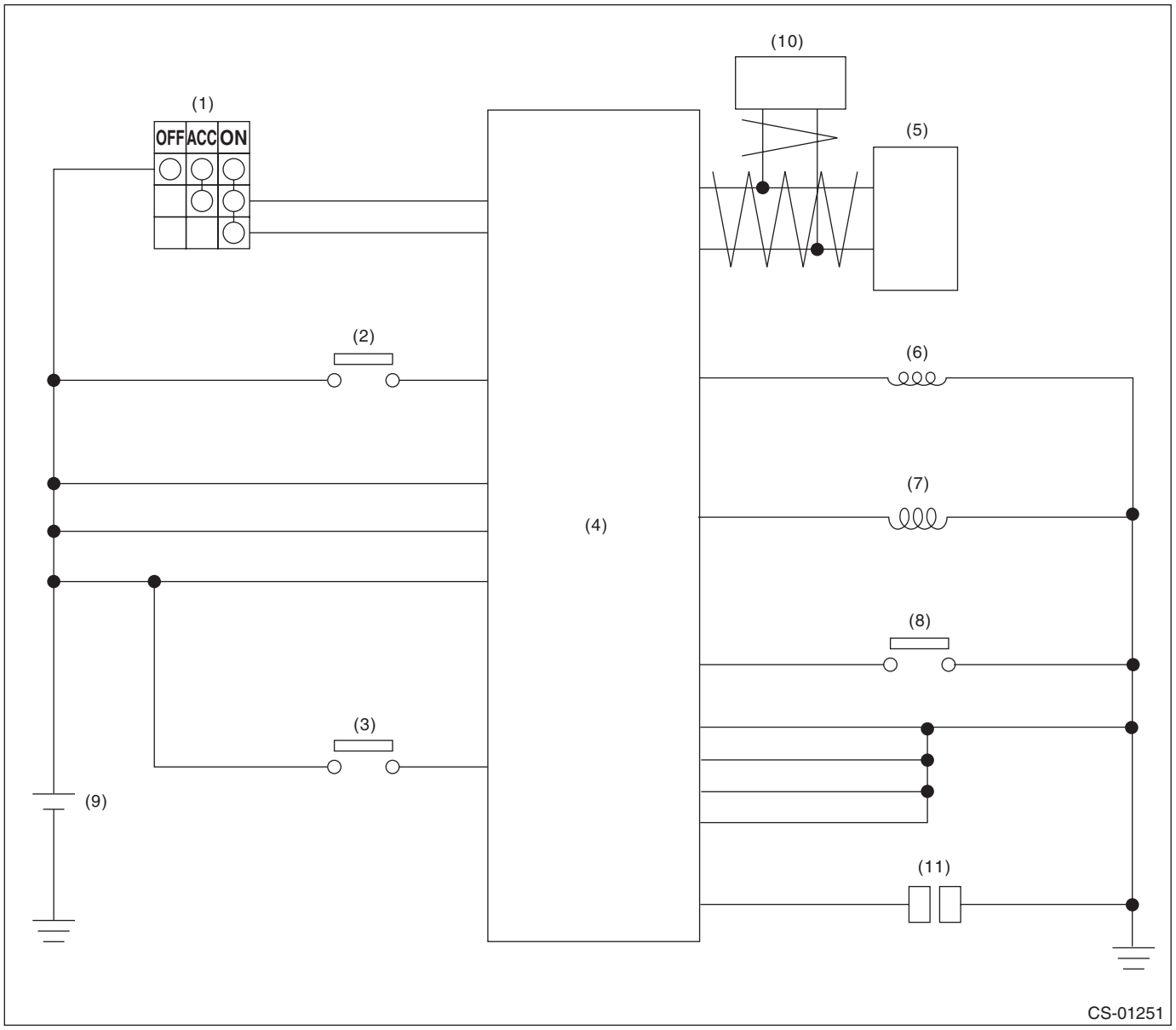
CS-01181

B: ELECTRICAL SPECIFICATION



Item	Connector No.	Terminal No.	Input/Output signal Measured value and measuring conditions
Battery power supply	B279	22	9 — 16 V
	B280	6	
	B281	2	
Ignition power supply	B280	1	10 — 15 V when ignition switch is at ON or START.
		7	10 — 15 V when ignition switch is at ACC.
TCM (“P” range)	B280	3	Pulse signal
		9	
Stop light and brake switch	B280	2	9 — 16 V when the stop light & brake switch is ON. 0 V when the stop light & brake switch is OFF.
“P” range switch	B281	4	0 V when select lever is in “P” range. 9 — 16 V when select lever is in other positions than “P” range.
Shift lock solenoid signal	B279	12	8.5 — 16 V when shift lock is released. 0 V when shift lock is operating.
Key warning switch signal	B279	2	9 — 16 V when key is inserted. 0 V when key is removed.
Key lock solenoid signal	B279	11	7.5 — 16 V when ignition switch is turned ON, with select lever in “P” range and brake switch ON. 0 V at other conditions than above.
Ground	i84	28	—
	B280	17	
	B281	20	
	B279	27	
Delivery (test) mode connector	i84	17	When the delivery (test) mode connector is disconnected: 9 — 16 V When the delivery (test) mode connector is connected: 0 V

C: WIRING DIAGRAM



(1) Ignition switch
(2) Stop light and brake switch
(3) Key warning switch
(4) Body integrated unit
(5) TCM (shift range information)
(6) Key lock solenoid
(7) Shift lock solenoid
(8) “P” range switch
(9) Battery
(10) VDC/ABS CM&H/U (vehicle speed information)
(11) Delivery (test) mode connector

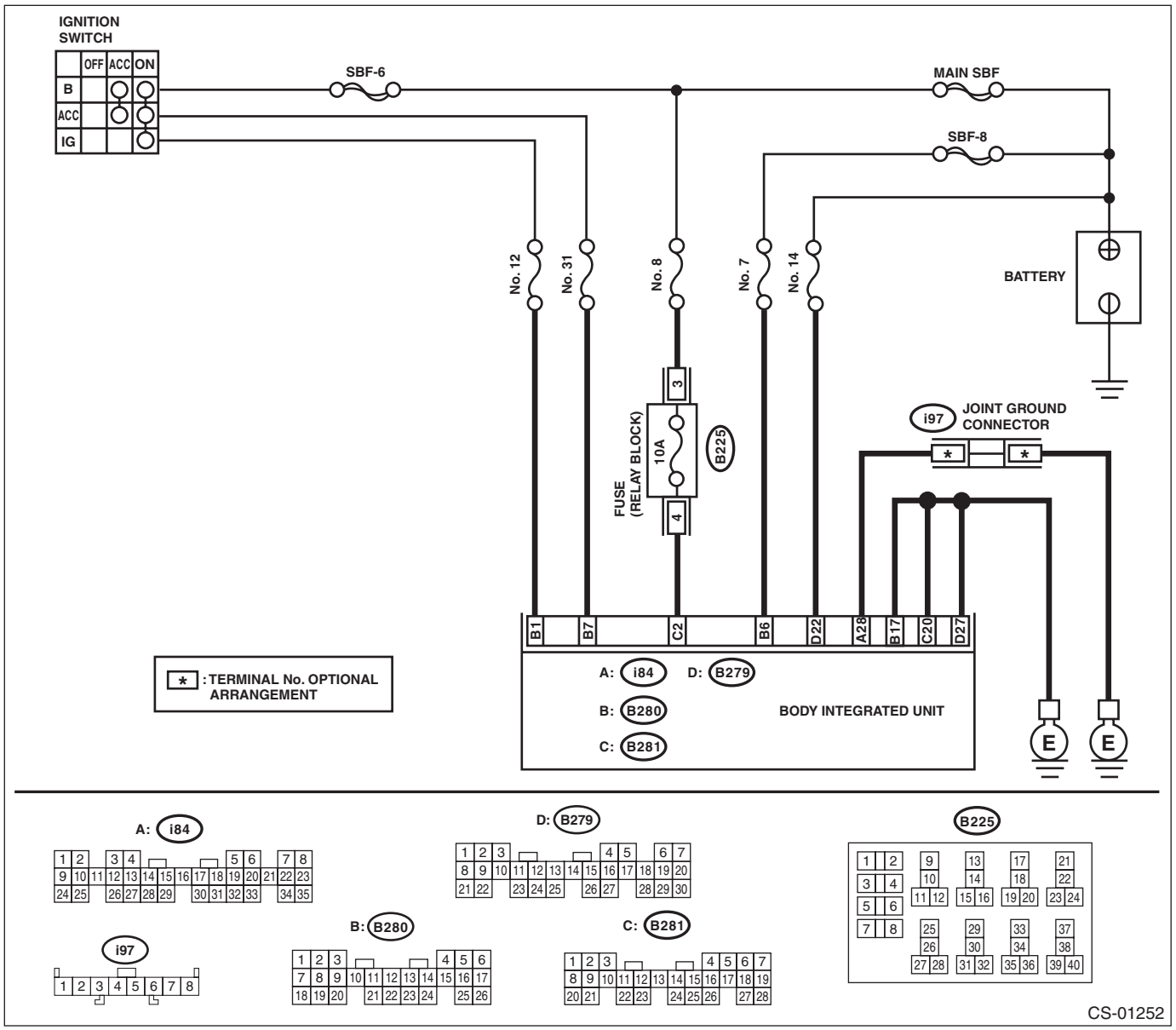
D: INSPECTION

1. SHIFT LOCK OPERATION

	Step	Check	Yes	No
1	**CHECK COMMUNICATION OF SUBARU SELECT MONITOR.** 1) Turn the ignition switch to ON. 2) Using the Subaru Select Monitor, check whether communication to all systems can be executed normally.	Is the system name displayed?	Go to step **2**.	Perform the inspection following the diagnostic procedure in the LAN section. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>
2	**CHECK SHIFT LOCK.** 1) Turn the ignition switch to ON. 2) Shift the select lever to “P” range.	While brake pedal is not depressed, is it possible to move the select lever from the “P” range to other ranges?	Perform the inspection of “SELECT LEVER CANNOT BE LOCKED OR RELEASED”. <Ref. to CS-14, SELECT LEVER CANNOT BE LOCKED OR RELEASED, INSPECTION, AT Shift Lock Control System.>	Go to step **3**.
3	**CHECK SHIFT LOCK.**	While brake pedal is depressed, is it possible to move the select lever from the “P” range to other ranges?	Go to step **4**.	Perform the inspection of “SELECT LEVER CANNOT BE LOCKED OR RELEASED”. <Ref. to CS-14, SELECT LEVER CANNOT BE LOCKED OR RELEASED, INSPECTION, AT Shift Lock Control System.>
4	**CHECK SHIFT LOCK.** Shift the select lever to “N” range.	Is it possible to move the select lever from the “N” range to the “P” range?	Go to step **5**.	Perform the inspection of “SELECT LEVER CANNOT BE LOCKED OR RELEASED”. <Ref. to CS-14, SELECT LEVER CANNOT BE LOCKED OR RELEASED, INSPECTION, AT Shift Lock Control System.>

Step		Check	Yes	No
5	**CHECK SHIFT LOCK.** 1) Shift the select lever to “N” range. 2) Turn the ignition switch to OFF.	While brake pedal is depressed, is it possible to move the select lever from the “N” range to the “P” range?	Go to step **6**.	Perform the inspection of “SELECT LEVER CANNOT BE LOCKED OR RELEASED”. <Ref. to CS-14, SELECT LEVER CANNOT BE LOCKED OR RELEASED, INSPECTION, AT Shift Lock Control System.>
6	**CHECK KEY INTERLOCK.** 1) Turn the ignition switch to OFF. 2) Shift the select lever to other than “P” range.	Can the ignition key be removed?	Perform the inspection of “KEY INTERLOCK CANNOT BE LOCKED OR RELEASED”. <Ref. to CS-17, KEY INTERLOCK CANNOT BE LOCKED OR RELEASED, INSPECTION, AT Shift Lock Control System.>	Go to step **7**.
7	**CHECK KEY INTERLOCK.** Shift the select lever to “P” range.	Can the ignition key be removed?	AT shift lock system is normal.	Perform the inspection of “KEY INTERLOCK CANNOT BE LOCKED OR RELEASED”. <Ref. to CS-17, KEY INTERLOCK CANNOT BE LOCKED OR RELEASED, INSPECTION, AT Shift Lock Control System.>

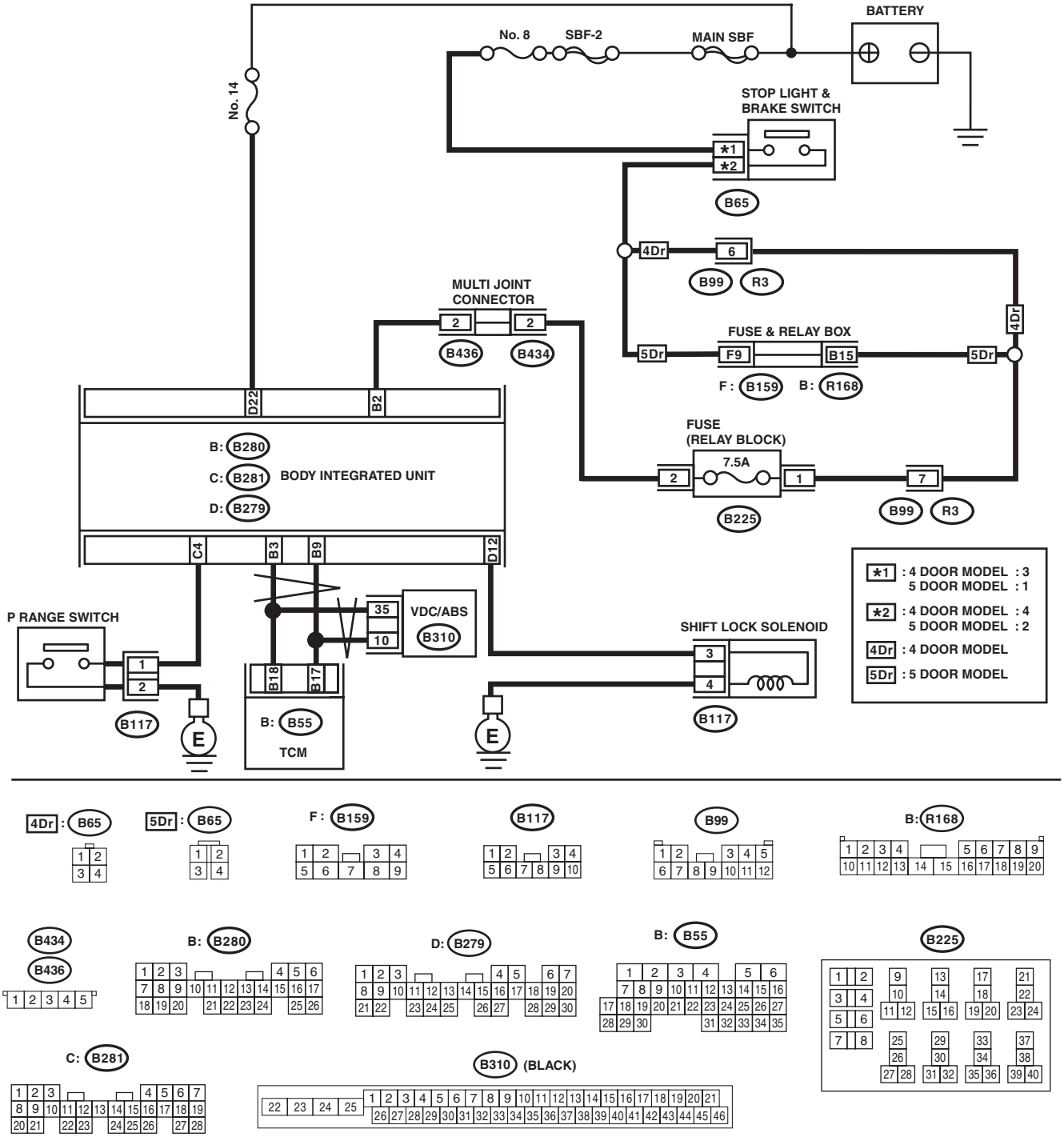
2. BODY INTEGRATED UNIT POWER SUPPLY AND GROUND CIRCUIT



Step		Check	Yes	No
1	**CHECK DTC OF BODY INTEGRATED UNIT.** Check DTC of body integrated unit. <Ref. to LAN(diag)-15, OPERATION, Subaru Select Monitor.>	Is the DTC of power line displayed on body integrated unit?	Repair or replace it according to the DTC.	Go to step **2**.
2	**CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND CHASSIS GROUND.** 1) Turn the ignition switch to ON. 2) Measure the voltage between body integrated unit and chassis ground. ***Connector & terminal*** ***(B280) No. 1 (+) — Chassis ground (–):*** ***(B280) No. 6 (+) — Chassis ground (–):*** ***(B280) No. 7 (+) — Chassis ground (–):*** ***(B279) No. 22 (+) — Chassis ground (–):*** ***(B281) No. 2 (+) — Chassis ground (–):***	Is the voltage 9 — 16 V?	Go to step **3**.	Check harness for open circuit between the body integrated unit and the battery or a blown fuse.

	Step	Check	Yes	No
3	**CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND CHASSIS GROUND.** 1) Turn the ignition switch to OFF. 2) Measure the harness resistance between the body integrated unit and chassis ground. ***Connector & terminal*** ***(i84) No. 28 — Chassis ground:*** ***(B279) No. 27 — Chassis ground:*** ***(B280) No. 17 — Chassis ground:*** ***(B281) No. 20 — Chassis ground:***	Is the resistance less than 1 Ω?	Go to step **4**.	Repair the open circuit of harness between the body integrated unit and chassis ground.
4	**CHECK FOR POOR CONTACT.**	Is there poor contact of connector?	Repair the poor contact.	Check body integrated unit.

3. SELECT LEVER CANNOT BE LOCKED OR RELEASED



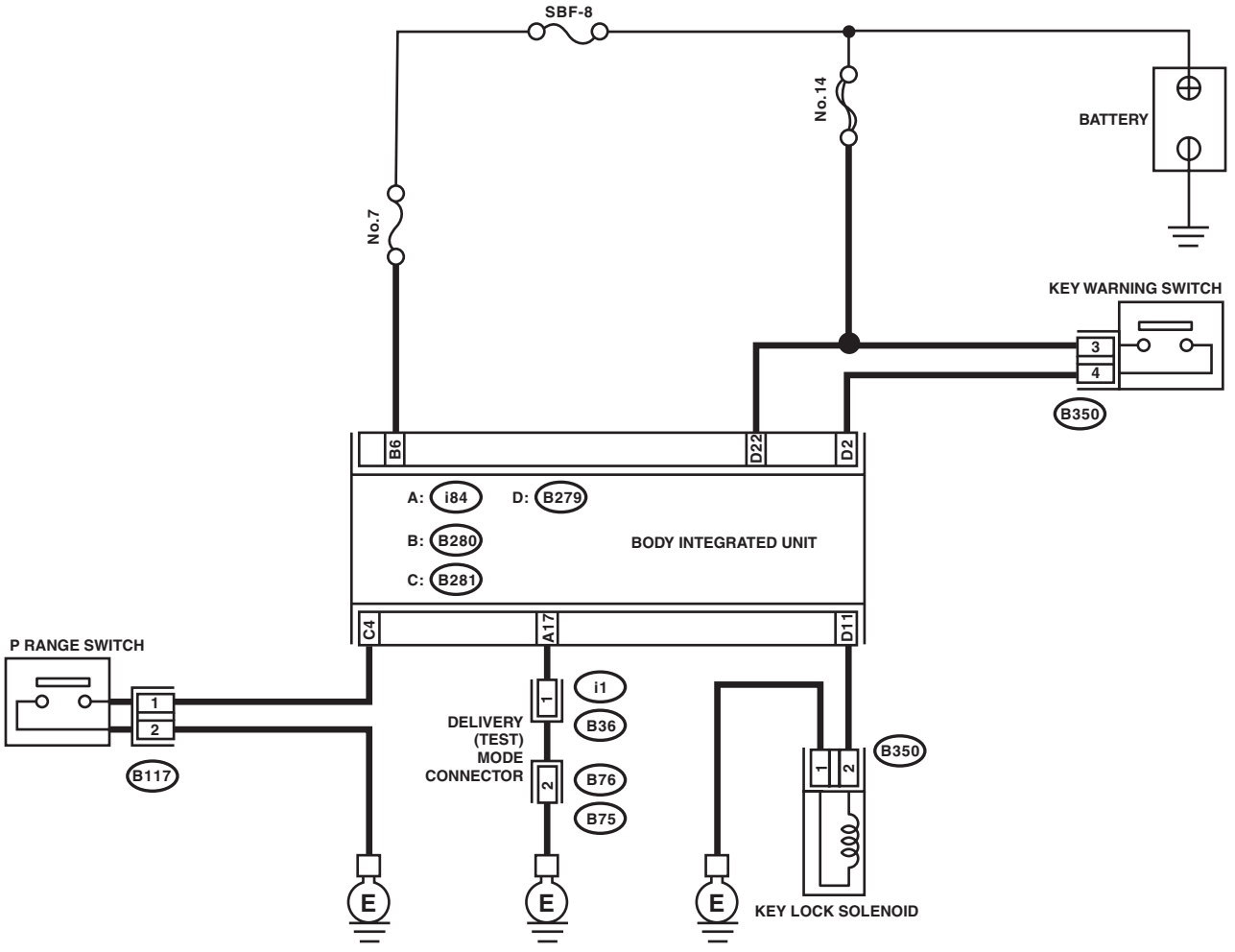
CS-01253

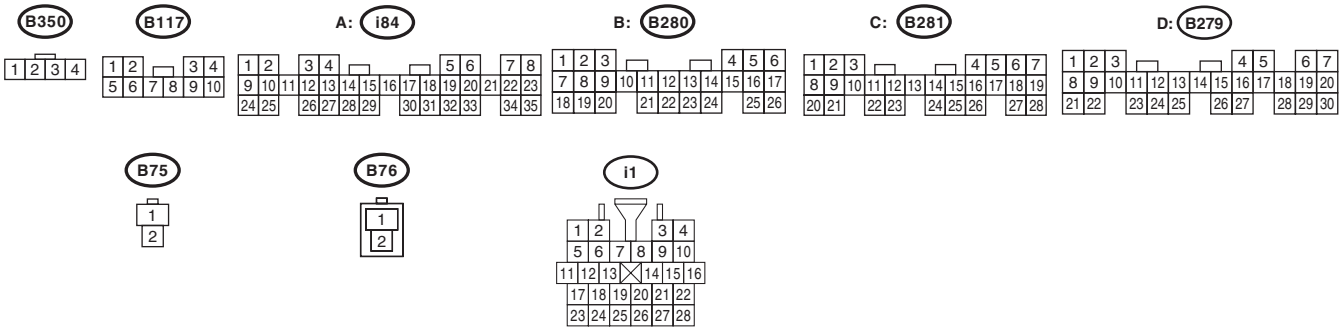
Step		Check	Yes	No
1	**CHECK BODY INTEGRATED UNIT POWER SUPPLY AND GROUND CIRCUIT.** <Ref. to CS-12, BODY INTEGRATED UNIT POWER SUPPLY AND GROUND CIRCUIT, INSPECTION, AT Shift Lock Control System.>	Is there any fault?	Follow the procedures to perform inspection and repair.	Go to step **2**.

	Step	Check	Yes	No
2	**CHECK CURRENT DATA.** 1) Connect the Subaru Select Monitor. 2) Shift the select lever to "P" range. 3) Turn the ignition switch to ON. 4) Select the current data display and display «P SW». <Ref. to LAN(diag)-15, OPERATION, Subaru Select Monitor.>	Is the display "ON" in the "P" range and "OFF" in ranges other than "P"?	Go to step **3**.	Go to step **8**.
3	**CHECK CURRENT DATA.** Select the current data display and display «Stop Light Switch». <Ref. to LAN(diag)-15, OPERATION, Subaru Select Monitor.>	Is "ON" displayed when the brake pedal is depressed and "OFF" displayed when the brake pedal is released?	Go to step **4**.	Go to step **11**.
4	**CHECK BODY INTEGRATED UNIT DTC.** Check the DTC of the body integrated unit when the brake pedal is pressed and when it is released. (Hold each condition for 5 seconds or more.)	Is there a DTC of a current malfunction?	Follow the DTC to perform inspection and repair.	Go to step **5**.
5	**CHECK CURRENT DATA.** Select the current data display and display «Shift Lock Solenoid». <Ref. to LAN(diag)-15, OPERATION, Subaru Select Monitor.>	Is "ON" displayed when the brake pedal is depressed and "OFF" displayed when the brake pedal is released?	Go to step **6**.	Replace the body integrated unit.
6	**CHECK CURRENT DATA.** Select the current data display and display «Shift Position». <Ref. to LAN(diag)-15, OPERATION, Subaru Select Monitor.>	Is the display "7" in the "P" range and other than "7" in ranges other than "P"?	Go to step **7**.	Check the following items. • Inhibitor switch • Harness between inhibitor switch and TCM • TCM input signal • TCM CAN communication • Body integrated unit CAN receive
7	**CHECK CURRENT DATA.** 1) Select the current data display and display «Front Wheel Speed». <Ref. to LAN(diag)-15, OPERATION, Subaru Select Monitor.> 2) Start the engine. 3) Raise vehicle speed gradually up to approximately 20 km/h.	Is a figure equivalent to the speedometer being indicated?	Go to step **12**.	Check the following items. • Wheel speed sensor • VDC/ABS CAN communication • Body integrated unit CAN receive Replace the wheel speed sensor, VDC/ABS, or body integrated unit, or both.
8	**CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND "P" RANGE SWITCH.** 1) Disconnect the connector from body integrated unit. 2) Disconnect the connector of "P" range switch. 3) Check for open circuit of harness, short circuit to battery or short circuit to ground between the body integrated unit and "P" range switch. ***Connector & terminal*** ***(B281) No. 4 — (B117) No. 1:***	Is the harness normal?	Repair or replace the harness between the body integrated unit and the "P" range switch.	Go to step **9**.

	Step	Check	Yes	No
9	**CHECK HARNESS BETWEEN "P" RANGE SWITCH AND CHASSIS GROUND.** Measure the resistance of harness between "P" range switch and chassis ground. ***Connector & terminal*** ***(B117) No. 2 — Chassis ground:***	Is it less than 10 Ω?	Go to step **10**.	Repair the harness between the "P" range switch and chassis ground.
10	**CHECK "P" RANGE SWITCH.** Measure the resistance between "P" range switch connector terminals. ***Terminals*** ***No. 2 — No. 1:***	Is it less than 10 Ω in the "P" range, and 1 MΩ or more in ranges other than "P"?	Replace the body integrated unit.	Replace the "P" range switch.
11	**CHECK STOP LIGHT SWITCH INPUT SIGNAL.** 1) Disconnect the connector from body integrated unit. 2) Measure the voltage between the body integrated unit connector terminal and chassis ground. ***Connector & terminal*** ***(B280) No. 2 (+) — Chassis ground (–):***	Is the voltage 9 V to 16 V when the brake pedal is depressed, and approx. 0 V when not depressed?	Replace the body integrated unit.	Check the stop light system.
12	**CHECK SHIFT LOCK SOLENOID OPERATION.** Connect the battery to the shift lock solenoid unit connector terminal, and operate the solenoid. ***Terminals*** ***No. 3 (+) — No. 4 (–):***	Does the shift lock solenoid operate normally?	Check the lock mechanism of the select lever body.	Replace the shift lock solenoid.

4. KEY INTERLOCK CANNOT BE LOCKED OR RELEASED





CS-01028

Step		Check	Yes	No
1	**CHECK DELIVERY (TEST) MODE CONNECTOR.** Check that the delivery (test) mode connector is disconnected.	Is the delivery (test) mode connector disconnected?	Go to step **2**.	Disconnect the delivery (test) mode connector.

	Step	Check	Yes	No
2	**CHECK BODY INTEGRATED UNIT POWER SUPPLY AND GROUND CIRCUIT.** <Ref. to CS-12, BODY INTEGRATED UNIT POWER SUPPLY AND GROUND CIRCUIT, INSPECTION, AT Shift Lock Control System.>	Is there any fault?	Follow the procedures to inspect and repair.	Go to step **3**.
3	**CHECK CURRENT DATA.** 1) Connect the Subaru Select Monitor. 2) Shift the select lever to "P" range. 3) Turn the ignition switch to ON. 4) Select the current data display and display «P SW». <Ref. to LAN(diag)-15, OPERATION, Subaru Select Monitor.>	Is the display "ON" in the "P" range and "OFF" in ranges other than "P"?	Go to step **4**.	Go to step **7**.
4	**CHECK CURRENT DATA.** 1) Select the current data display and display the «Key-lock warning SW». <Ref. to LAN(diag)-15, OPERATION, Subaru Select Monitor.> 2) Turn the ignition switch to OFF.	Does the display change from "ON" to "OFF" when the key is inserted and removed?	Go to step **5**.	Go to step **10**.
5	**CHECK CURRENT DATA.** 1) Turn the ignition switch to ON. 2) Select the current data display and display «Key locking output». <Ref. to LAN(diag)-15, OPERATION, Subaru Select Monitor.>	Is the display "ON" in the "P" range and "OFF" in ranges other than "P"?	Go to step **12**.	Go to step **6**.
6	**CHECK DTC OF BODY INTEGRATED UNIT.** 1) Set the select lever to other than "P" range. 2) Check DTC of body integrated unit.	Is B1105 (key interlock circuit malfunction) a current malfunction?	Follow the DTC to perform inspection and repair.	Go to step **12**.
7	**CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND "P" RANGE SWITCH.** 1) Disconnect the connector from body integrated unit. 2) Disconnect the connector of "P" range switch. 3) Check for open circuit of harness, short circuit to battery or short circuit to ground between the body integrated unit and "P" range switch. ***Connector & terminal*** ***(B281) No. 4 — (B117) No. 1:***	Is the harness normal?	Repair or replace the harness between the body integrated unit and the "P" range switch.	Go to step **8**.
8	**CHECK HARNESS BETWEEN "P" RANGE SWITCH AND CHASSIS GROUND.** Measure the resistance of harness between "P" range switch and chassis ground. ***Connector & terminal*** ***(B117) No. 2 — Chassis ground:***	Is it less than 10 Ω?	Go to step **9**.	Repair the harness between the "P" range switch and chassis ground.
9	**CHECK "P" RANGE SWITCH.** Measure the resistance between "P" range switch connector terminals. ***Terminals*** ***No. 2 — No. 1:***	Is it less than 10 Ω in the "P" range, and 1 MΩ or more in ranges other than "P"?	Replace the body integrated unit.	Replace the "P" range switch.
10	**CHECK HARNESS BETWEEN BATTERY AND KEY WARNING SWITCH AND BODY INTEGRATED UNIT.** 1) Disconnect the connector from body integrated unit. 2) Measure the voltage between body integrated unit and chassis ground. ***Connector & terminal*** ***(B279) No. 2 (+) — Chassis ground (–):***	Is the display 9 V or more when the key is inserted, and less than 1.5 V with the key removed?	Replace the body integrated unit.	Check the following items. • Key warning switch • Harness/fuse • Ignition circuit

	Step	Check	Yes	No
11	**CHECK DELIVERY (TEST) MODE CONNECTOR HARNESS.** 1) Disconnect the connector of body integrated unit. 2) Measure the resistance between body integrated unit connector and the delivery (test) mode connector. ***Connector & terminal*** ***(i84) No. 17 — (i1) No. 1:***	Is it less than 10 Ω?	Go to step **12**.	Repair or replace the harness between the body integrated unit and delivery (test) mode connector.
12	**CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND KEY LOCK SOLENOID.** 1) Disconnect the connector from body integrated unit. 2) Disconnect the connector of key lock solenoid. 3) Check for open circuit of harness, short circuit to battery or short circuit to ground between the body integrated unit and key lock solenoid. ***Connector & terminal*** ***(B279) No. 11 — (B350) No. 2:***	Is the harness normal?	Repair or replace the harness between the body integrated unit and the key lock solenoid.	Go to step **13**.
13	**CHECK HARNESS BETWEEN KEY LOCK SOLENOID AND CHASSIS GROUND.** Measure the resistance of harness between key lock solenoid and chassis ground. ***Connector & terminal*** ***(B350) No. 1 — Chassis ground:***	Is it less than 10 Ω?	Go to step **14**.	Repair or replace the harness between the key lock solenoid and chassis ground.
14	**CHECK KEY LOCK SOLENOID OPERATION.** Connect the battery to the key lock solenoid connector terminal, and operate the solenoid. ***Terminals*** ***No. 2 (+) — No. 1 (–):***	Does the key lock solenoid operate normally?	Go to step **15**.	Replace the key lock solenoid.
15	**CHECK OUTPUT OF BODY INTEGRATED UNIT.** 1) Connect all connectors. 2) Insert the key. 3) Measure the voltage between body integrated unit and chassis ground. ***Connector & terminal*** ***(B279) No. 11 — Chassis ground:***	Is it 7.5 V to 16 V in ranges other than “P”, and 0 V in the “P” range?	Check the lock mechanism of the steering lock body.	Replace the body integrated unit.