CONTROL SYSTEMS

CS

		Page
1.	General Description	2
2.	Electrical Component	8
3.	AT Shift Lock System	10
4.	Select Lever	25
5.	Select Cable	31
6.	AT Shift Lock Solenoid and “P” Position Switch	34
7.	Integrated Module	35
8.	MT Gear Shift Lever	36
9.	General Diagnostic	42

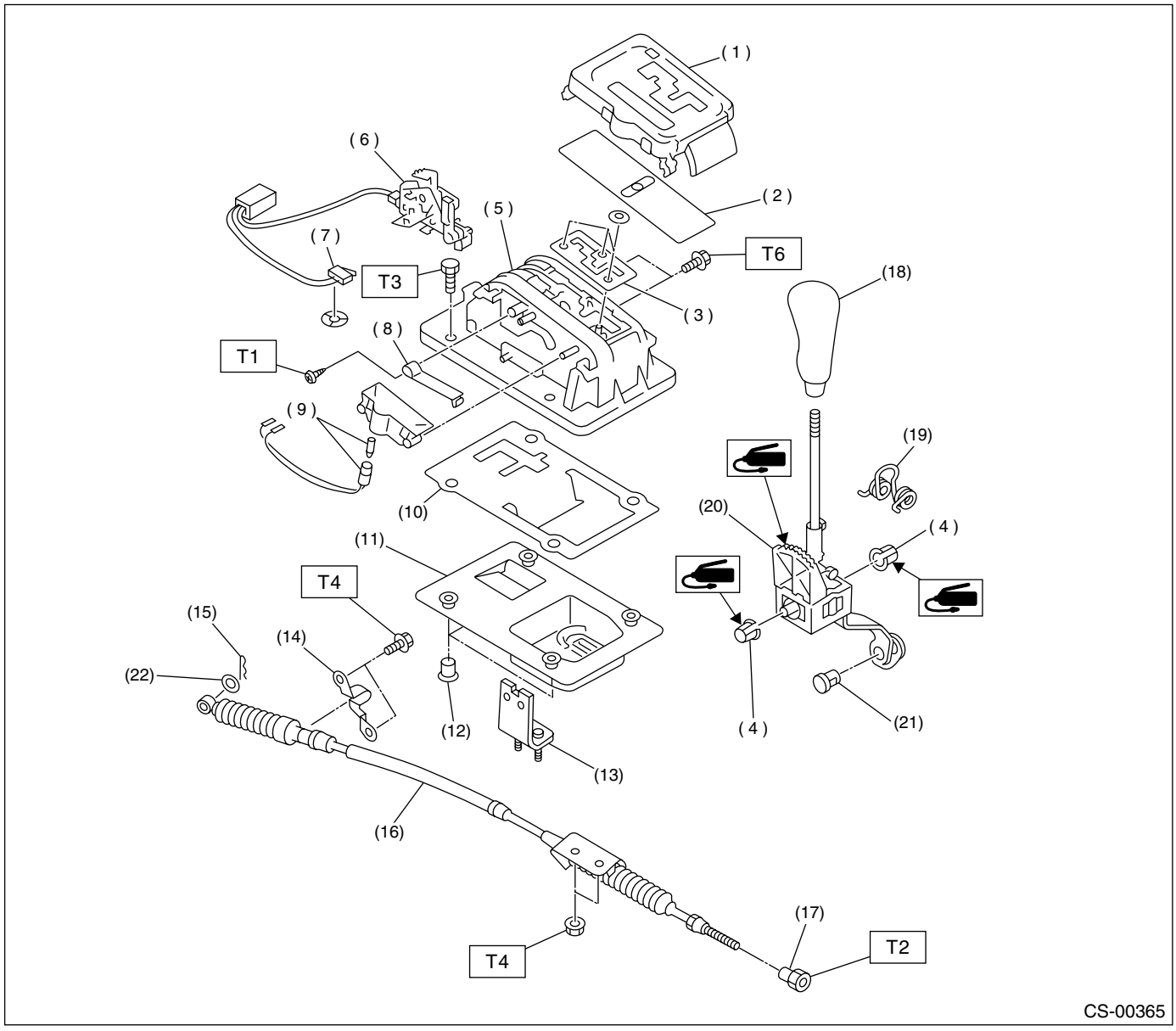
1. General Description

A: SPECIFICATIONS

Item		Specification
Swing torque of rod against MT gear shift lever	N (kgf, lb)	3.7 (0.38, 0.84) or less

B: COMPONENT

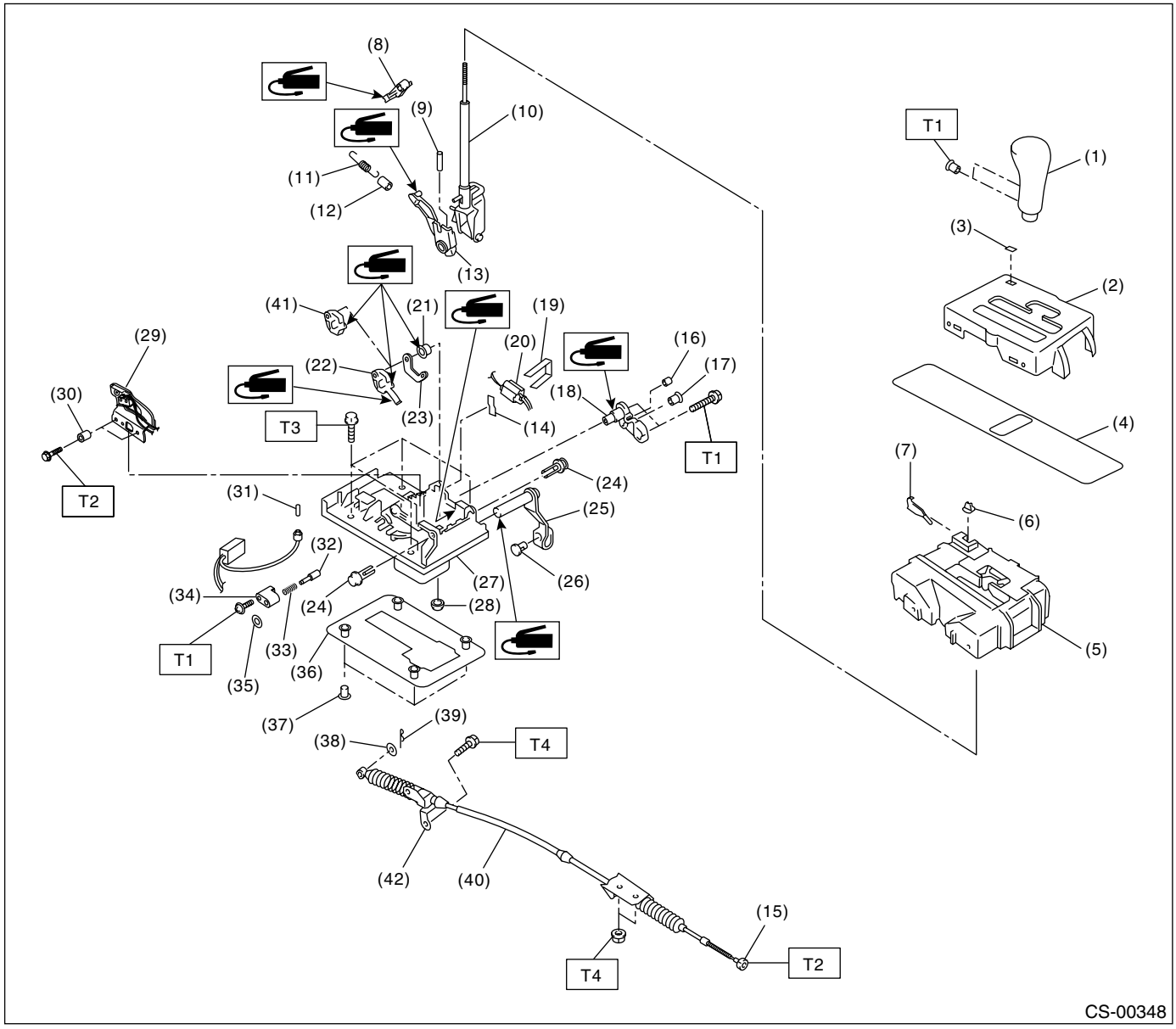
1. AT SELECT LEVER (EXCEPT SPORT SHIFT MODEL)



(1) Indicator cover
(2) Blind
(3) Cushion
(4) Bushing
(5) Plate
(6) Solenoid ASSY
(7) "P" position switch
(8) Detent spring
(9) Indicator bulb
(10) Plate
(11) Boot
(12) Spacer
(13) Cable bracket
(14) Cable clamp
(15) Snap pin
(16) Selector cable
(17) Nut A
(18) Grip
(19) Spring
(20) Select lever ASSY
(21) Bushing ASSY
(22) Washer

Tightening torque: N·m (kgf-m, ft-lb)
T1: 4.9 (0.50, 3.6)
T2: 7.5 (0.76, 5.5)
T3: 13 (1.3, 9.4)
T4: 18 (1.8, 13.0)
T5: 33 (3.4, 25)
T6: 51 (5.2, 38)

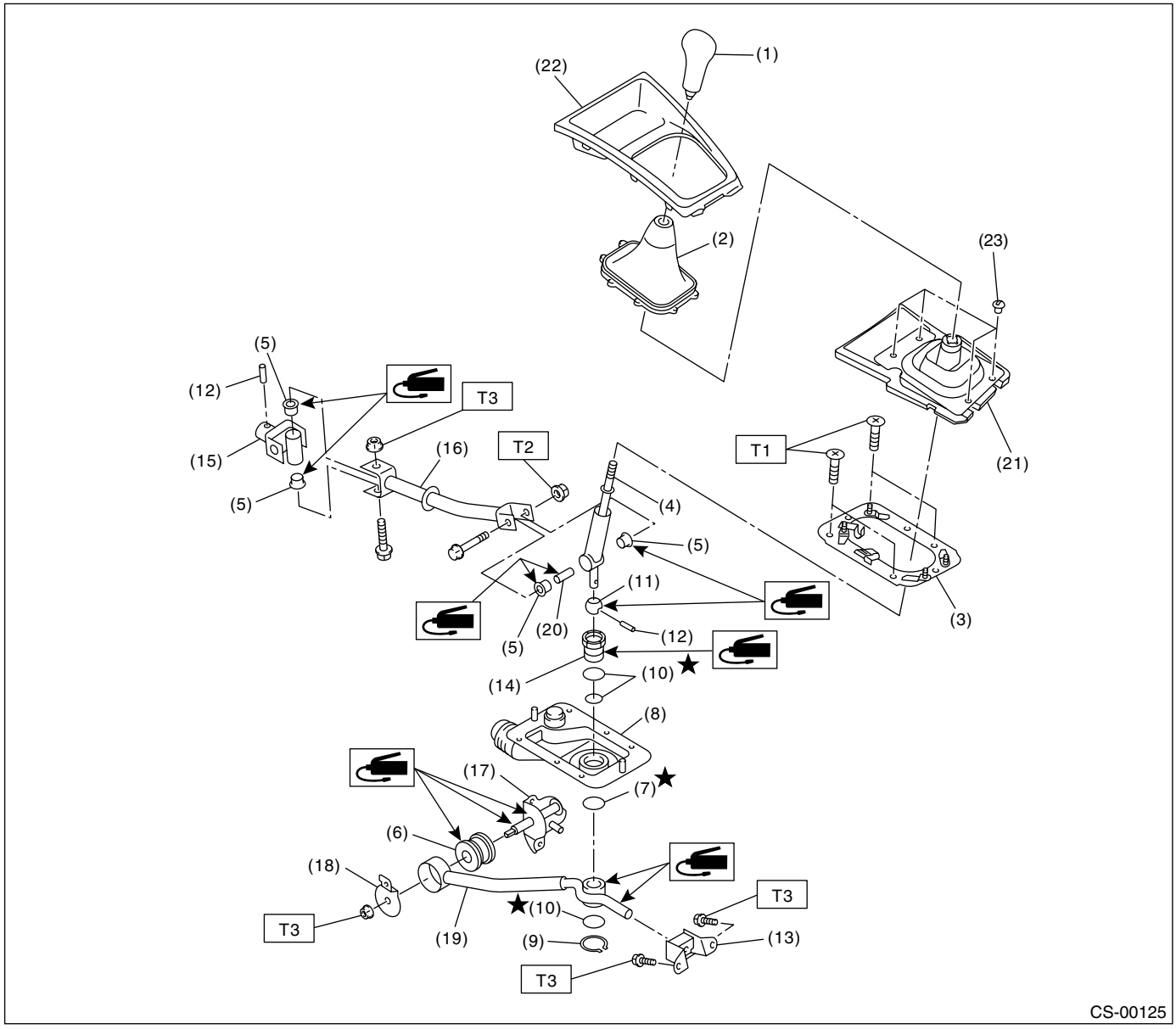
2. AT SELECT LEVER (SPORT SHIFT MODEL)



(1) Grip
(2) Indicator cover
(3) Cover
(4) Blind
(5) Guide plate
(6) Button
(7) Spring
(8) Detent arm
(9) Spring pin
(10) Lever ASSY
(11) Detent spring
(12) Tube
(13) Arm bracket
(14) Cushion
(15) Nut A
(16) Cushion
(17) Bushing
(18) Lock plate B
(19) Clamp
(20) Shift lock solenoid
(21) Bushing
(22) Lock plate A (Non-TURBO model)
(23) Lock plate C
(24) Clip
(25) Arm
(26) Bushing ASSY
(27) Base plate ASSY
(28) Grommet
(29) Bracket guide ASSY
(30) Spacer
(31) Indicator bulb
(32) Rod
(33) Spring
(34) Bushing
(35) Clip
(36) Packing
(37) Spacer
(38) Washer
(39) Snap pin
(40) Select cable
(41) Lock plate A (TURBO model)
(42) Cable lamp

Tightening torque: N·m (kgf-m, ft-lb)
T1: 2.0 (0.2, 1.4)
T2: 7.5 (0.76, 5.5)
T3: 13 (1.3, 9.4)
T4: 18 (1.8, 13.0)

3. MT GEAR SHIFT LEVER



(1) Gear shift knob
(2) Console boot
(3) Plate ASSY
(4) Lever
(5) Bushing
(6) Bushing
(7) Lock wire
(8) Boot
(9) Snap ring
(10) O-ring
(11) Bushing A
(12) Spring pin
(13) Cushion rubber
(14) Bushing B
(15) Joint
(16) Rod
(17) Bracket
(18) Washer
(19) Stay
(20) Spacer
(21) Boot and insulator ASSY
(22) Front cover
(23) Clamp

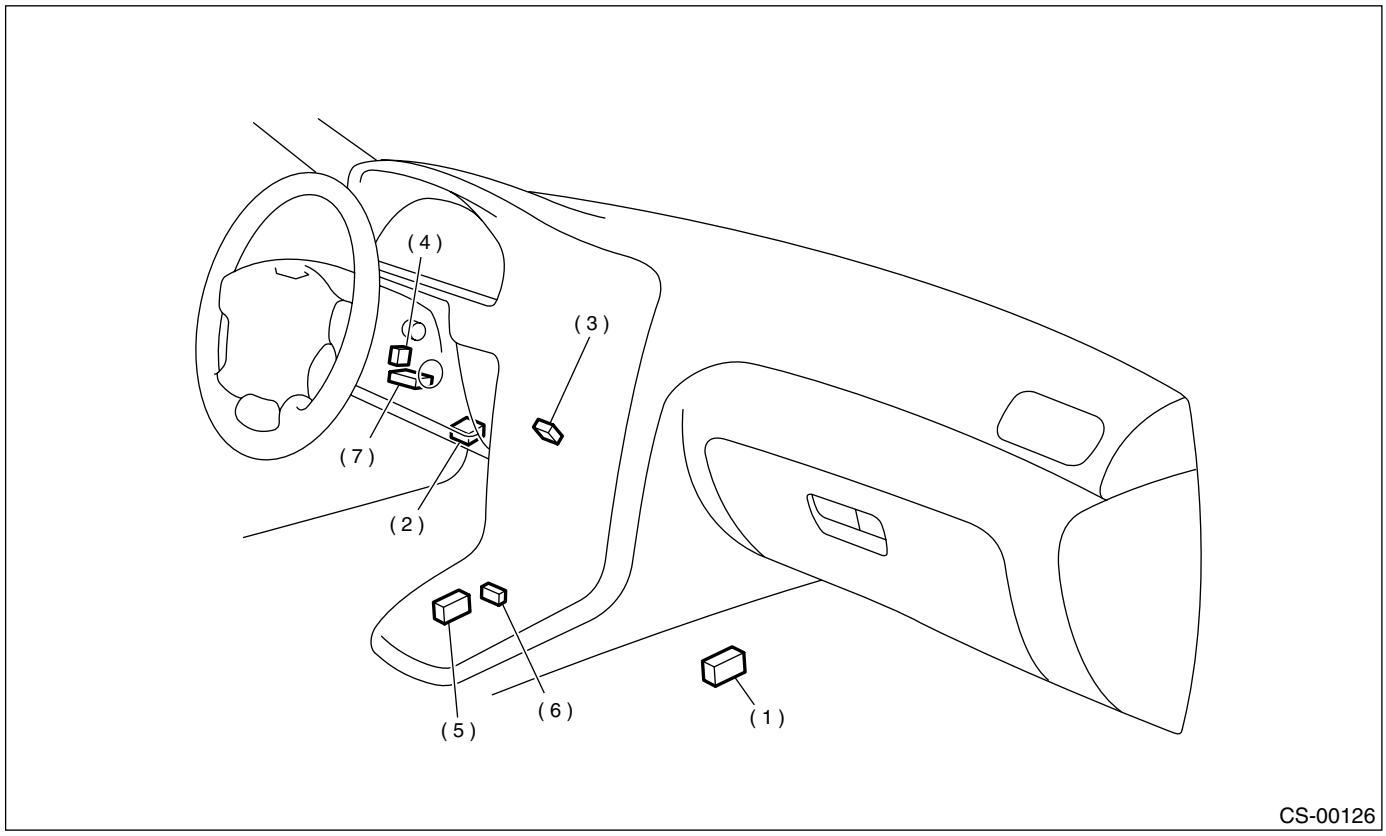
Tightening torque: N·m (kgf-m, ft-lb)
T1: 7.5 (0.76, 5.5)
T2: 12 (1.2, 8.7)
T3: 18 (1.8, 13.0)

C: CAUTION

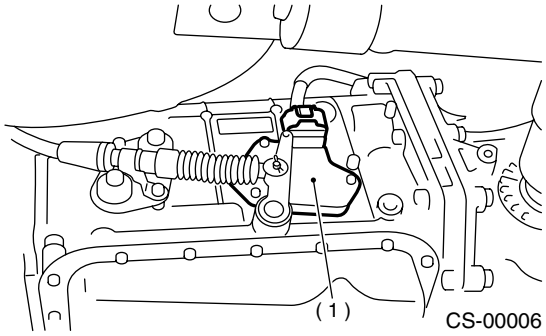
• Wear working clothing, including a cap, protective goggles, and protective shoes during operation.
• Remove contamination including dirt and corrosion before removal, installation or disassembly.
• Keep the disassembled parts in order and protect them from dust or dirt.
• Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly, and replacement.
• Use SUBARU genuine grease etc. or the equivalent. Do not mix grease etc. with that of another grade or from other manufacturers.
• Be sure to tighten fasteners including bolts and nuts to the specified torque.
• Place shop jacks or safety stands at the specified points.
• Apply grease onto sliding or revolution surfaces before installation.
• Before installing O-rings or snap rings, apply sufficient amount of grease to avoid damage and deformation.
• Before securing a part on a vise, place cushioning material such as wood blocks, aluminum plate, or shop cloth between the part and the vise.
• Before disconnecting electrical connectors, be sure to disconnect the ground cable from battery.

2. Electrical Component

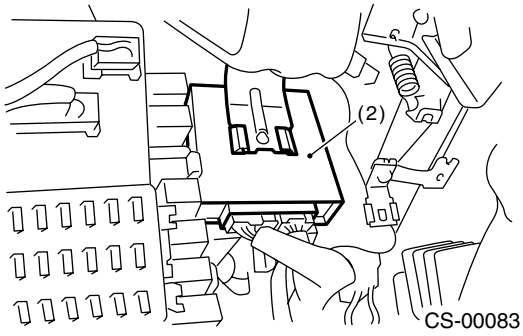
A: LOCATION



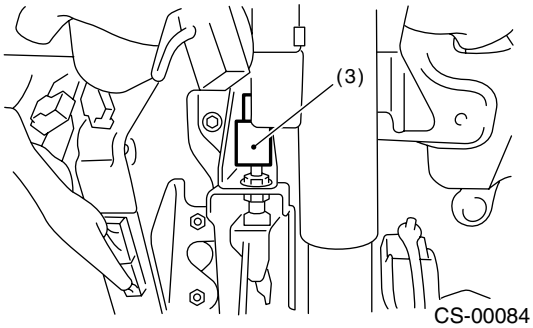
(1) Inhibitor switch
(2) Integrated module
(3) Stop light switch
(4) Key warning switch
(5) Shift lock solenoid
(6) “P” position switch
(7) Key lock solenoid



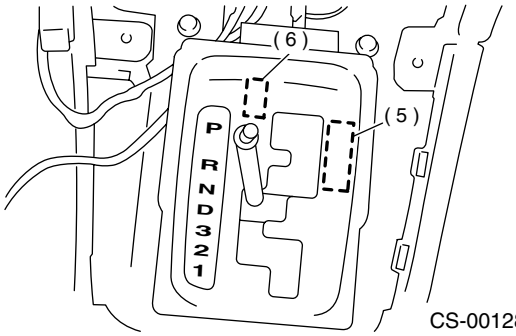
CS-00006



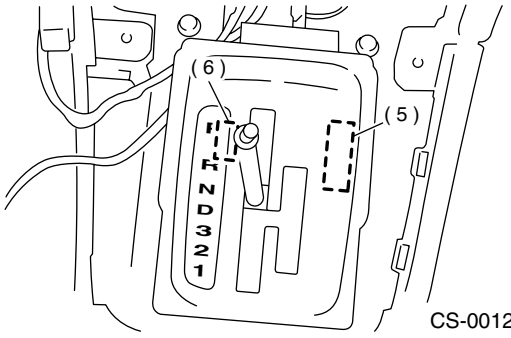
CS-00083



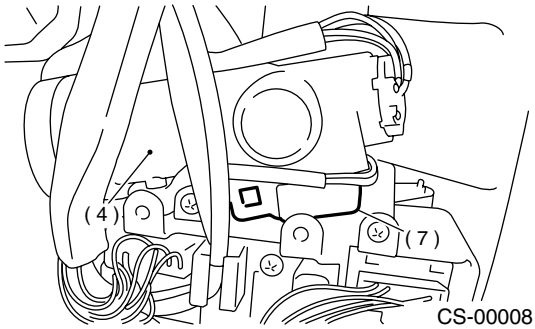
CS-00084



CS-00128



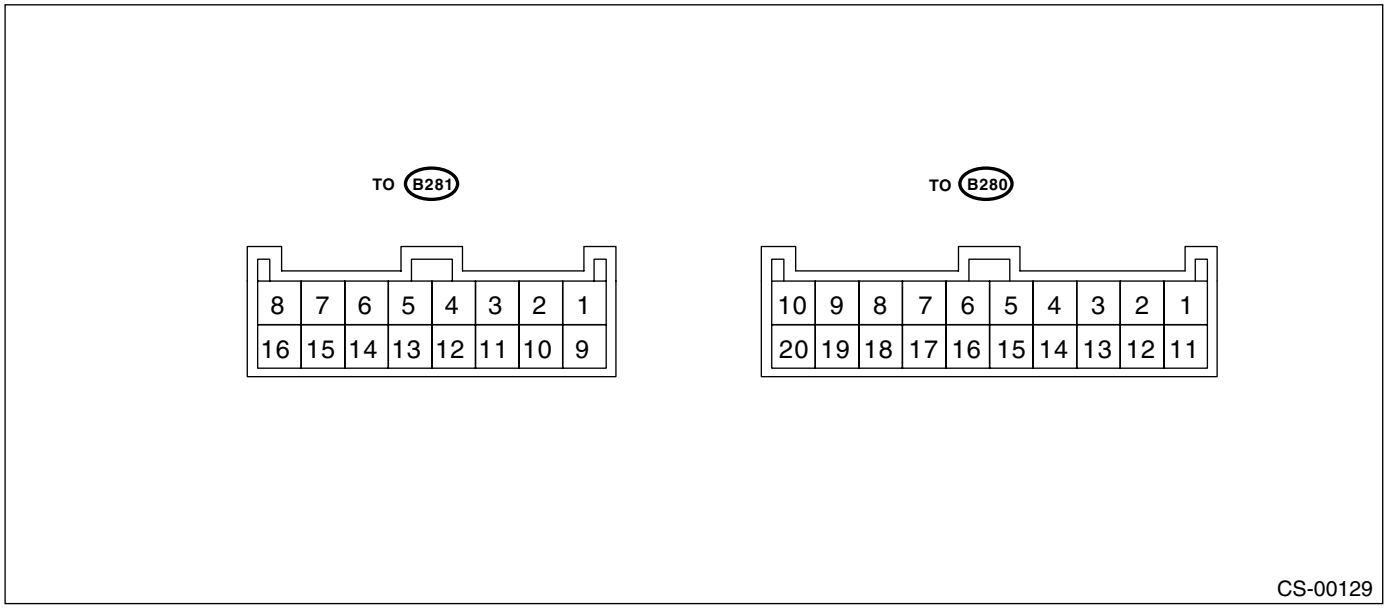
CS-00127



CS-00008

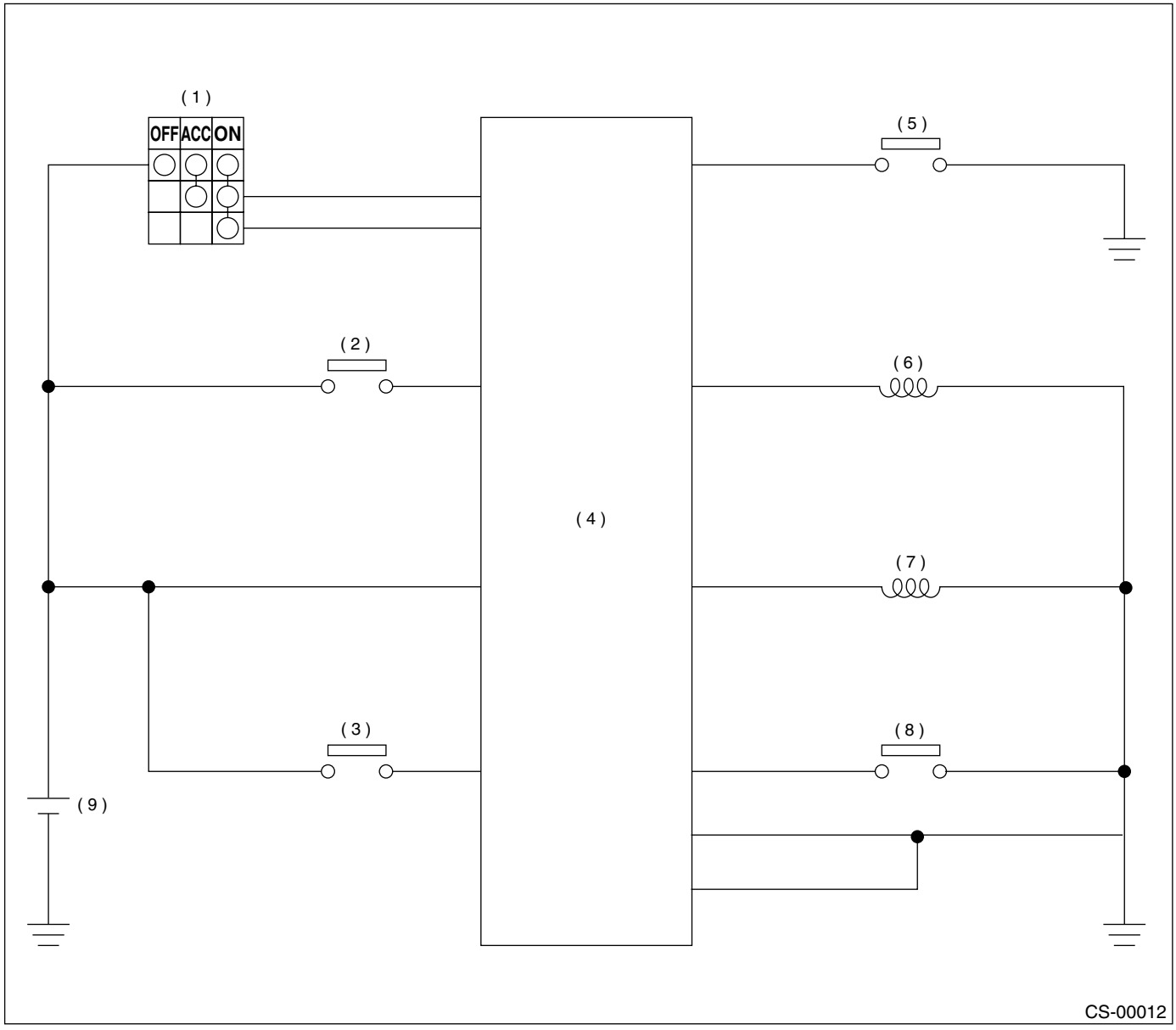
3. AT Shift Lock System

A: ELECTRICAL SPECIFICATION



Contents	To Connector No.	Terminal No.	Input/Output signal
			Measured value and measuring conditions
Battery power supply	B281	2	9 — 16 V
Ignition power supply	B280	19	10 — 15 V when ignition switch is at ON or START.
ACC power supply	B280	10	10 — 15 V when ignition switch is at ACC or ON.
Inhibitor Switch (“P” position)	B280	5	0 V when select lever is in “P” position. 9 — 16 V when select lever is in other positions than “P” position.
Stop light switch	B280	9	9 — 16 V when stop light switch is ON. 0 V when stop light switch is OFF.
“P” position switch	B280	6	0 V when select lever is in “P” position. 9 — 16 V when select lever is in other positions than “P” position.
Shift lock solenoid signal	B281	9	8.5 — 16 V when shift lock is released. 0 V when shift lock is operating.
Key warning switch signal	B280	20	9 — 16 V when key is inserted. 0 V when key is removed.
Key lock solenoid signal	B281	3	Pulse is output when switching key lock between locked and unlocked. 0 V at other conditions than above.
Ground	B281	4	—
Ground	B281	13	—

B: SCHEMATIC



(1) Ignition switch
(2) Stop light switch
(3) Key warning switch
(4) Integrated module
(5) Inhibitor switch
(6) Key lock solenoid
(7) Shift lock solenoid
(8) “P” position switch
(9) Battery

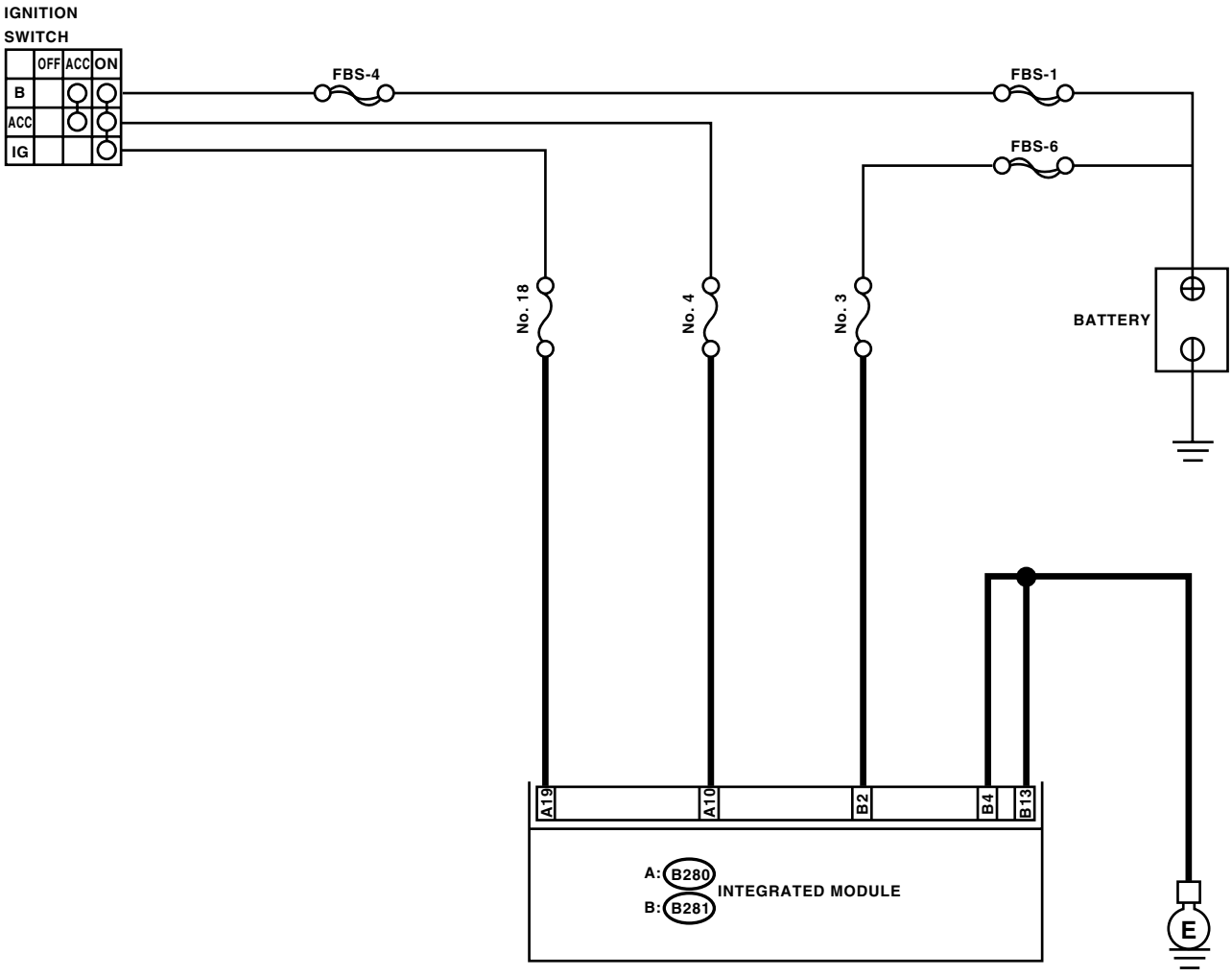
C: INSPECTION

	Step	Check	Yes	No
1	**CHECK SHIFT LOCK.** 1) Turn the ignition switch ON. 2) Move the select lever to “P” position.	While the brake pedal is depressed, can select lever move from “P” range to other positions?	Go to step **2.**	Inspect “SELECT LEVER SHIFT LOCK CANNOT BE RELEASED”. <Ref. to CS-18, SELECT LEVER SHIFT LOCK CANNOT BE RELEASED, INSPECTION, AT Shift Lock System.>
2	**CHECK SHIFT LOCK.**	While the brake pedal is not depressed, can select lever move from “P” range to other positions?	Inspect “SELECT LEVER CANNOT BE SHIFT LOCKED”. <Ref. to CS-16, SELECT LEVER CANNOT BE SHIFT LOCKED, INSPECTION, AT Shift Lock System.>	Go to step **3.**
3	**CHECK KEY INTERLOCK.**	When the select lever is in other than “P” position, does ignition switch turn to “LOCK” position?	Inspect “KEY INTERLOCK DOES NOT BE LOCKED OR RELEASED. <Ref. to CS-18, SELECT LEVER SHIFT LOCK CANNOT BE RELEASED, INSPECTION, AT Shift Lock System.>	Go to step **4.**
4	**CHECK KEY INTERLOCK.**	When the select lever is in “P” position, does ignition switch turn to “LOCK” position?	AT shift lock system is normal.	Inspect “KEY INTERLOCK DOES NOT BE LOCKED OR RELEASED. <Ref. to CS-18, SELECT LEVER SHIFT LOCK CANNOT BE RELEASED, INSPECTION, AT Shift Lock System.>

MEMO:

1. INTEGRATED MODULE POWER SUPPLY AND GROUND LINE

WIRING DIAGRAM:

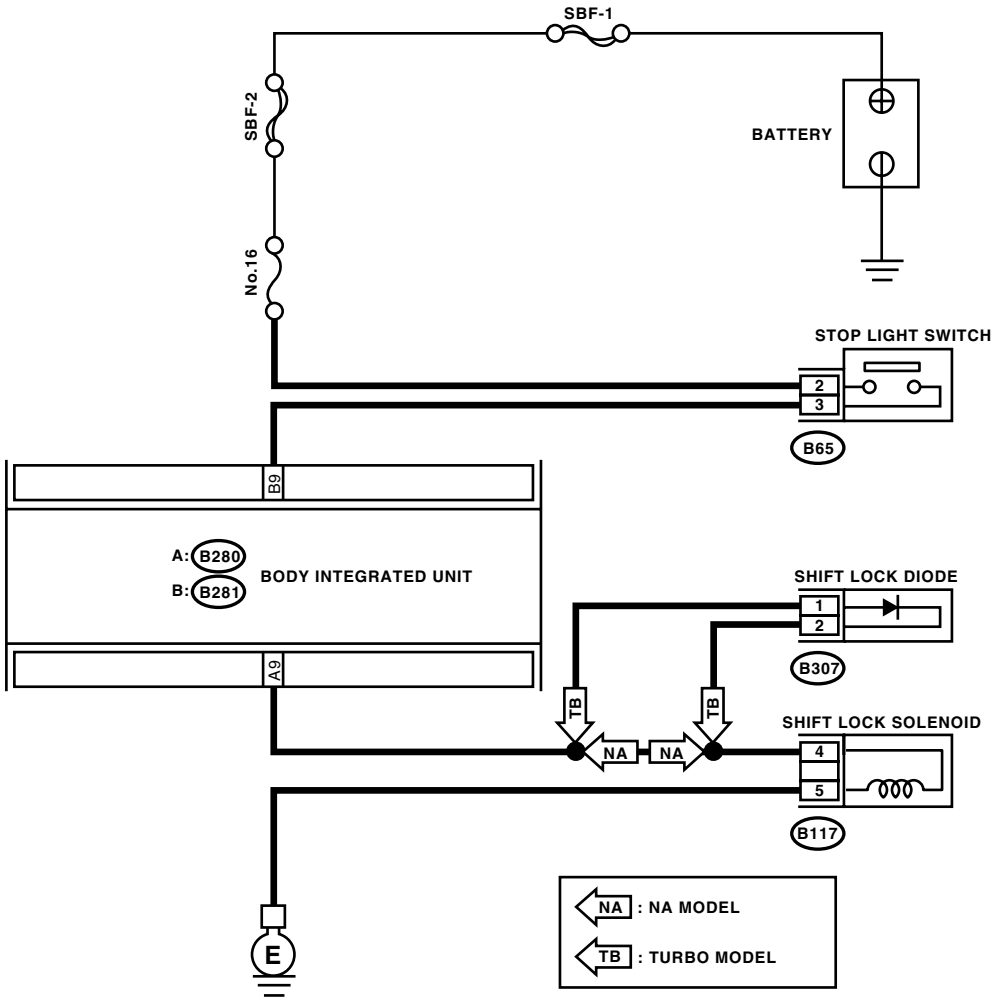


CS-00130

	Step	Check	Yes	No
1	**CHECK FUSE.** Remove the fuse (No. 3, 4 and 18).	Is the fuse (No. 3, 4 or 18) blown out?	Replace the fuse (No. 3, 4 or 18). If the replaced fuse (No. 3, 4 or 18) has blown out easily, repair short circuit in harness between fuse and integrated module.	Go to step **2.**
2	**CHECK HARNESS CONNECTOR BETWEEN INTEGRATED MODULE AND BODY GROUND.** 1) Turn the ignition switch to OFF. 2) Measure the resistance of harness between integrated module and chassis ground. ***Connector & terminal*** ***(B281) No. 4 — Chassis ground:*** ***(B281) No. 13 — Chassis ground:***	Is the measured value less than 1 Ω?	Go to step **3.**	Repair the open circuit in harness between integrated module and body ground.
3	**CHECK BATTERY POWER SUPPLY.** 1) Turn the ignition switch to ON (engine OFF). 2) Measure the voltages between integrated module and chassis ground. ***Connector & terminal*** ***(B281) No. 2 (+) — Chassis ground (-):***	Is the measured value more than 9 V?	Go to step **4.**	Repair the open circuit harness between battery and integrated module, and poor contact in coupling connector.
4	**CHECK IGNITION POWER SUPPLY CIRCUIT.** 1) Turn the ignition switch to ACC. 2) Measure the voltage between integrated module and chassis ground. ***Connector & terminal*** ***(B280) No. 10 (+) — Chassis ground (-):***	Is the measured value more than 9 V?	Go to step **5.**	Repair the open circuit harness between battery and integrated module, and poor contact in coupling connector.
5	**CHECK IGNITION POWER SUPPLY CIRCUIT.** 1) Turn the ignition switch to ON (engine OFF). 2) Measure the voltage between integrated module and chassis ground. ***Connector & terminal*** ***(B280) No. 19 (+) — Chassis ground (-):***	Is the measured value more than 9 V?	Go to step **6.**	Repair the open circuit harness between battery and integrated module, and poor contact in coupling connector.
6	**CHECK POOR CONTACT.**	Is there poor contact in power supply and ground line circuit?	Repair the poor contact.	Replace the integrated module.

2. SELECT LEVER CANNOT BE SHIFT LOCKED

WIRING DIAGRAM:

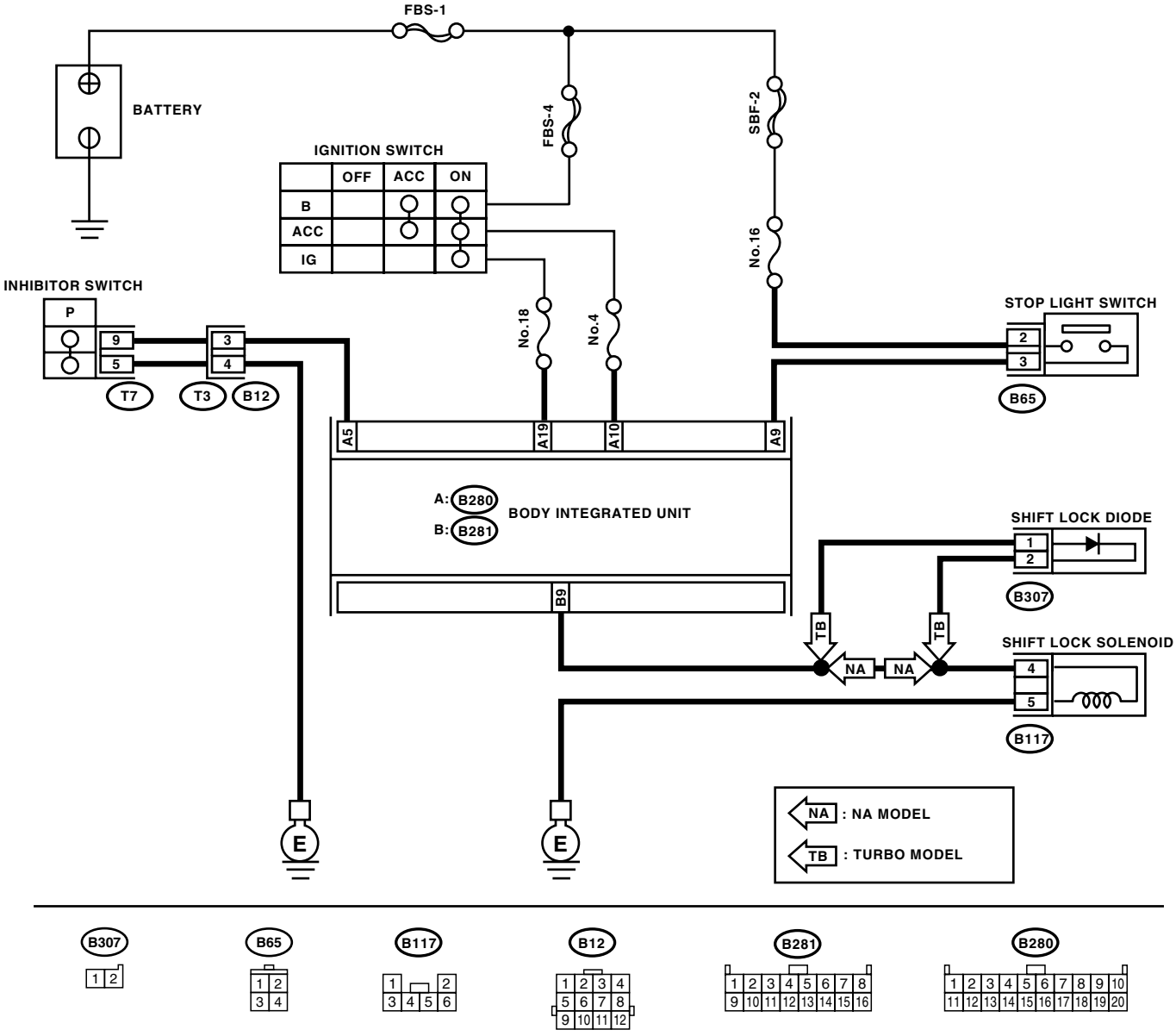


CS-00349

	Step	Check	Yes	No
1	**CHECK STOP LIGHT SWITCH.** Depress the brake pedal.	Does the stop light turn on?	Go to step **2.**	Inspect the stop light system.
2	**CHECK HARNESS BETWEEN STOP LIGHT SWITCH AND INTEGRATED MODULE.** 1) Turn the ignition switch to OFF. 2) Disconnect the integrated module and stop-light switch connector. 3) Measure the resistance of harness between stop light switch and integrated module. ***Connector & terminal*** ***(B65) No. 3 — (B280) No. 9:***	Is the measured value more than 1 MΩ?	Repair the open circuit in harness between integrated module and stop light switch.	Go to step **3.**
3	**CHECK HARNESS BETWEEN STOP LIGHT SWITCH AND INTEGRATED MODULE.** Measure the resistance of harness between stop light switch and chassis ground. ***Connector & terminal*** ***(B65) No. 3 — Chassis ground:***	Is the measured value less than 1 Ω?	Repair the short circuit in harness between integrated module and stop light switch.	Go to step **4.**
4	**CHECK HARNESS BETWEEN INTEGRATED MODULE AND SHIFT LOCK SOLENOID.** 1) Disconnect the shift lock solenoid connector. 2) Measure the resistance of harness between integrated module and shift lock solenoid. ***Connector & terminal*** ***(B117) No. 4 — (B281) No. 9:***	Is the measured value more than 1 MΩ?	Repair the open circuit in harness between integrated module and shift lock solenoid.	Go to step **5.**
5	**CHECK HARNESS BETWEEN INTEGRATED MODULE AND SHIFT LOCK SOLENOID.** Measure the resistance of harness between shift lock solenoid and chassis ground. ***Connector & terminal*** ***(B116) No. 4 — Chassis ground:***	Is the measured value less than 1 Ω?	Repair the short circuit in harness between integrated module and shift lock solenoid.	Go to step **6.**
6	**CHECK HARNESS BETWEEN SHIFT LOCK SOLENOID AND CHASSIS GROUND.** Measure the resistance of harness between shift lock solenoid and chassis ground. ***Connector & terminal*** ***(B116) No. 5 — Chassis ground:***	Is the measured value more than 1 MΩ?	Repair the open circuit in harness between shift lock solenoid and body ground.	Go to step **7.**
7	**CHECK SHIFT LOCK SOLENOID.** Measure the resistance of shift lock solenoid connector terminals. ***Terminal*** ***No. 4 — No. 5:***	Is the measured value within 20 — 40 Ω?	Go to step **8.**	Replace the shift lock solenoid.
8	**CHECK SHIFT LOCK SOLENOID.** Connect the battery with shift lock solenoid connector terminal and operate solenoid. ***Terminal*** ***No. 4 (+) — No. 5 (-):***	Does the shift lock solenoid operate properly?	Go to step **9.**	Replace the shift lock solenoid.
9	**CHECK POOR CONTACT.**	Is there poor contact in key lock circuit?	Repair the poor contact.	Replace the integrated module.

3. SELECT LEVER SHIFT LOCK CANNOT BE RELEASED

WIRING DIAGRAM:



CS-00350

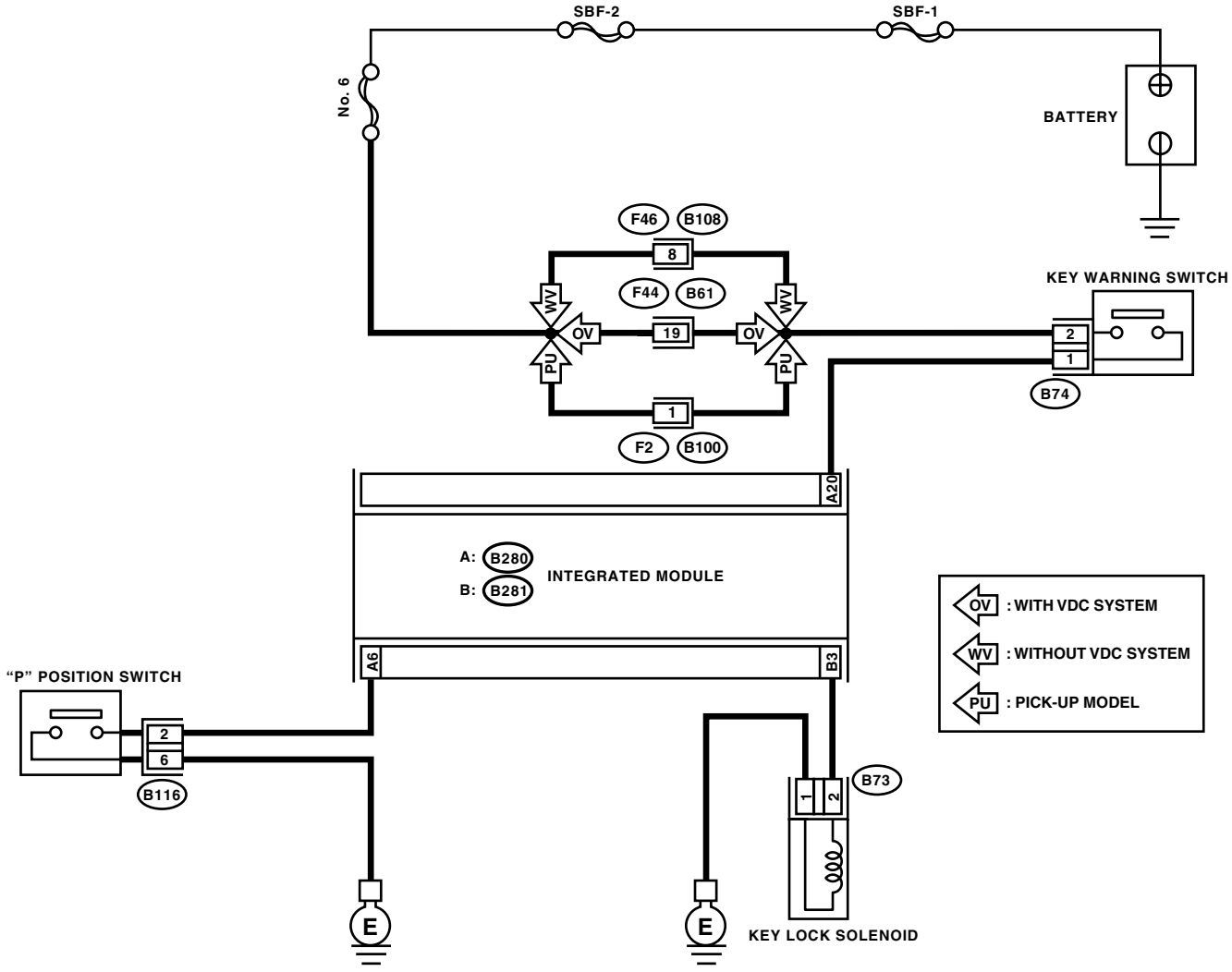
	Step	Check	Yes	No
1	**CHECK INHIBITOR SWITCH.** 1) Turn the ignition switch to ON (engine OFF). 2) Move the select lever from “P” to “1” range.	Are combination meter indicator light and select lever “P”, “R”, “N”, “3”, “2” and “1” correctly matched?	Go to step **2.**	Adjust the inhibitor switch and select cable.
2	**CHECK IGNITION POWER SUPPLY CIRCUIT.** 1) Turn the ignition switch to ON (engine OFF). 2) Measure the voltage between integrated module and chassis ground. ***Connector & terminal*** ***(B280) No. 19 (+) — Chassis ground (-):***	Is the measured value more than 9 V?	Go to step **3.**	Repair the open circuit harness between battery and integrated module, and poor contact in coupling connector.
3	**CHECK HARNESS BETWEEN INHIBITOR SWITCH AND INTEGRATED MODULE.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector of transmission harness and integrated module. 3) Measure the resistance of harness between integrated module and chassis ground. ***Connector & terminal*** ***(B280) No. 5 — Chassis ground:***	Is the measured value less than 1 Ω?	Repair the short circuit in harness between integrated module and transmission connector.	Go to step **4.**
4	**CHECK HARNESS BETWEEN INHIBITOR SWITCH AND INTEGRATED MODULE.** Measure the resistance of harness between integrated module and inhibitor switch. ***Connector & terminal*** ***(B12) No. 3 — (B280) No. 5:***	Is the measured value more than 1 MΩ?	Repair the open circuit in harness between integrated module and transmission connector	Go to step **5.**
5	**CHECK HARNESS BETWEEN INHIBITOR SWITCH AND CHASSIS GROUND.** Measure the resistance of harness between integrated module and chassis ground. ***Connector & terminal*** ***(B12) No. 4 — Chassis ground:***	Is the measured value less than 1 Ω?	Go to step **6.**	Repair the open circuit in harness between inhibitor switch and chassis ground.
6	**CHECK INHIBITOR SWITCH.** 1) Move the select lever to “P” position. 2) Measure the resistance of transmission harness connector terminals. ***Connector & terminal*** ***(T3) No. 3 — No. 4:***	Is the measured value more than 1 MΩ?	Repair or replace the inhibitor switch.	Go to step **7.**
7	**CHECK OUTPUT SIGNAL FOR INTEGRATED MODULE.** 1) Connect all connectors. 2) Turn the ignition switch to ON. 3) Measure the voltage between integrated module and chassis ground. ***Connector & terminal*** ***(B280) No. 5 (+) — Chassis ground (-):***	Is the measured value within 9 — 16 V?	Go to step **8.**	Go to step **16.**
8	**CHECK STOP LIGHT SWITCH.** Depress the brake pedal.	Does the stop light turn on?	Go to step **9.**	Inspect the stop light system.
9	**CHECK HARNESS BETWEEN STOP LIGHT SWITCH AND AT SHIFT LOCK CONTROL MODULE.** 1) Depress the brake pedal. 2) Measure the voltage between integrated module and chassis ground. ***Connector & terminal*** ***(B280) No. 9 (+) — Chassis ground (-):***	Is the measured value more than 9 V?	Go to step **10.**	Repair the open or short circuit in harness between integrated module and stop light switch.

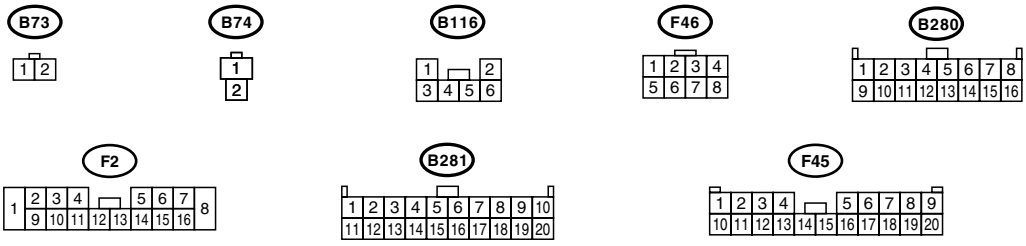
	Step	Check	Yes	No
10	**CHECK HARNESS BETWEEN INTEGRATED MODULE AND SHIFT LOCK SOLENOID.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from shift lock solenoid and integrated module. 3) Measure the resistance of harness between integrated module and shift lock solenoid. ***Connector & terminal*** ***(B281) No. 9 — (B117) No. 4:***	Is the measured value more than 1 MΩ?	Repair the open circuit in harness between integrated module and shift lock solenoid.	Go to step **11.**
11	**CHECK HARNESS BETWEEN INTEGRATED MODULE AND SHIFT LOCK SOLENOID.** Measure the resistance of harness between shift lock solenoid and chassis ground. ***Connector & terminal*** ***(B281) No. 9 — Chassis ground:***	Is the measured value less than 10 Ω?	Go to step **12.**	Repair the short circuit in harness between integrated module and shift lock solenoid.
12	**CHECK HARNESS BETWEEN SHIFT LOCK SOLENOID AND CHASSIS GROUND.** Measure the resistance of harness between shift lock solenoid and chassis ground. ***Connector & terminal*** ***(B116) No. 5 — Chassis ground:***	Is the measured value less than 1 Ω?	Go to step **13.**	Repair the open circuit in harness between shift lock solenoid and chassis ground.
13	**CHECK SHIFT LOCK SOLENOID.** Measure the resistance of shift lock solenoid connector terminals. ***Terminal*** ***No. 4 — No. 5:***	Is the measured value within 20 — 40 Ω?	Go to step **14.**	Replace the shift lock solenoid.
14	**CHECK SHIFT LOCK SOLENOID.** Connect the battery with shift lock solenoid connector terminal and operate solenoid. ***Terminal*** ***No. 4 (+) — No. 5 (-):***	Is the shift lock solenoid operating properly?	Go to step **15.**	Replace the shift lock solenoid.
15	**CHECK OUTPUT SIGNAL FOR AT SHIFT LOCK CONTROL MODULE.** 1) Turn the ignition switch to ON (engine OFF). 2) Measure the voltage between integrated module and chassis ground. ***Connector & terminal*** ***(B281) No. 9 (+) — Chassis ground (-):***	Is the measured value more than 8.5 V?	Go to step **16.**	Replace the integrated module.
16	**CHECK POOR CONTACT.**	Is there poor contact in key lock circuit?	Repair the poor contact.	Replace the integrated module.

MEMO:

4. KEY INTERLOCK DOES NOT LOCK OR RELEASE

WIRING DIAGRAM:





CS-00351

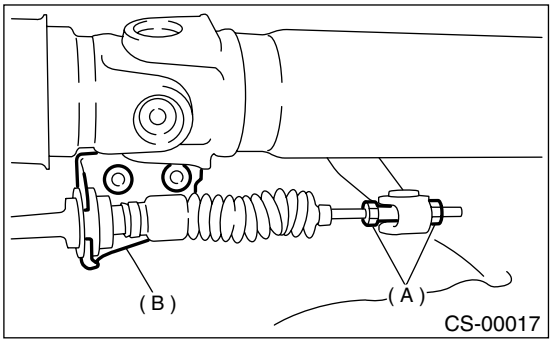
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN BATTERY AND KEY WARNING SWITCH.** 1) Disconnect the connector key warning switch. 2) Measure the voltage of harness between key warning switch and chassis ground. ***Connector & terminal*** ***(B74) No. 2 (+) — Chassis ground (-):***	Is the measured value within 9 — 16 V?	Go to step **2.**	Repair the open or short circuit in harness between battery and key warning switch.
2	**CHECK KEY WARNING SWITCH.** Measure the resistance of key warning switch connector terminals. ***Terminal*** ***No. 1 — No. 2:***	Is the measured value more than 1 MΩ?	Replace the key warning switch.	Go to step **4.**
3	**CHECK KEY WARNING SWITCH.** 1) Remove the key. 2) Measure the resistance of key warning switch connector terminals. ***Terminal*** ***No. 1 — No. 2:***	Is the measured value more than 1 MΩ?	Go to step **4.**	Replace the key warning switch.
4	**CHECK HARNESS BETWEEN AT SHIFT LOCK CONTROL MODULE AND KEY WARNING SWITCH.** 1) Disconnect the integrated module connector. 2) Measure the voltage of harness integrated module and chassis ground. ***Connector & terminal*** ***(B280) No. 20 (+) — Chassis ground (-):***	Is the measured value more than 9 V?	Go to step **5.**	Repair the open circuit in harness between integrated module and key warning switch.
5	**CHECK HARNESS BETWEEN INTEGRATED MODULE AND KEY LOCK SOLENOID.** 1) Disconnect the connector of key lock solenoid. 2) Measure the resistance of harness between integrated module and key lock solenoid. ***Connector & terminal*** ***(B73) No. 2 — (B281) No. 3:***	Is the measured value more than 1 MΩ?	Repair the open circuit in harness between integrated module and key lock solenoid.	Go to step **6.**
6	**CHECK HARNESS BETWEEN INTEGRATED MODULE AND KEY LOCK SOLENOID.** Measure the resistance of harness between integrated module and chassis ground. ***Connector & terminal*** ***(B281) No. 3 — Chassis ground:***	Is the measured value less than 1 Ω?	Go to step **7.**	Repair the short circuit in harness between integrated module and key lock solenoid.
7	**CHECK HARNESS BETWEEN KEY LOCK SOLENOID AND CHASSIS GROUND.** Measure the resistance of harness between key lock solenoid and chassis ground. ***Connector & terminal*** ***(B73) No. 1 — Chassis ground:***	Is the measured value less than 10 Ω?	Go to step **8.**	Repair the open circuit in harness between key lock solenoid and chassis ground.
8	**CHECK KEY LOCK SOLENOID.** Measure the resistance of key lock solenoid connector terminals. ***Terminal*** ***No. 1 — No. 2:***	Is the measured value within 4 — 8 Ω?	Go to step **14.**	Replace the key lock solenoid.

	Step	Check	Yes	No
9	**CHECK HARNESS BETWEEN "P" POSITION SWITCH AND CHASSIS GROUND.** Measure the resistance of harness between "P" position switch and chassis ground. ***Connector & terminal*** ***(B116) No. 2 — Chassis ground:***	Is the measured value less than 1 Ω?	Go to step **10.**	Repair the short circuit in harness between "P" position switch and integrated module.
10	**CHECK HARNESS BETWEEN AT SHIFT LOCK CONTROL MODULE AND "P" POSITION SWITCH.** 1) Disconnect the connector from "P" position switch. 2) Measure the resistance of harness between integrated module and "P" position switch. ***Connector & terminal*** ***(B116) No. 2 — (B281) No. 6:***	Is the measured value more than 1 MΩ?	Repair the open circuit in harness between integrated module and "P" position switch.	Go to step **11.**
11	**CHECK HARNESS BETWEEN "P" POSITION SWITCH AND CHASSIS GROUND.** Measure the resistance of harness "P" position switch and chassis ground. ***Connector & terminal*** ***(B116) No. 6 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **12.**	Repair the open circuit in harness between "P" position switch and chassis ground.
12	**CHECK "P" POSITION SWITCH.** 1) Move the select lever to "P" position. 2) Measure resistance between "P" position switch connector terminals. ***Terminal*** ***No. 2 — No. 6:***	Is the measured value less than 1 Ω?	Go to step **13.**	Replace the "P" position switch.
13	**CHECK "P" POSITION SWITCH.** 1) Move the select lever to other than "P" position. 2) Measure resistance between "P" position switch connector terminals. ***Terminal*** ***No. 2 — No. 6:***	Is the measured value more than 1 MΩ?	Go to step **14.**	Replace the "P" position switch.
14	**CHECK OUTPUT SIGNAL FOR INTEGRATED MODULE.** 1) Connect all connectors. 2) Turn the ignition switch to ON (engine OFF). 3) Move the select lever to "P" position. 4) Press the brake pedal. 5) Measure the voltage between integrated module connector and chassis ground. ***Connector & terminal*** ***(B281) No. 3 (+) — Chassis ground (-):***	Is the measured value within 7.5 — 16 V?	Go to step **15.**	Replace the integrated module.
15	**CHECK POOR CONTACT.**	Is there poor contact in AT shift lock circuit?	Repair the poor contact.	Replace the integrated module.

4. Select Lever

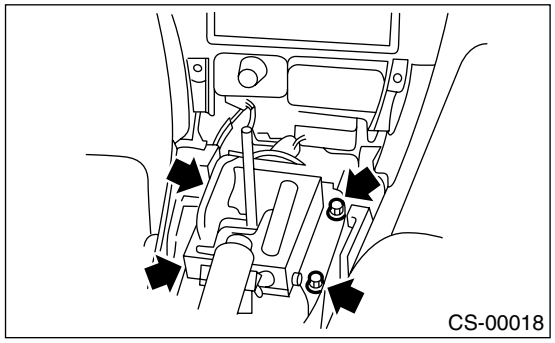
A: REMOVAL

1) Set the vehicle on a lift.
2) Disconnect the ground cable from battery.
3) Move the select lever to “N” position.
4) Lift-up the vehicle.
5) Remove the rear exhaust pipe and muffler.
Except 2.5 L U5 model
<Ref. to EX(H4SO)-9, REMOVAL, Rear Exhaust Pipe.>, <Ref. to EX(H4SO)-10, REMOVAL, Muffler.>
2.5 L U5 model
<Ref. to EX(H4SO U5)-9, REMOVAL, Rear Exhaust Pipe.>,<Ref. to EX(H4SO U5)-10, REMOVAL, Muffler.>
3.0 L model
<Ref. to EX(H6DO)-8, REMOVAL, Rear Exhaust Pipe.>, <Ref. to EX(H6DO)-9, REMOVAL, Muffler.>
TURBO model
<Ref. to EX(H4DOTC)-14, REMOVAL, Rear Exhaust Pipe.>,<Ref. to EX(H4DOTC)-15, REMOVAL, Muffler.>
6) Remove the heat shield cover. (If equipped)
7) Disconnect the cable from select lever, and then remove the cable bracket.



(A) Adjusting nuts
(B) Cable bracket

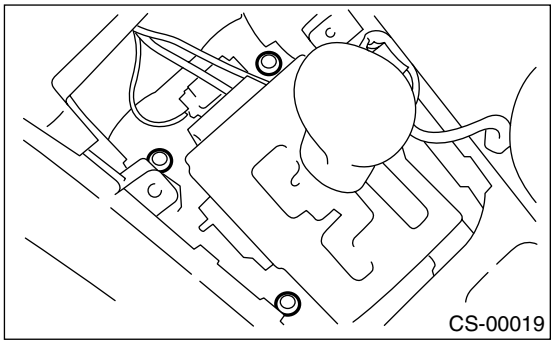
8) Lower the vehicle.
9) Remove the console box. <Ref. to EI-45, REMOVAL, Console Box.>
10) Disconnect the connectors, then remove the four bolts to take out the select lever assembly from body.



B: INSTALLATION

1) Mount the select lever onto the vehicle body.
2) Tighten the four bolts to install the select lever to vehicle body, then connect the connector.

Tightening torque:
13 N·m (1.3 kgf-m, 9.4 ft-lb)



3) Install the console box. <Ref. to EI-42, INSTALLATION, Glove Box.>
4) Set the location of select lever at “N” position.
5) Lift-up the vehicle.
6) Set the location of range select lever to “N” position.
7) Insert the thread portion of the other inner cable and into connector hole of the select lever, and fix the other outer cable end to bracket.

Tightening torque:
18 N·m (1.8kgf-m, 13.0 ft-lb)

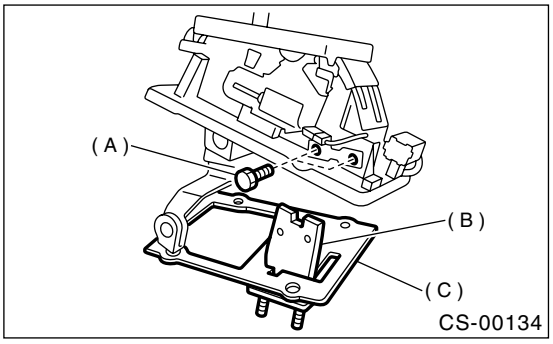
8) Adjust the select cable position. <Ref. to CS-32, ADJUSTMENT, Select Cable.>
9) After completion of fitting, make sure that the select lever operates smoothly all across the operating range.
10) Install the heat shield cover. (If equipped)
11) Install the rear exhaust pipe and muffler.
Except 2.5 L U5 model
<Ref. to EX(H4SO)-9, INSTALLATION, Rear Exhaust Pipe.>, <Ref. to EX(H4SO)-10, INSTALLATION, Muffler.>

2.5 L U5 model
<Ref. to EX(H4SO U5)-9, INSTALLATION, Rear Exhaust Pipe.>, <Ref. to EX(H4SO U5)-10, INSTALLATION, Muffler.>
3.0 L model
<Ref. to EX(H6DO)-8, INSTALLATION, Rear Exhaust Pipe.>, <Ref. to EX(H6DO)-9, INSTALLATION, Muffler.>
TURBO model
<Ref. to EX(H4DOTC)-14, INSTALLATION, Rear Exhaust Pipe.>,<Ref. to EX(H4DOTC)-15, INSTALLATION, Muffler.>
12) Inspect the following items. If the following inspection reveals problems, adjust the select cable and inhibitor switch. <Ref. to CS-32, ADJUSTMENT, Select Cable.> and <Ref. to 4AT-51, ADJUSTMENT, Inhibitor Switch.>
(1) The engine starts operating when select lever is in position “P” or “N”, but not in other positions.
(2) The back-up light is lit when the select lever is in position “R”, but not in other positions.
(3) Select lever and indicator positions are matched.

C: DISASSEMBLY

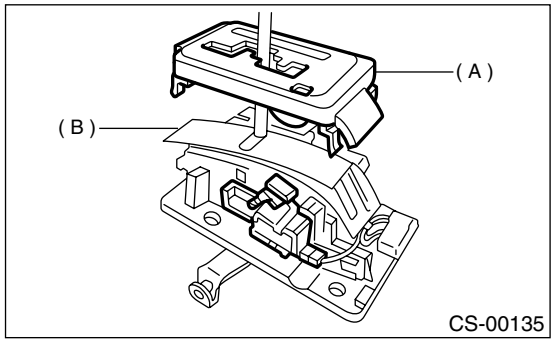
1. EXCEPT SPORT SHIFT MODEL

1) Remove four washers and then detach rubber boot.
2) Remove bolts and then remove cable bracket and plate.



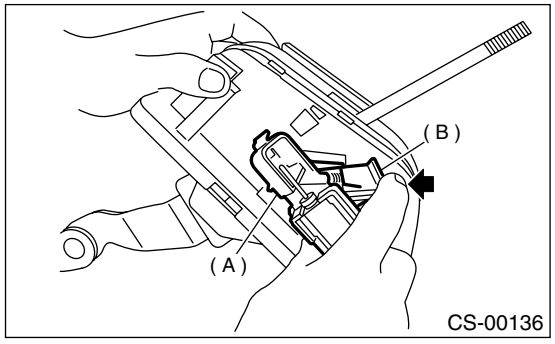
(A) Bolt
(B) Cable bracket
(C) Plate

3) Remove select lever grip.
4) Detach indicator cover and pattern plate.



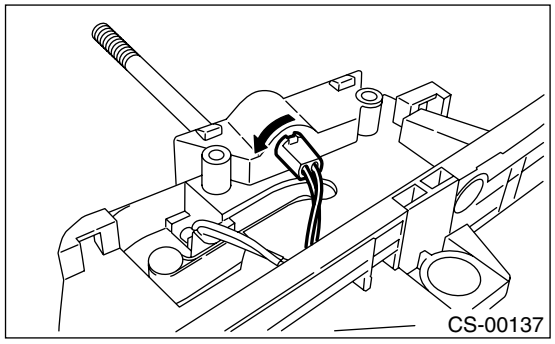
(A) Indicator cover
(B) Pattern plate

5) Disconnect solenoid assembly connector.
6) While pressing shift lock cancel button, remove shift lock solenoid assembly.



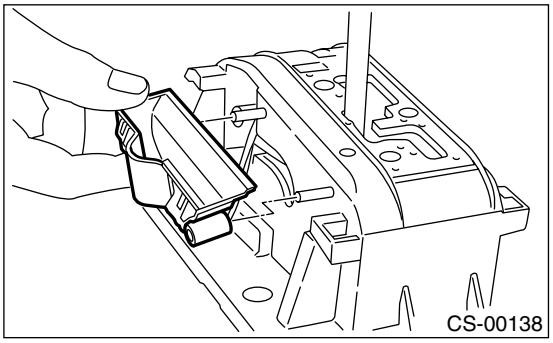
(A) Shift lock solenoid ASSY
(B) Button

7) Remove indicator light.

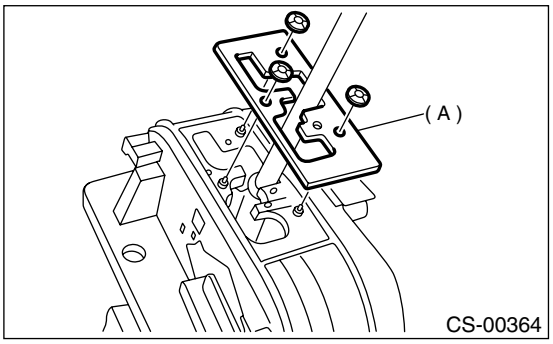


8) Remove indicator bulb.

9) Remove indicator light cover.

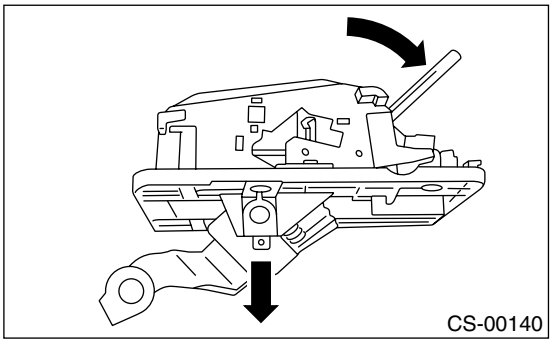


10) Remove cushion.

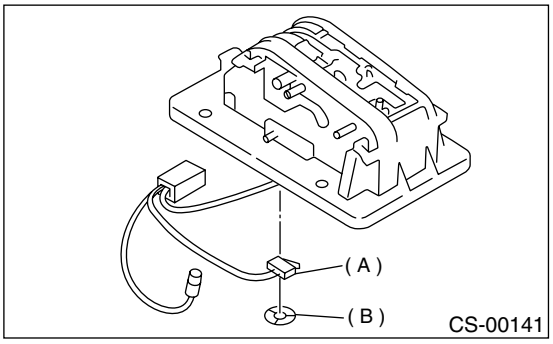


(A) Cushion

11) Tilt lever forward and pull down to separate it from frame.

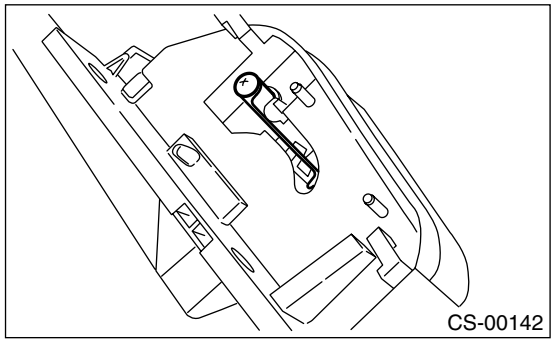


12) Remove clip, and “P” position switch with harness.



(A) “P” position switch
(B) Clip

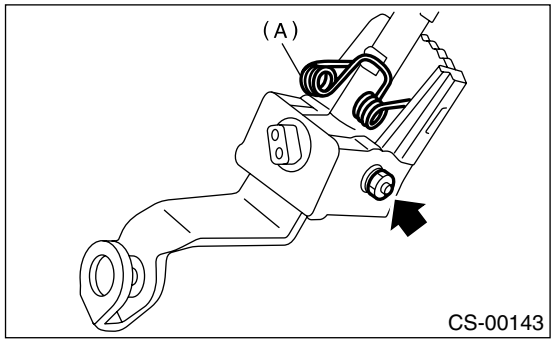
13) Remove detent spring



14) Remove spring.

CAUTION:
Wear goggles. Do not allow spring to fly out during removal.

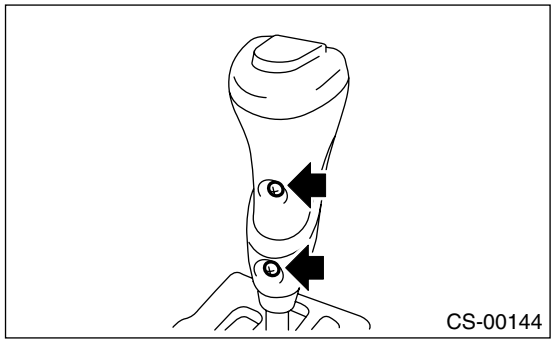
15) Remove bolt and then disconnect lever upper and lever lower.



(A) Spring

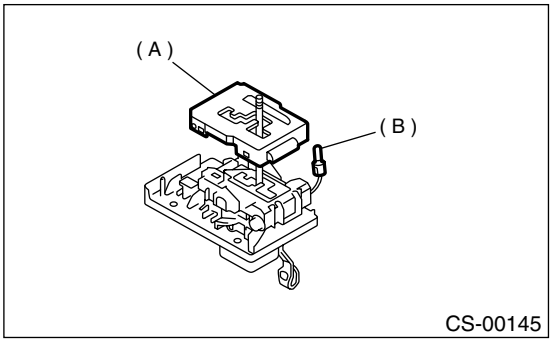
2. SPORT SHIFT MODEL

1) Remove the packing.
2) Remove the grip.



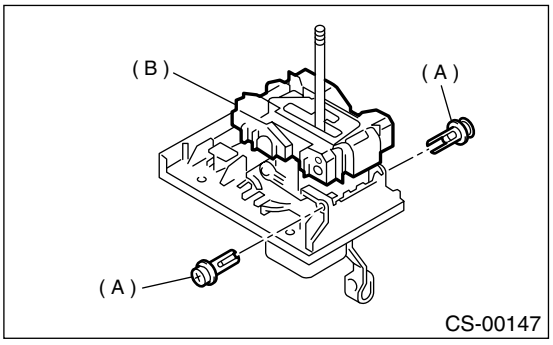
3) Remove the indicator light, and then remove the indicator cover.

NOTE:
Be careful not to break the indicator light during removal.



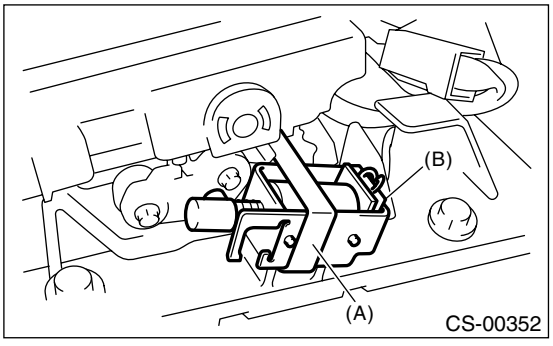
(A) Indicator cover
(B) Indicator light

4) Remove the blind.
5) Remove the clips, and then remove the guide plate.



(A) Clips
(B) Guide plate

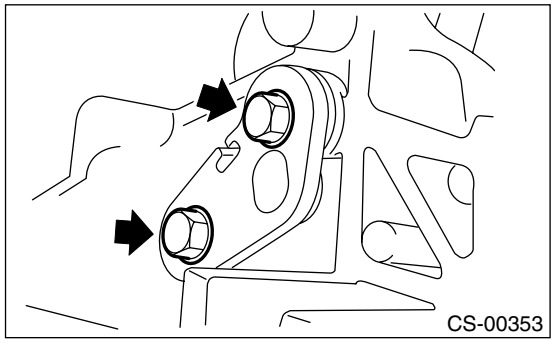
6) Remove the clamp, shift lock solenoid and cushion.



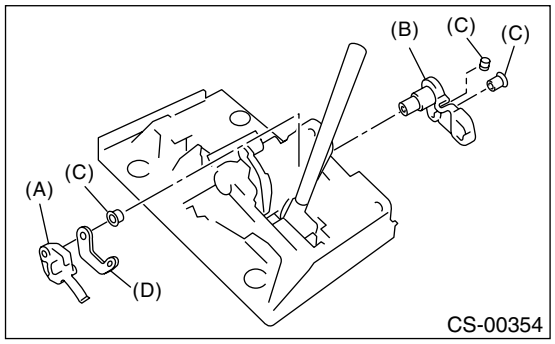
(A) Clamp
(B) Shift lock solenoid

7) Move select lever to “1” range.

8) Remove the bolt.

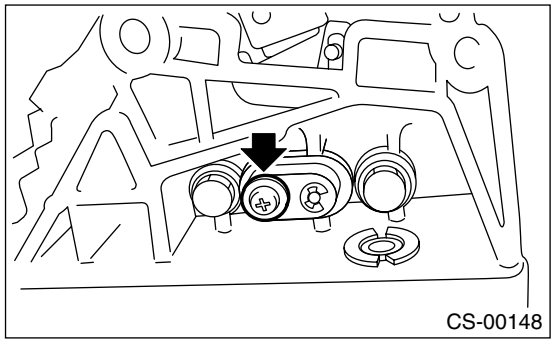


9) Remove the lock plate A, B, C and bushing.

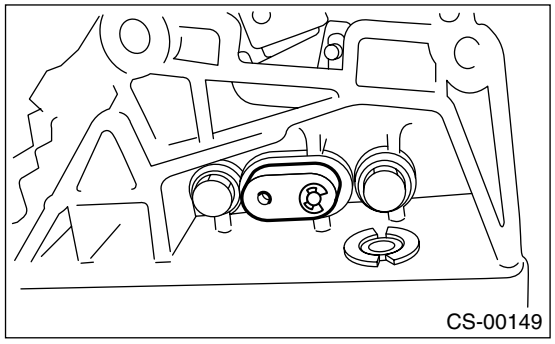


(A) Lock plate A
(B) Lock plate B
(C) Bushing
(D) Lock plate C

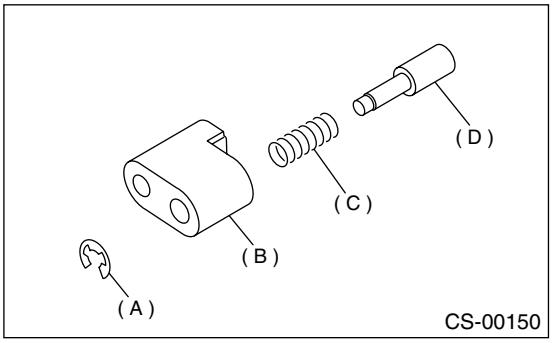
10) Remove the screw.



11) Remove the bushing.

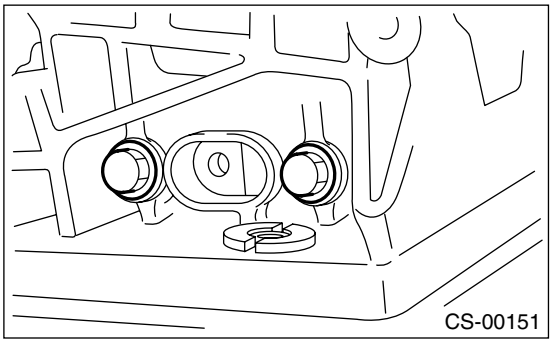


12) Remove the clip, and then remove the rod and the spring.

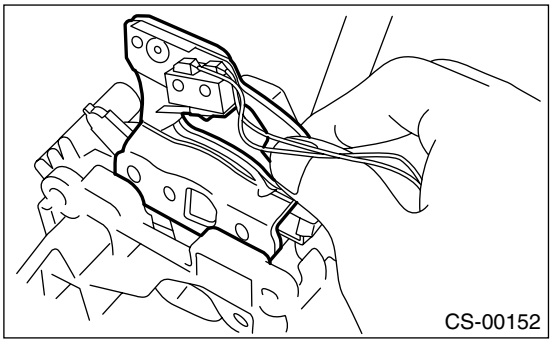


(A) Clip
(B) Bushing
(C) Spring
(D) Rod

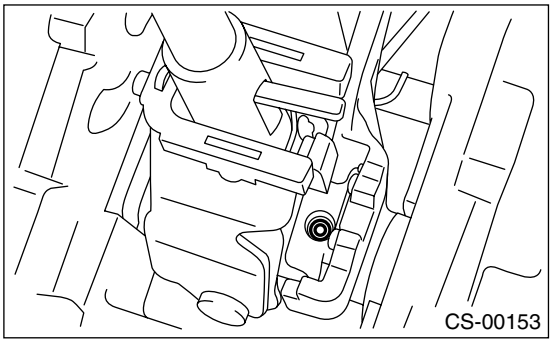
13) Remove the bolt.



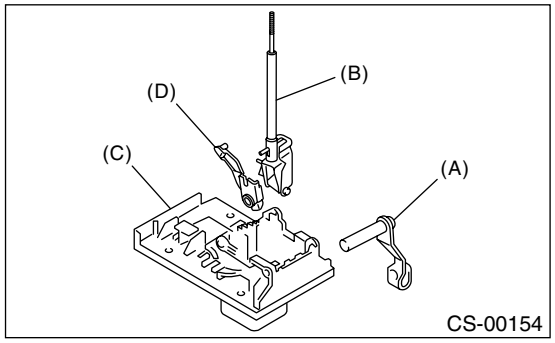
14) Remove the bracket guide ASSY.



15) Remove the grommet, and then extract spring pin from the top.



16) Remove the arm and then take away the lever and arm bracket from plate.



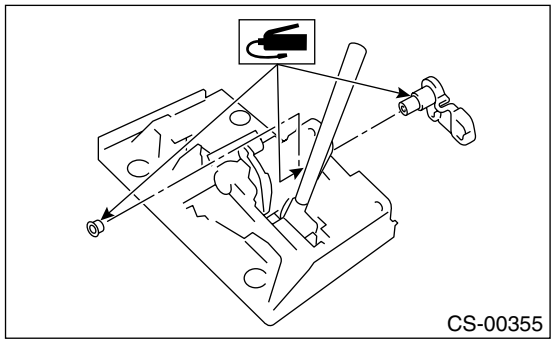
(A) Arm
(B) Lever
(C) Base plate
(D) Arm bracket

17) Remove the spring, and then remove the detent arm.

D: ASSEMBLY

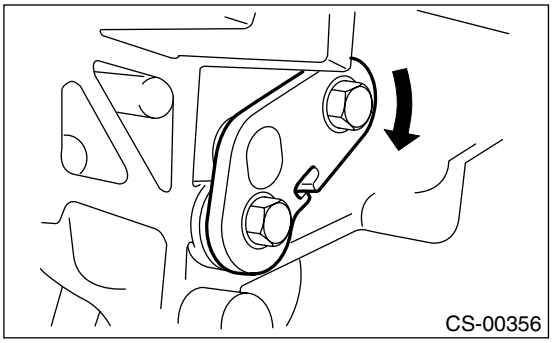
1) Clean all parts before assembly.
2) Apply grease [SUNLIGHT 2 (Part No. 003602010) or equivalent] and SUNCALL or equivalent to each parts. <Ref. to CS-3, AT SELECT LEVER (EXCEPT SPORT SHIFT MODEL), COMPONENT, General Description.> and <Ref. to CS-4, AT SELECT LEVER (SPORT SHIFT MODEL), COMPONENT, General Description.>

NOTE:
Do not apply SUNCALL to area except following parts.



3) Assembly is in the reverse order of disassembly.

NOTE:
• Refer to “COMPONENT” for tightening torque. <Ref. to CS-3, COMPONENT, General Description.>
• Tighten the lock plate bolt uniformly. After installation, locate the base plate upside down, and then push the lock plate up. Make sure the lock plate falls by its weight when releasing it. If not, retighten the bolt.



4) After completion of fitting, transfer the select lever to range “P” — “1”, then check whether the indicator and select lever agree, whether the pointer and position mark agree and what the operating force is.

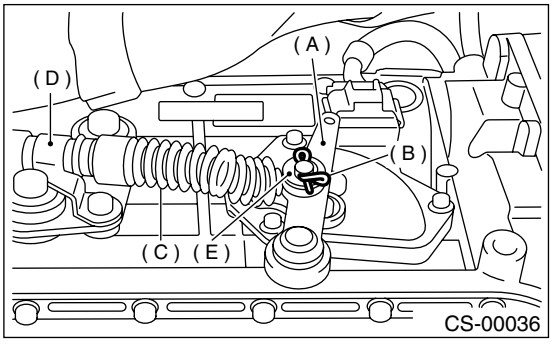
E: INSPECTION

1) Inspect the removed parts by comparing with new ones for deformation, damage and wear. Correct or replace if defective.
2) Confirm the following parts for operating condition before assembly. Moving condition of the select lever ASSY, it should move smoothly.

5. Select Cable

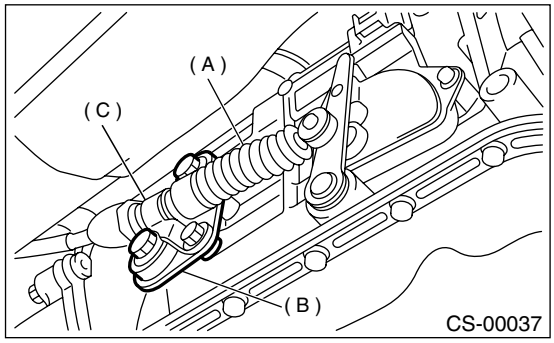
A: REMOVAL

1) Set the vehicle on a lift.
2) Disconnect the ground cable from battery.
3) Prior to removal, set the lever to “N” position.
4) Lift-up the vehicle.
5) Remove the front and center exhaust pipe. (Non-TURBO model)
Except 2.5 L U5 model
<Ref. to EX(H4SO)-5, REMOVAL, Front Exhaust Pipe.>
2.5 L U5 model
<Ref. to EX(H4SO U5)-5, REMOVAL, Front Exhaust Pipe.>
3.0 L model
<Ref. to EX(H6DO)-5, REMOVAL, Front Exhaust Pipe.>
6) Remove center exhaust pipe. (TURBO model)
<Ref. to EX(H4DOTC)-9, REMOVAL, Center Exhaust Pipe.>
7) Remove the heat shield cover. (If equipped)
8) Remove the snap pin from range select lever.



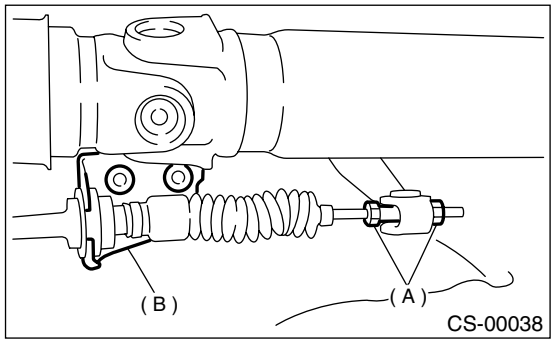
(A) Range select lever
(B) Snap pin
(C) Select cable
(D) Clamp
(E) Washer

9) Remove the plate assembly from transmission case.



(A) Select cable
(B) Plate ASSY
(C) Clamp

10) Disconnect the cable from select lever, and then remove the cable bracket.



(A) Adjusting nuts
(B) Cable bracket

11) Remove the select cable from plate assembly.

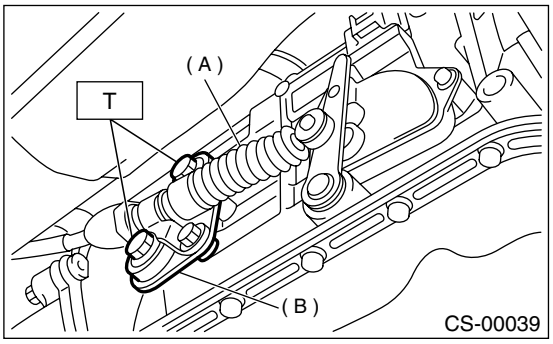
B: INSTALLATION

1) Install the select cable to base plate.

Tightening torque:
18 N·m (1.8 kgf-m, 13.0 ft-lb)

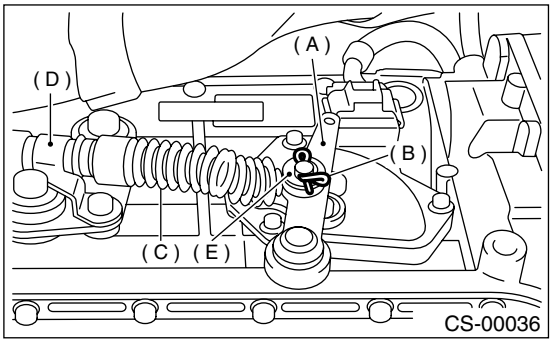
2) Install the select cable to range select lever.
3) Install the plate assembly to transmission.

Tightening torque:
T: 24.5 N·m (2.5 kgf-m, 18.1 ft-lb)



(A) Select cable
(B) Plate ASSY

4) Install the washer and snap pin to range select lever.



(A) Range select lever
(B) Snap pin
(C) Select cable
(D) Clamp
(E) Washer

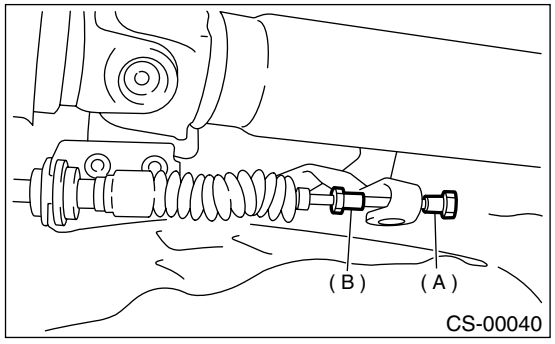
5) Move the select lever to “N” position, then adjust the select cable position. <Ref. to CS-32, ADJUSTMENT, Select Cable.>
6) Install the heat shield cover. (If equipped)
7) Install the front and center exhaust pipe. (Non-TURBO model)
Except 2.5 L U5 model
<Ref. to EX(H4SO)-6, INSTALLATION, Front Exhaust Pipe.>
2.5 L U5 model
<Ref. to EX(H4SO U5)-6, INSTALLATION, Front Exhaust Pipe.>
3.0 L model
<Ref. to EX(H6DO)-6, INSTALLATION, Front Exhaust Pipe.>
8) Install center exhaust pipe. (TURBO model)
<Ref. to EX(H4DOTC)-10, INSTALLATION, Center Exhaust Pipe.>

C: INSPECTION

Check the removed cable and replace if damaged, rusty, or malfunctioning.
1) Check for smooth operation of the cable.
2) Check the inner cable for damage and rust.
3) Check the outer cable for damage, bends, and cracks.
4) Check the boot for damage, cracks, and deterioration.
5) Move the select lever from “P” position to “1” position. You should be able to feel the detentes in each position. If the detentes cannot be felt or the position pointer is improperly aligned, adjust the cable.

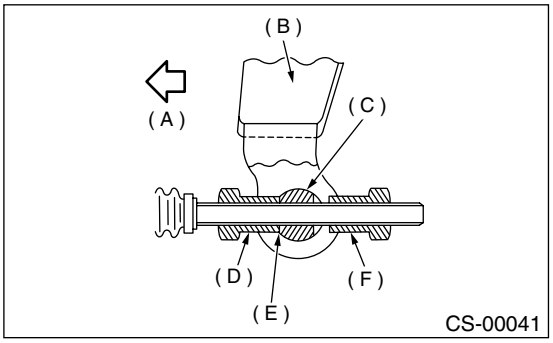
D: ADJUSTMENT

1) Set the vehicle on a lift.
2) Set the lever to “N” position.
3) Lift-up the vehicle.
4) Remove the rear exhaust pipe and muffler.
5) Remove the heat shield cover. (If equipped)
6) Loosen the adjusting nut on each side.



(A) Adjusting nut A
(B) Adjusting nut B

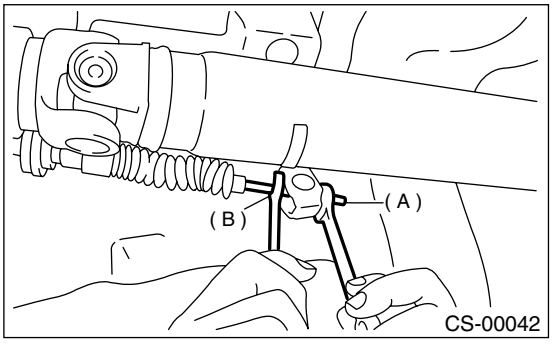
7) Turn the adjusting nut B until it lightly touches the connector.



(A) Front side
(B) Select lever
(C) Connector
(D) Adjusting nut B
(E) Contact point
(F) Adjusting nut A

8) While preventing the adjusting nut B from moving with a wrench, tighten the adjusting nut A.

Tightening torque:
7.5 N·m (0.76 kgf-m, 5.5 ft-lb)



(A) Adjusting nut A
(B) Adjusting nut B

9) After completion of fitting, make sure that the select lever operates smoothly all across the operating range.
10) Install in the reverse order of removal.

6. AT Shift Lock Solenoid and "P" Position Switch

A: REMOVAL

1) Remove the select lever. <Ref. to CS-25, REMOVAL, Select Lever.>
2) Remove AT shift lock solenoid and "P" position switch.<Ref. to CS-26, DISASSEMBLY, Select Lever.>

B: INSTALLATION

1) Install AT shift lock solenoid and "P" position switch. <Ref. to CS-29, ASSEMBLY, Select Lever.>
2) Install the select lever. <Ref. to CS-25, INSTALLATION, Select Lever.>

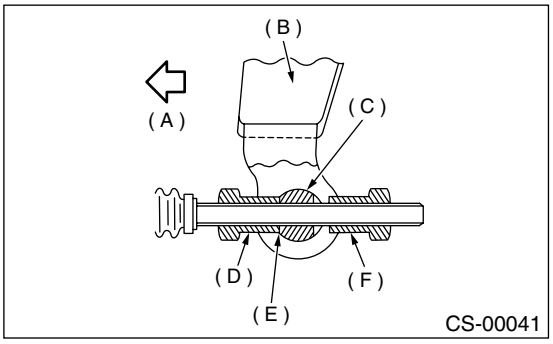
C: INSPECTION

	Step	Check	Yes	No
1	**CHECK SHIFT LOCK SOLENOID.** Measure the resistance of shift lock solenoid connector terminals. ***Terminal*** ***No. 4 — No. 5***	Is the measured value within 20 — 40 Ω?	Go to step **2.**	Replace the shift lock solenoid and "P" position switch assembly.
2	**CHECK SHIFT LOCK SOLENOID.** Connect the battery with shift lock solenoid connector terminal, operate solenoid. ***Terminal*** ***No. 4 (+) — No. 5 (-)***	Is the shift lock solenoid operating properly?	Go to step **3.**	Replace the shift lock solenoid and "P" position switch assembly.
3	**CHECK "P" POSITION SWITCH.** 1) Move the select lever to "P" position. 2) Measure resistance between "P" position switch connector terminals.	Is the measured value less than 1 Ω?	Go to step **4.**	Replace the "P" position switch.
4	**CHECK "P" POSITION SWITCH.** 1) Move the select lever to other than "P" position. 2) Measure resistance between "P" position switch connector terminals.	Is the measured value more than 1 MΩ?	Normal	Replace the "P" position switch.

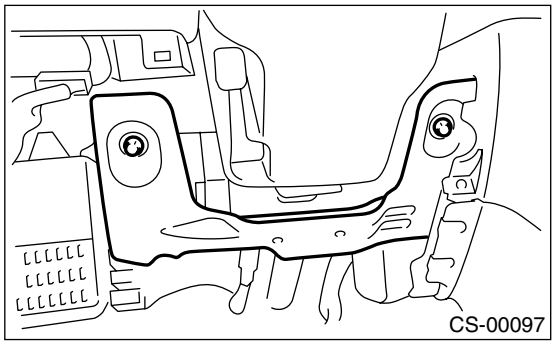
7. Integrated Module

A: REMOVAL

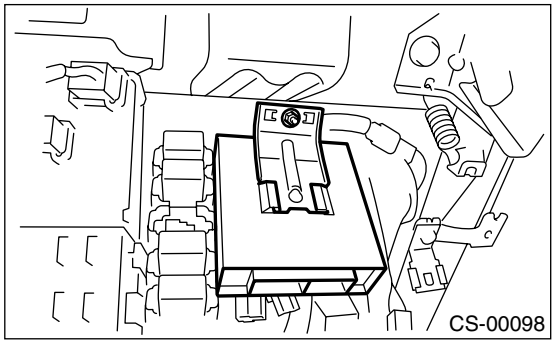
1) Disconnect the ground cable from battery.



2) Remove the lower cover.
3) Remove the knee bolster.



4) Disconnect the connector from integrated module.
5) Remove the integrated module.



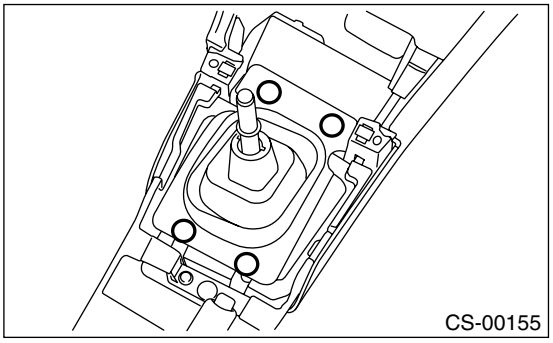
B: INSTALLATION

Install in the reverse order of removal.

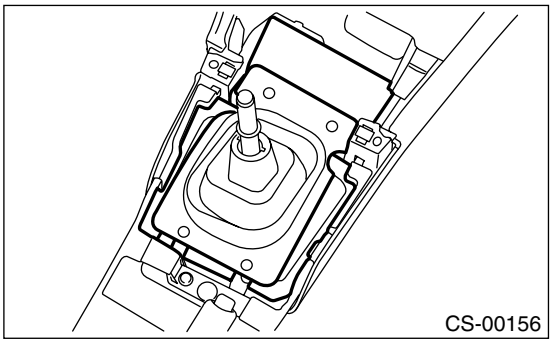
8. MT Gear Shift Lever

A: REMOVAL

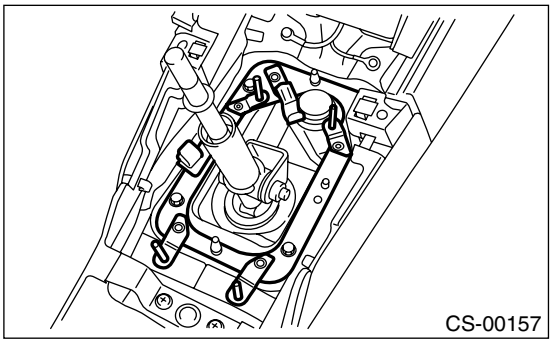
1) Set the vehicle on a lift.
2) Remove the gear shift knob.
3) Disconnect the ground cable from battery.
4) Remove the console box. <Ref. to EI-45, REMOVAL, Console Box.>
5) Remove the clamp.



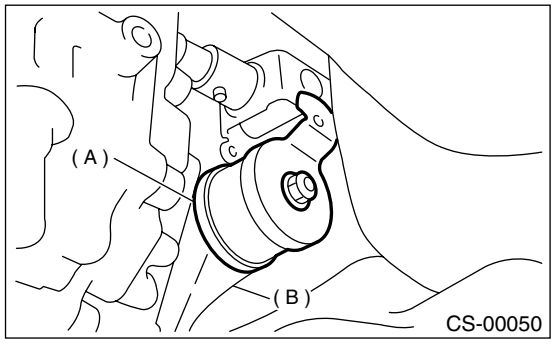
6) Remove the boot and insulator assembly.



7) Remove the plate ASSY from body.

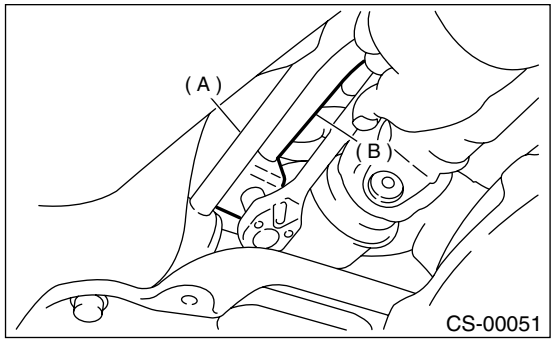


8) Lift-up the vehicle.
9) Remove the rear exhaust pipe and muffler.
Except 2.5 L U5 model
<Ref. to EX(H4SO)-9, REMOVAL, Rear Exhaust Pipe.>, <Ref. to EX(H4SO)-10, REMOVAL, Muffler.>
2.5 L U5 model
<Ref. to EX(H4SO U5)-9, REMOVAL, Rear Exhaust Pipe.>, <Ref. to EX(H4SO U5)-10, REMOVAL, Muffler.>
3.0 L model
<Ref. to EX(H6DO)-8, REMOVAL, Rear Exhaust Pipe.>, <Ref. to EX(H6DO)-9, REMOVAL, Muffler.>
TURBO model
<Ref. to EX(H4DOTC)-14, REMOVAL, Rear Exhaust Pipe.>, <Ref. to EX(H4DOTC)-15, REMOVAL, Muffler.>
10) Remove the heat shield cover.
11) Remove the stay from transmission bracket.



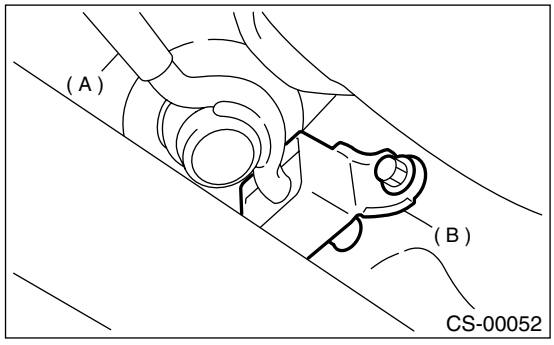
(A) Stay
(B) Transmission bracket

12) Remove the rod from joint.



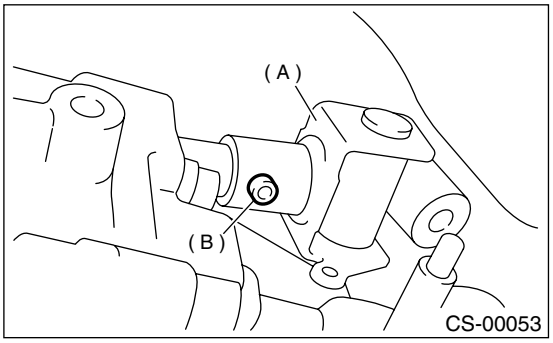
(A) Stay
(B) Rod

13) Remove the cushion rubber from body.



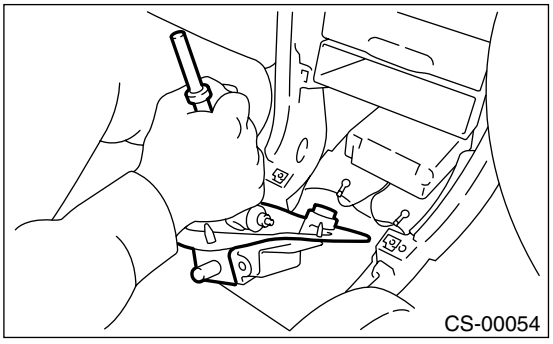
(A) Stay
(B) Cushion rubber

14) Remove the spring pin, and then extract the joint.



(A) Joint
(B) Spring pin

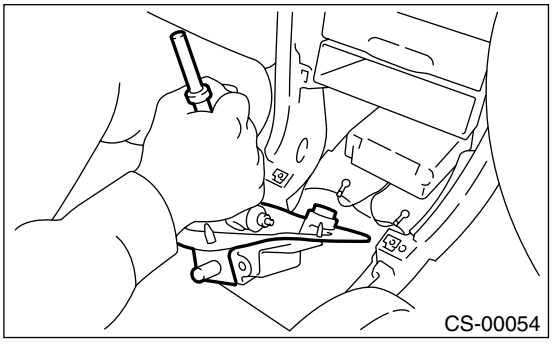
15) Lower the vehicle.
16) Remove the gear shift lever.



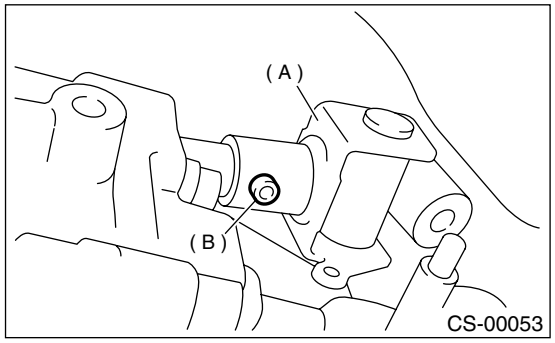
B: INSTALLATION

1) Install the joint to transmission and secure with the spring pin.
2) Insert the gear shift lever from room side.

NOTE:
After inserting the rod and stay, temporarily put them onto transmission mount.



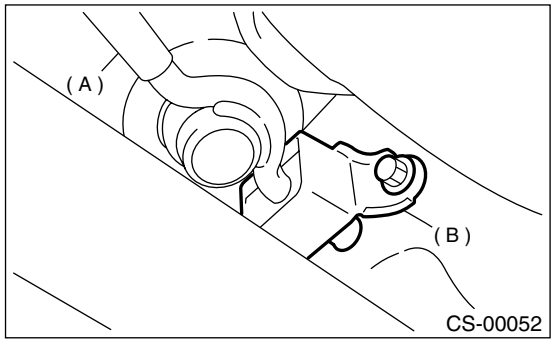
3) Lift-up the vehicle.
4) Install the joint to shifter arm.
5) Insert the spring pin.



(A) Joint
(B) Spring pin

6) Mount the cushion rubber on the body.

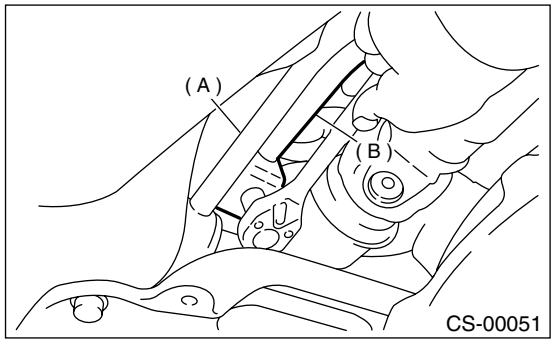
Tightening torque:
18 N·m (1.8 kgf-m, 13.0 ft-lb)



(A) Stay
(B) Cushion rubber

7) Connect the rod to the joint.

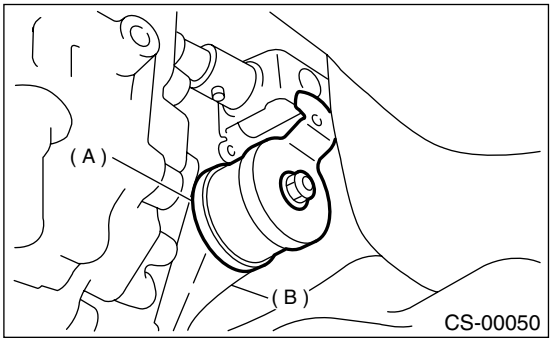
Tightening torque:
18 N·m (1.8 kgf-m, 13.0 ft-lb)



(A) Stay
(B) Rod

8) Connect the stay to transmission bracket.

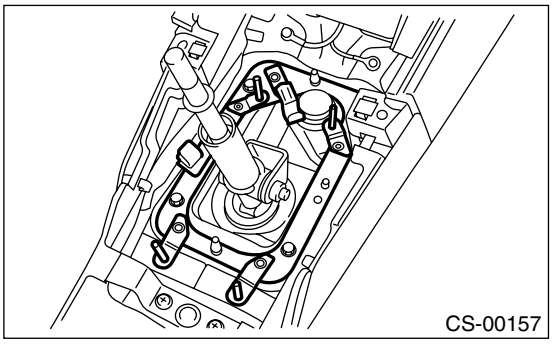
Tightening torque:
18 N·m (1.8 kgf-m, 13.0 ft-lb)



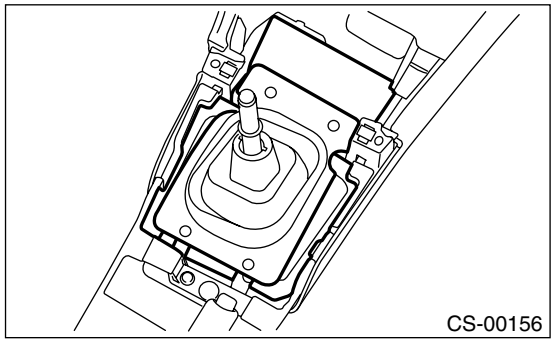
(A) Stay
(B) Transmission bracket

9) Install the heat shield cover. (If equipped)
10) Install the rear exhaust pipe and muffler.
Except 2.5 L U5 model
<Ref. to EX(H4SO)-9, INSTALLATION, Rear Exhaust Pipe.>, <Ref. to EX(H4SO)-10, INSTALLATION, Muffler.>
2.5 L U5 model
<Ref. to EX(H4SO U5)-9, INSTALLATION, Rear Exhaust Pipe.>, <Ref. to EX(H4SO U5)-10, INSTALLATION, Muffler.>
3.0 L model
<Ref. to EX(H6DO)-8, INSTALLATION, Rear Exhaust Pipe.>, <Ref. to EX(H6DO)-9, INSTALLATION, Muffler.>
TURBO model
<Ref. to EX(H4DOTC)-14, INSTALLATION, Rear Exhaust Pipe.>, <Ref. to EX(H4DOTC)-15, INSTALLATION, Muffler.>
11) Lower the vehicle.
12) Install the plate ASSY to body.

Tightening torque:
7.5 N·m (0.76 kgf-m, 5.5 ft-lb)



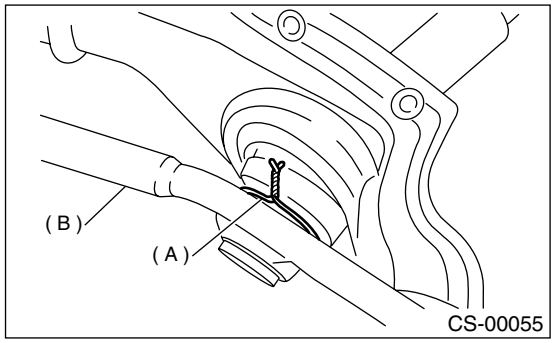
13) Install the boot and insulator assembly to vehicle in proper direction.



14) Install the clamp.
15) Install the console box. <Ref. to EI-45, INSTALLATION, Console Box.>

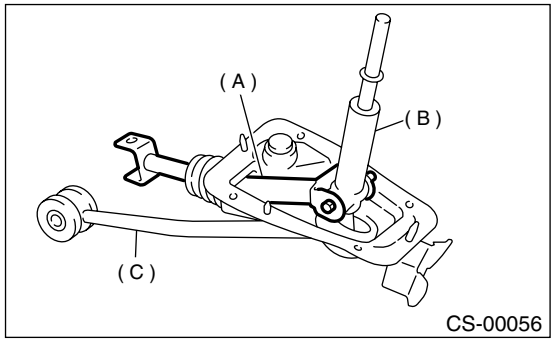
C: DISASSEMBLY

1) Disassemble the lock wire.



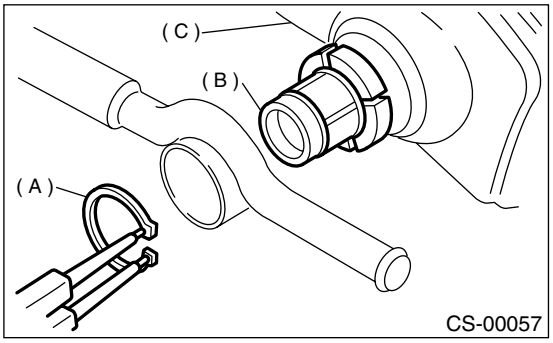
(A) Lock wire
(B) Stay

2) Remove the rod from lever.



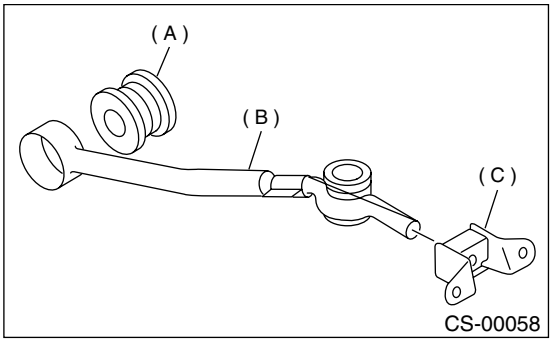
(A) Rod
(B) Lever
(C) Stay

3) Remove the snap ring from bushing B, and then disconnect the stay.



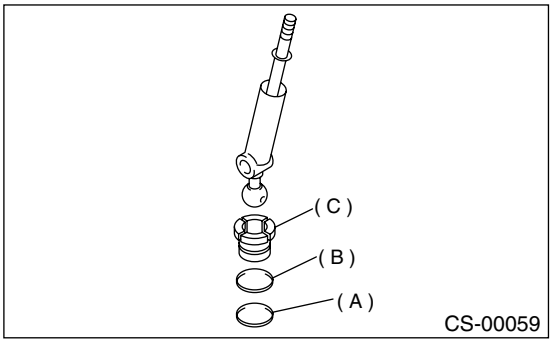
(A) Snap ring
(B) Bushing B
(C) Boot

4) Remove the boot from gear shift lever.
5) Remove the bushing and cushion rubber from stay.



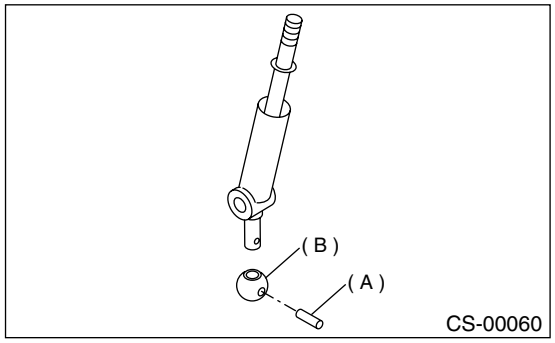
(A) Bushing
(B) Stay
(C) Cushion rubber

6) Remove the O-ring, and then disconnect the bushing B.



(A) O-ring
(B) O-ring
(C) Bushing B

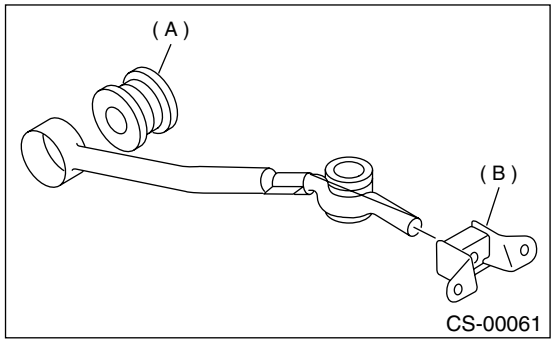
7) Draw out the spring pin, and then remove the bushing A from gear shift lever.



(A) Spring pin
(B) Bushing A

D: ASSEMBLY

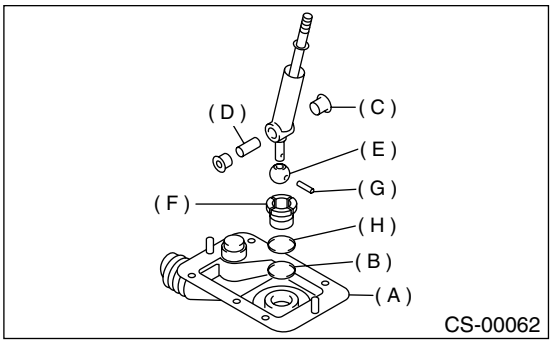
1) Clean all parts before assembly.
2) Mount the bushing and cushion rubber on the stay.



(A) Bushing
(B) Cushion rubber

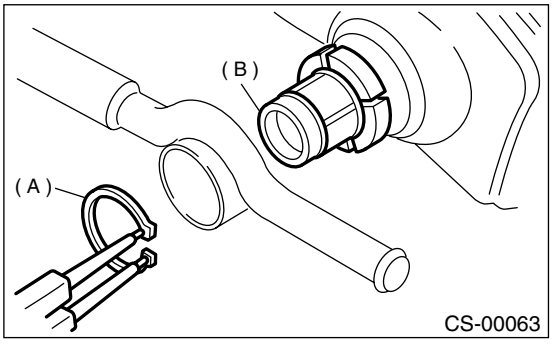
3) Mount each part; boot, O-ring, bushing A, spacer, bushing B, bushing and spring pin on the gear shift lever.

NOTE:
• Always use new O-rings.
• Apply grease [SUNLIGHT 2 (Part No.003602010) or equivalent] to the inner and side surfaces of the bushing when installing the spacer.



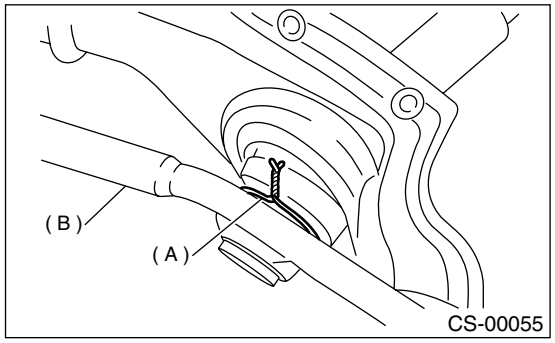
(A) Boot
(B) O-ring
(C) Bushing
(D) Spacer
(E) Bushing A
(F) Bushing B
(G) Spring pin
(H) O-ring

4) Insert the gear shift lever into boot hole.
5) Install the snap ring and stay to bushing B.



(A) Snap ring
(B) Bushing B

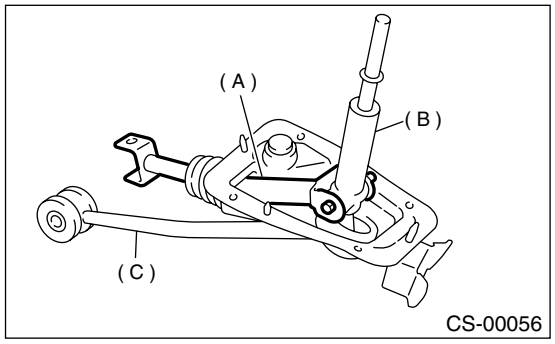
6) Tighten with a new lock wire to the extent that the boot will not come off.



(A) Lock wire
(B) Stay

7) Insert the rod into boot hole.
8) Connect the rod to gear shift lever.

Tightening torque:
11.8 N·m (1.2 kgf-m, 8.7 ft-lb)

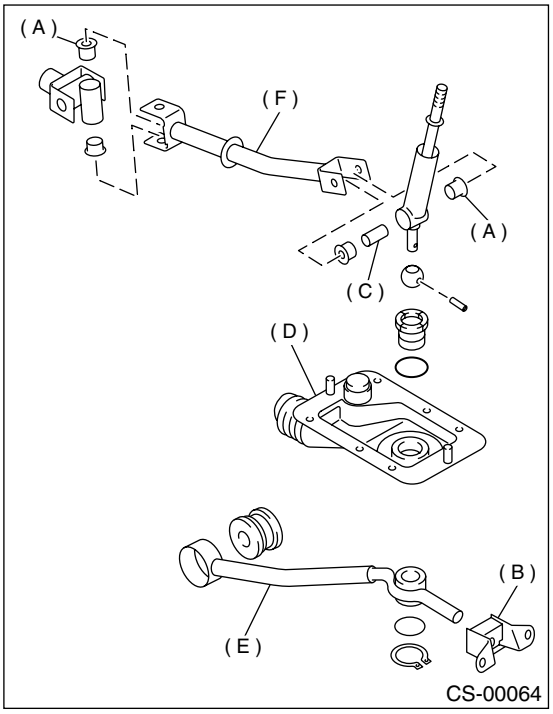


(A) Rod
(B) Lever
(C) Stay

9) Check the swing torque of the rod in relation to gear shift lever.
10) Check that there is no excessive play and that parts move smoothly.

E: INSPECTION

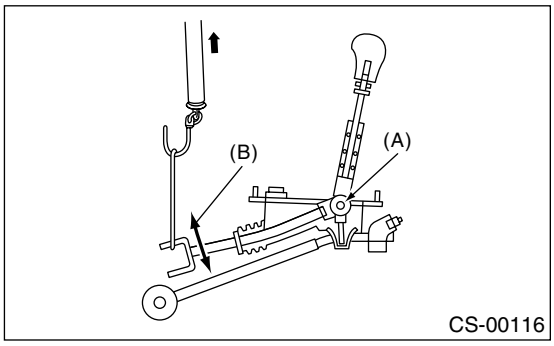
1) Check each part (bushing, cushion rubber, spacer, boot, stay and rod, etc.) for deformation, damage and wear. Repair or replace any defective part. Determine defective parts by comparing with new parts.



(A) Bushing
(B) Cushion rubber
(C) Spacer
(D) Boot
(E) Stay
(F) Rod

2) Check the swing torque of the rod in relation of gear shift lever.
If the torque exceeds specification, replace the bushing or retighten nuts.

Swing torque:
3.7 N (0.38 kgf, 0.84 lb) or less



(A) Center of rotation
(B) Swing torque

9. General Diagnostic

A: INSPECTION

Symptom	Problem parts
Shift lock does not function.	• Stop light switch • Shift lock solenoid • Integrated module
Shift lock cannot be released.	• Stop light switch • Shift lock solenoid • Integrated module • Inhibitor switch
Key interlock does not function.	• Key warning switch • “P” position switch • Key lock solenoid • Integrated module
Key interlock cannot be released.	• Key warning switch • “P” position switch • Key lock solenoid • Integrated module
Starter does not run.	• Inhibitor switch • Select cable • Starter circuit
Back-up light does not light up.	• Inhibitor switch • Select cable • Back-up light circuit