

# **CONTROL SYSTEMS**

# General Description

CONTROL SYSTEMS

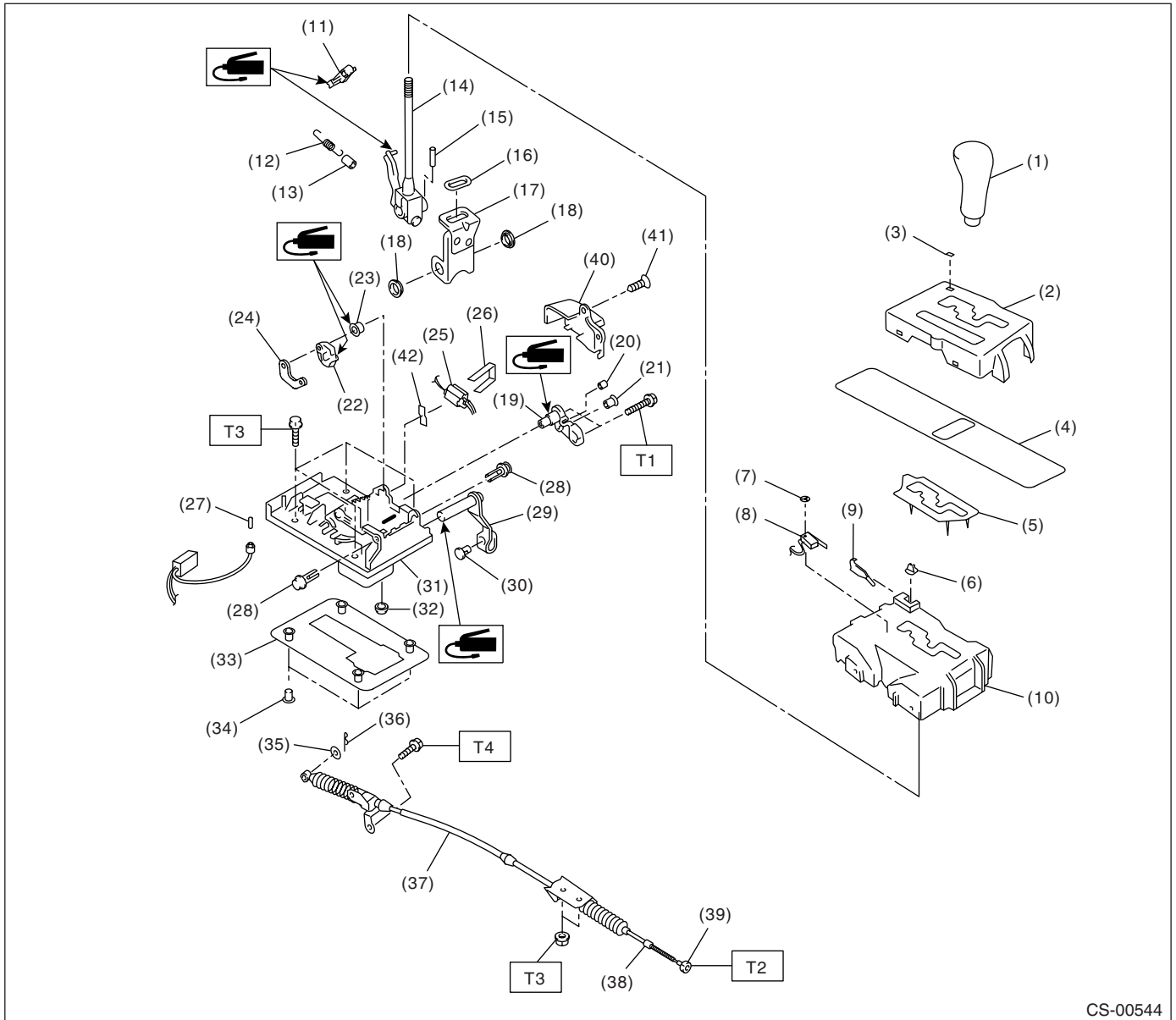
## 1. General Description

### A: SPECIFICATION

Item		Specification
Swing torque of rod against lever	N (kgf, lbf)	3.7 (0.38, 0.84) or less

### B: COMPONENT

#### 1. AT SELECT LEVER



CS-00544

# General Description

CONTROL SYSTEMS

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

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**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)**

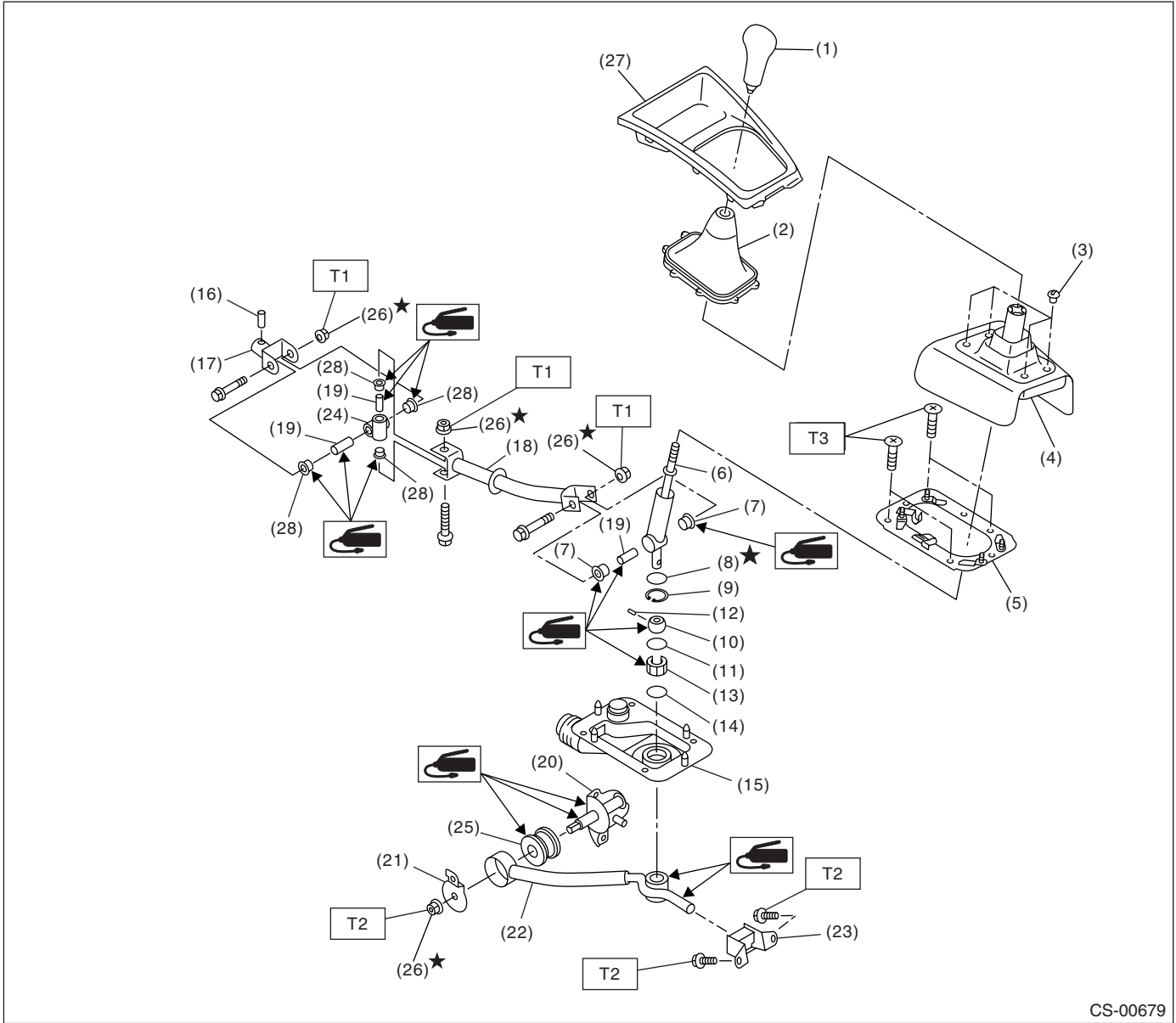
**T4: 18 (1.8, 13.0)**

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# General Description

CONTROL SYSTEMS

## 2. 5MT GEAR SHIFT LEVER



CS-00679

- |                           |                 |                       |
|---------------------------|-----------------|-----------------------|
| (1) Gear shift knob       | (12) Spring pin | (23) Cushion rubber   |
| (2) Console boot          | (13) Bushing B  | (24) Boss             |
| (3) Clamp                 | (14) O-ring     | (25) Bushing          |
| (4) Boot & insulator ASSY | (15) Boot       | (26) Self-locking nut |
| (5) Plate ASSY            | (16) Spring pin | (27) Front cover      |
| (6) Lever                 | (17) Joint      | (28) Bushing          |
| (7) Bushing               | (18) Rod        |                       |
| (8) Lock wire             | (19) Spacer     |                       |
| (9) Snap ring             | (20) Bracket    |                       |
| (10) Bushing              | (21) Washer     |                       |
| (11) O-ring               | (22) Stay       |                       |
|                           |                 | (23) Cushion rubber   |
|                           |                 | (24) Boss             |
|                           |                 | (25) Bushing          |
|                           |                 | (26) Self-locking nut |
|                           |                 | (27) Front cover      |
|                           |                 | (28) Bushing          |

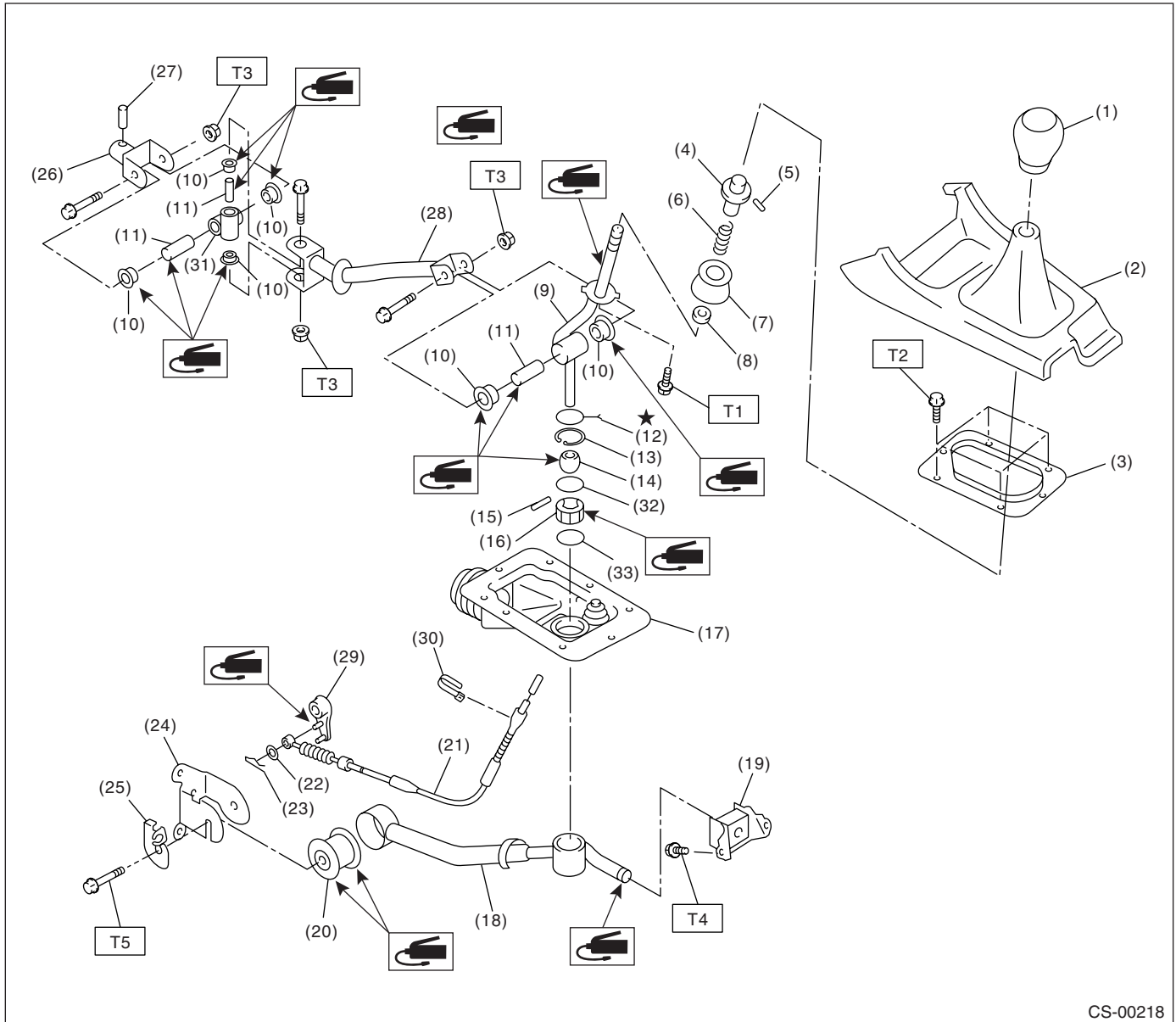
**Tightening torque: N-m (kgf-m, ft-lb)**

**T1: 12 (1.2, 8.9)**

**T2: 18 (1.8, 13.0)**

**T3: 7.5 (0.76, 5.5)**

## 3. 6MT GEAR SHIFT LEVER



- |                       |                          |                          |
|-----------------------|--------------------------|--------------------------|
| (1) Gear shift knob   | (15) Spring pin          | (29) Reverse check lever |
| (2) Console box front | (16) Bushing             | (30) Band clip           |
| (3) Plate             | (17) Boot                | (31) Boss                |
| (4) Slider            | (18) Stay                | (32) O-ring              |
| (5) Spring pin        | (19) Cushion rubber      | (33) O-ring              |
| (6) Spring            | (20) Bushing             |                          |
| (7) Holder            | (21) Reverse check cable |                          |
| (8) Seat cushion      | (22) Washer              |                          |
| (9) Lever             | (23) Snap pin            |                          |
| (10) Bushing          | (24) Bracket             |                          |
| (11) Spacer           | (25) Cable plate         |                          |
| (12) Lock wire        | (26) Joint               |                          |
| (13) Snap ring        | (27) Spring pin          |                          |
| (14) Bushing          | (28) Rod                 |                          |

**Tightening torque: N·m (kgf·m, ft·lb)**

**T1: 1.3 (0.13, 0.96)**

**T2: 7.5 (0.76, 5.5)**

**T3: 11.8 (1.2, 8.7)**

**T4: 18 (1.8, 13.0)**

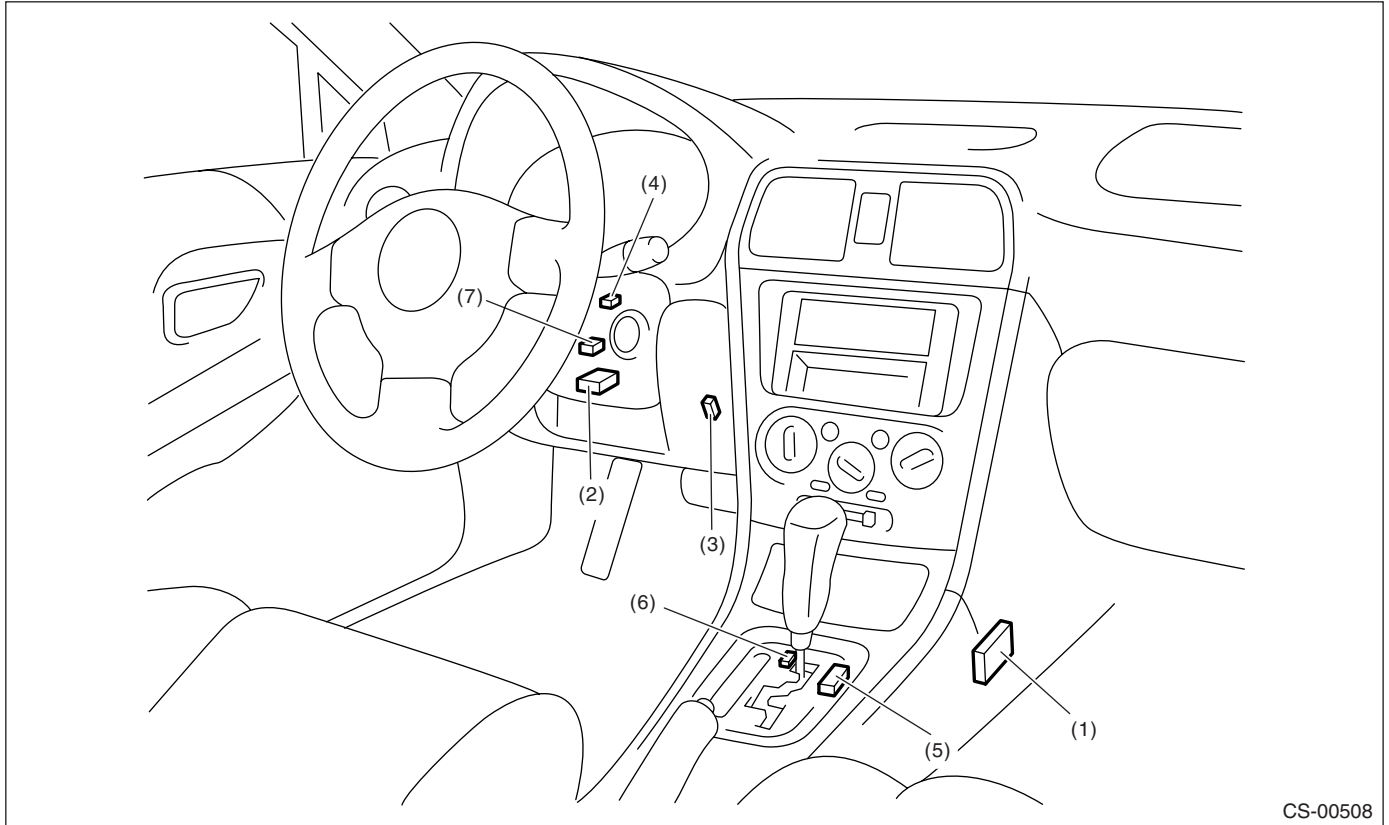
**T5: 32 (3.3, 23.6)**

#### **C: CAUTION**

- Wear work 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 and 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 rigid racks 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. AT Shift Lock Control System

### A: LOCATION

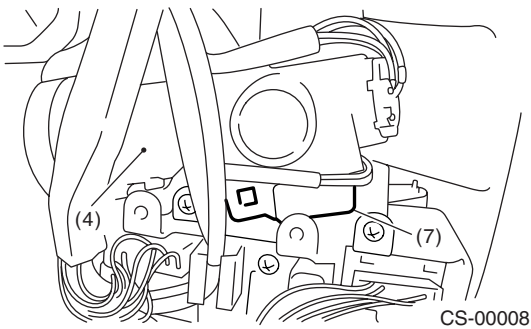
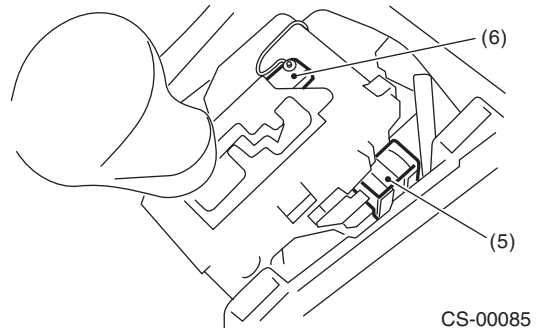
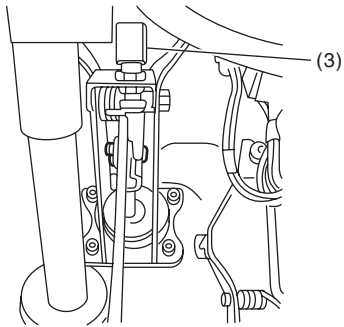
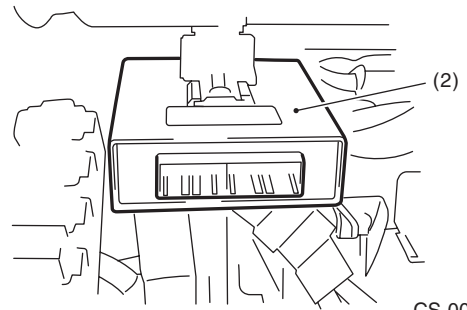
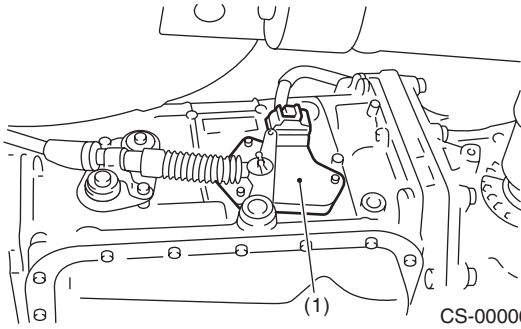


CS-00508

- |                            |                         |                       |
|----------------------------|-------------------------|-----------------------|
| (1) Inhibitor switch       | (4) Key warning switch  | (7) Key lock solenoid |
| (2) Body integrated module | (5) Shift lock solenoid |                       |
| (3) Stop light switch      | (6) "P" range switch    |                       |

# AT Shift Lock Control System

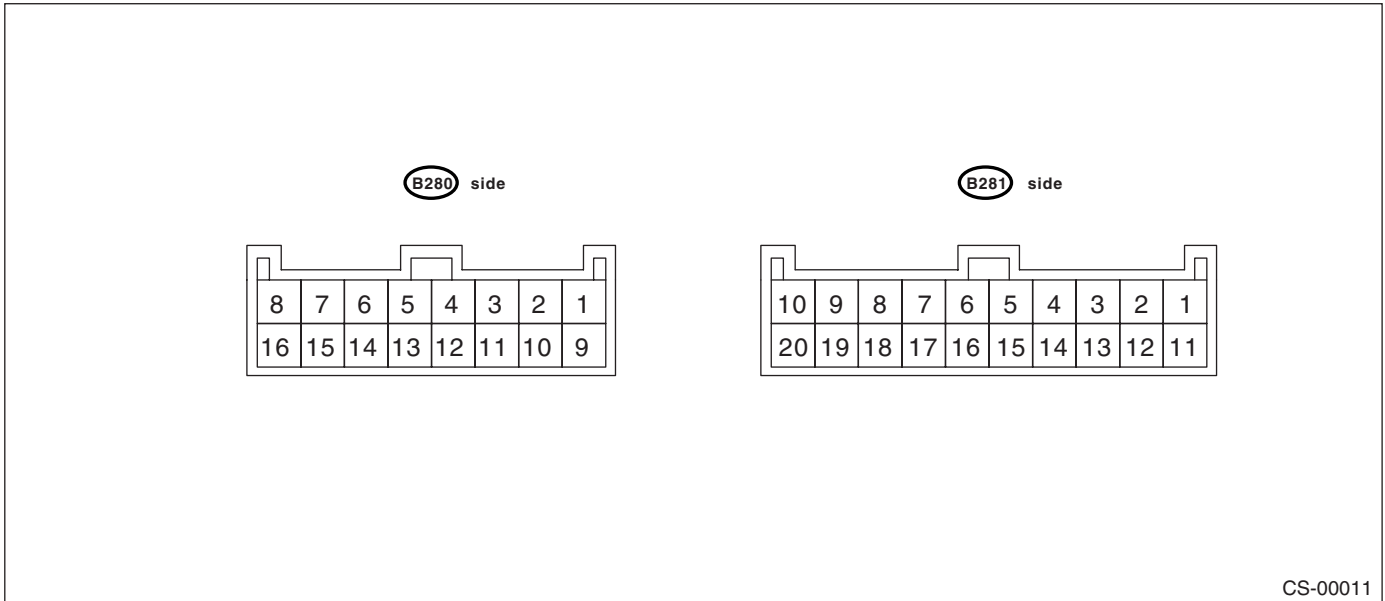
## CONTROL SYSTEMS



SUBARU.



## B: ELECTRICAL SPECIFICATION



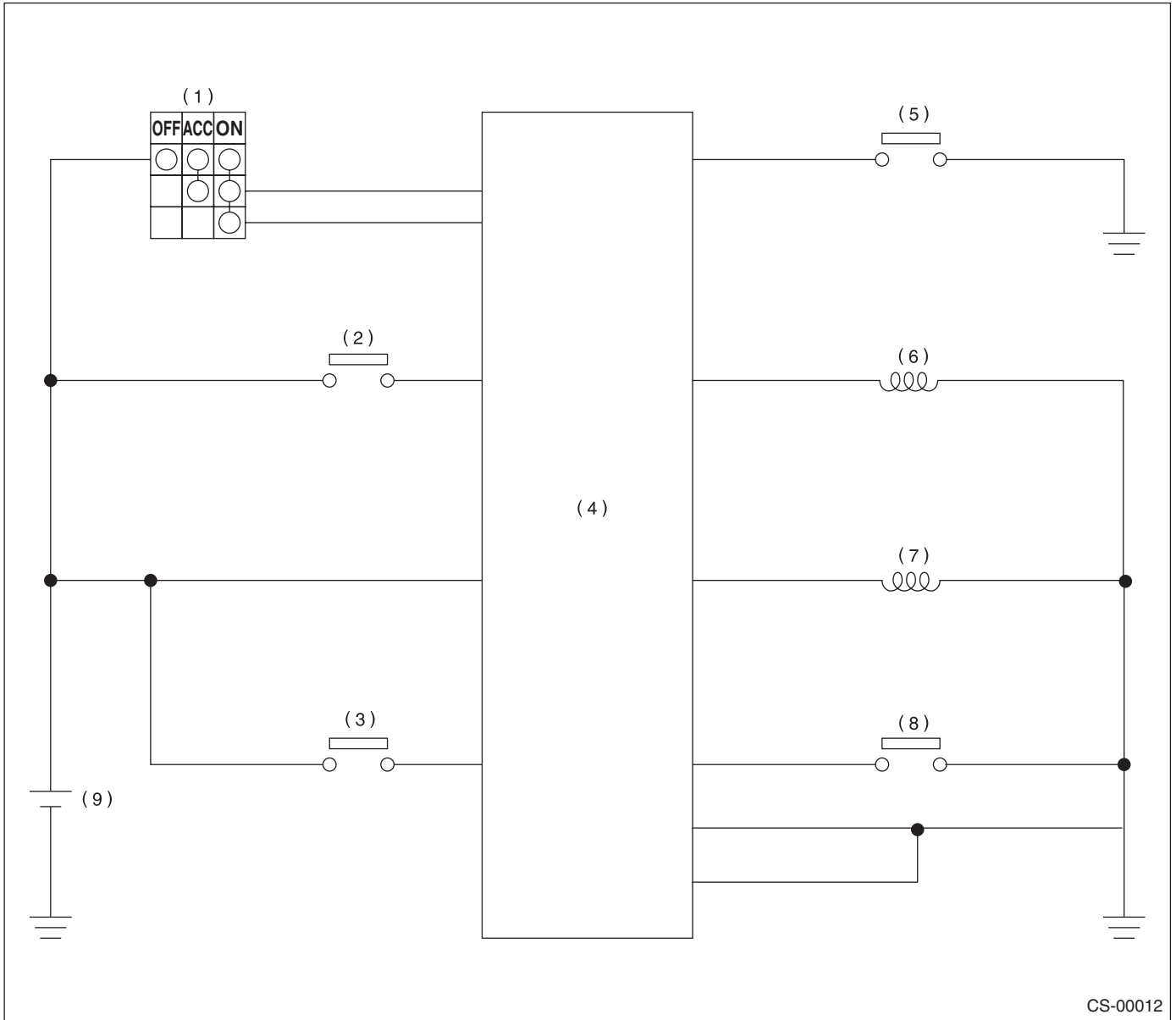
CS-00011

Contents	To Connector No.	Terminal No.	Input/Output signal
			Measured value and measuring conditions
Battery power supply	B280	2	9 — 16 V
Ignition power supply	B281	19	10 — 15 V when ignition switch is at ON or START.
Ignition power supply	B281	10	10 — 15 V when ignition switch is at ACC.
Inhibitor Switch (“P” range)	B281	5	0 V when select lever is in “P” range. 9 — 16 V when select lever is in other ranges than “P” range.
Stop light switch	B281	9	9 — 16 V when stop light switch is ON. 0 V when stop light switch is OFF.
“P” range switch	B281	6	0 V when select lever is in “P” range. 9 — 16 V when select lever is in other ranges than “P” range.
Shift lock solenoid signal	B280	9	8.5 — 16 V when shift lock is released. 0 V when shift lock is operating.
Key warning switch signal	B281	20	9 — 16 V when key is inserted. 0 V when key is removed.
Key lock solenoid signal	B280	3	7.5 — 16 V when turning ignition switch to ON, select lever is in “P” range and brake switch is ON. 0 V at other conditions than above.
Ground	B280	4	—
Ground	B280	13	—

# AT Shift Lock Control System

CONTROL SYSTEMS

## C: WIRING DIAGRAM



- (1) Ignition switch
- (2) Stop light switch
- (3) Key warning switch

- (4) Body integrated module
- (5) Inhibitor switch
- (6) Key lock solenoid

- (7) Shift lock solenoid
- (8) "P" range switch
- (9) Battery

## D: INSPECTION

### 1. SHIFT LOCK OPERATION

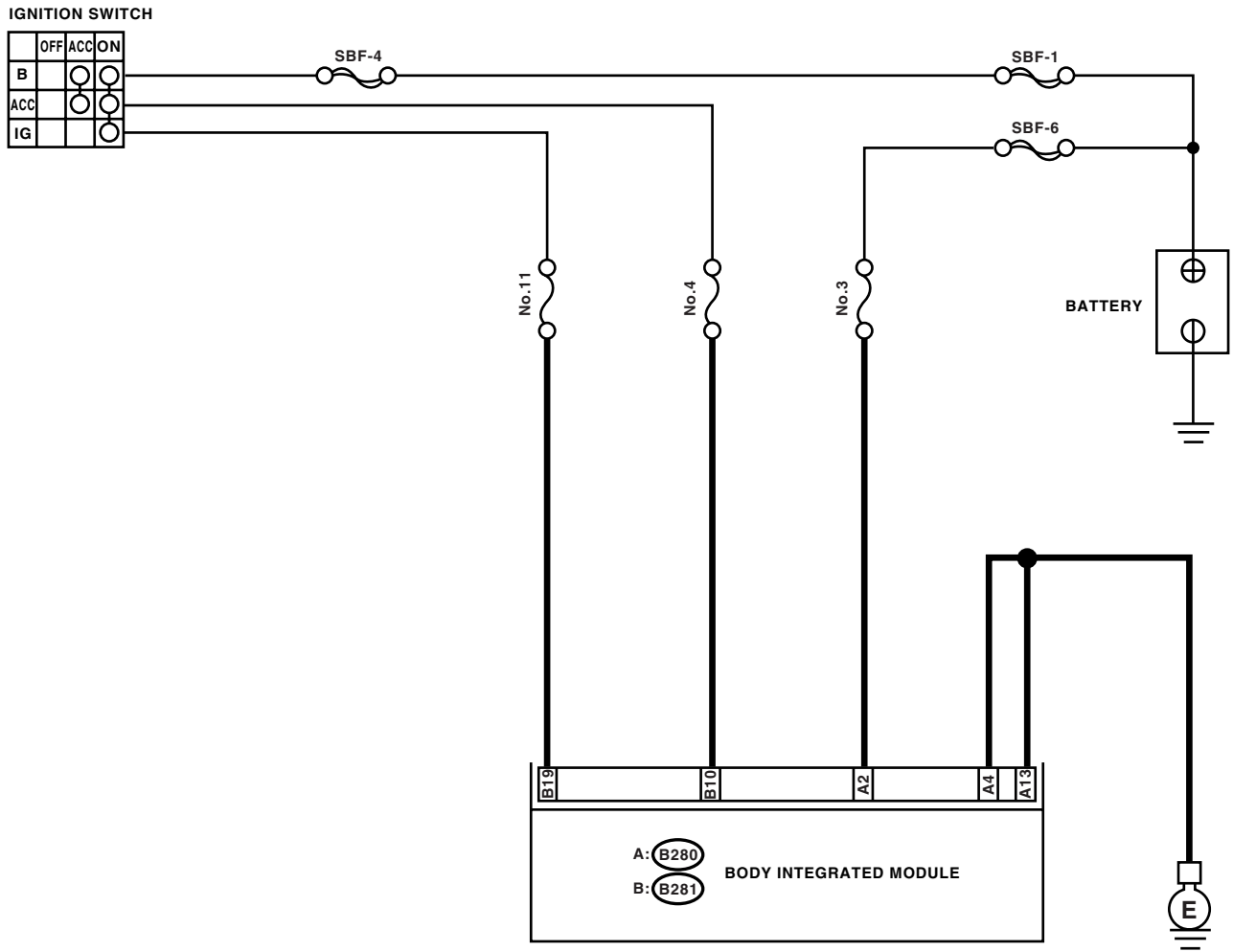
Step	Check	Yes	No
<b>1</b> <b>CHECK SHIFT LOCK.</b> 1) Turn the ignition switch ON. 2) Move the select lever to "P" range.	While the brake pedal is not depressed, can select lever move from "P" range to other ranges?	After inspection of "BODY INTEGRATED MODULE POWER SUPPLY AND GROUND LINE", inspect "SELECT LEVER SHIFT LOCK IS NOT OPERATED". <Ref. to CS-13, BODY INTEGRATED MODULE POWER SUPPLY AND GROUND LINE, INSPECTION, AT Shift Lock Control System.> <Ref. to CS-17, SELECT LEVER SHIFT LOCK IS NOT OPERATED, INSPECTION, AT Shift Lock Control System.>	Go to step 2.
<b>2</b> <b>CHECK SHIFT LOCK.</b>	While the brake pedal is depressed, can select lever move from "P" range to other ranges?	Go to step 3.	Inspect "SELECT LEVER CANNOT BE SHIFTED". <Ref. to CS-15, SELECT LEVER CANNOT BE SHIFTED, INSPECTION, AT Shift Lock Control System.>
<b>3</b> <b>CHECK KEY INTERLOCK.</b>	When the select lever is in other than "P" range, does ignition switch turn to "LOCK" position?	Inspect "KEY INTERLOCK DOES NOT BE LOCKED OR RELEASED. <Ref. to CS-17, SELECT LEVER SHIFT LOCK IS NOT OPERATED, INSPECTION, AT Shift Lock Control System.>	Go to step 4.

# AT Shift Lock Control System

## CONTROL SYSTEMS

Step	Check	Yes	No
4 <b>CHECK KEY INTERLOCK.</b>	When the select lever is in "P" range, 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-17, SELECT LEVER SHIFT LOCK IS NOT OPERATED, INSPECTION, AT Shift Lock Control System.>

## 2. BODY INTEGRATED MODULE POWER SUPPLY AND GROUND LINE



(B281)

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

(B280)

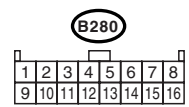
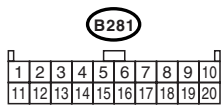
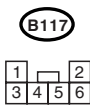
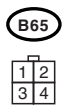
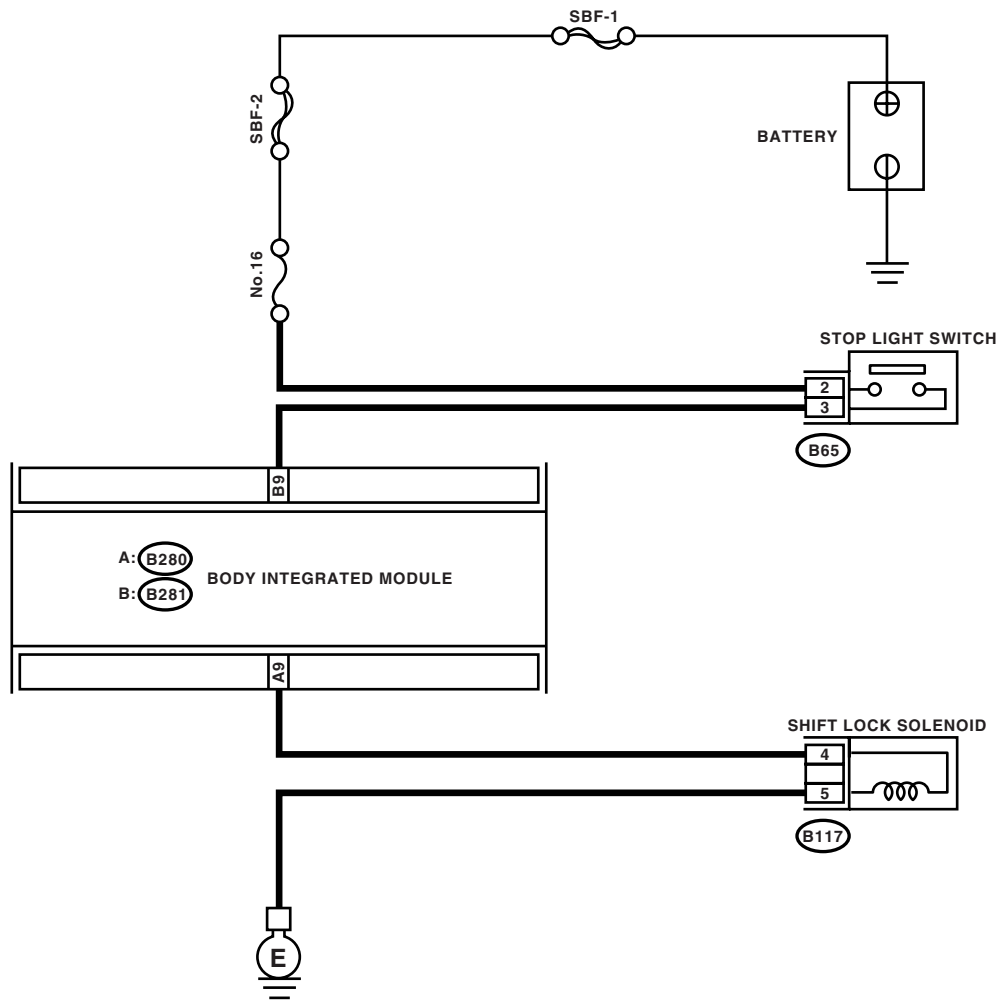
1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16

# AT Shift Lock Control System

## CONTROL SYSTEMS

Step	Check	Yes	No
<b>1 CHECK FUSE.</b> Remove the fuse (No. 3, 4 and 11).	Is the fuse (No. 3, 4 or 11) blown out?	Replace the fuse (No. 3, 4 or 11). If the replaced fuse (No. 3, 4 or 11) has blown out easily, repair short circuit in harness between fuse and body integrated module.	Go to step 2.
<b>2 CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED MODULE AND BODY GROUND.</b> 1) Turn the ignition switch to OFF. 2) Measure the resistance of harness between body integrated module and chassis ground. <i>Connector &amp; terminal</i> <i>(B280) No. 4 — Chassis ground:</i> <i>(B280) No. 13 — Chassis ground:</i>	Is the resistance less than 1 $\Omega$ ?	Go to step 3.	Repair the open circuit in harness between body integrated module and body ground.
<b>3 CHECK BATTERY POWER SUPPLY.</b> 1) Turn the ignition switch to ON (engine OFF). 2) Measure the voltages between body integrated module and chassis ground. <i>Connector &amp; terminal</i> <i>(B280) No. 2 (+) — Chassis ground (-):</i>	Is the voltage more than 9 V?	Go to step 4.	Repair the open circuit harness between battery and body integrated module, and poor contact in coupling connector.
<b>4 CHECK IGNITION POWER SUPPLY CIRCUIT.</b> 1) Turn the ignition switch to ACC. 2) Measure the voltage between body integrated module and chassis ground. <i>Connector &amp; terminal</i> <i>(B281) No. 10 (+) — Chassis ground (-):</i>	Is the voltage more than 9 V?	Go to step 5.	Repair the open circuit harness between battery and body integrated module, and poor contact in coupling connector.
<b>5 CHECK IGNITION POWER SUPPLY CIRCUIT.</b> 1) Turn the ignition switch to ON (engine OFF). 2) Measure the voltage between body integrated module and chassis ground. <i>Connector &amp; terminal</i> <i>(B281) No. 19 (+) — Chassis ground (-):</i>	Is the voltage more than 9 V?	Go to step 6.	Repair the open circuit harness between battery and body integrated module, and poor contact in coupling connector.
<b>6 CHECK POOR CONTACT.</b>	Is there poor contact in connector?	Repair the poor contact.	Replace the body integrated module.

## 3. SELECT LEVER CANNOT BE SHIFTED



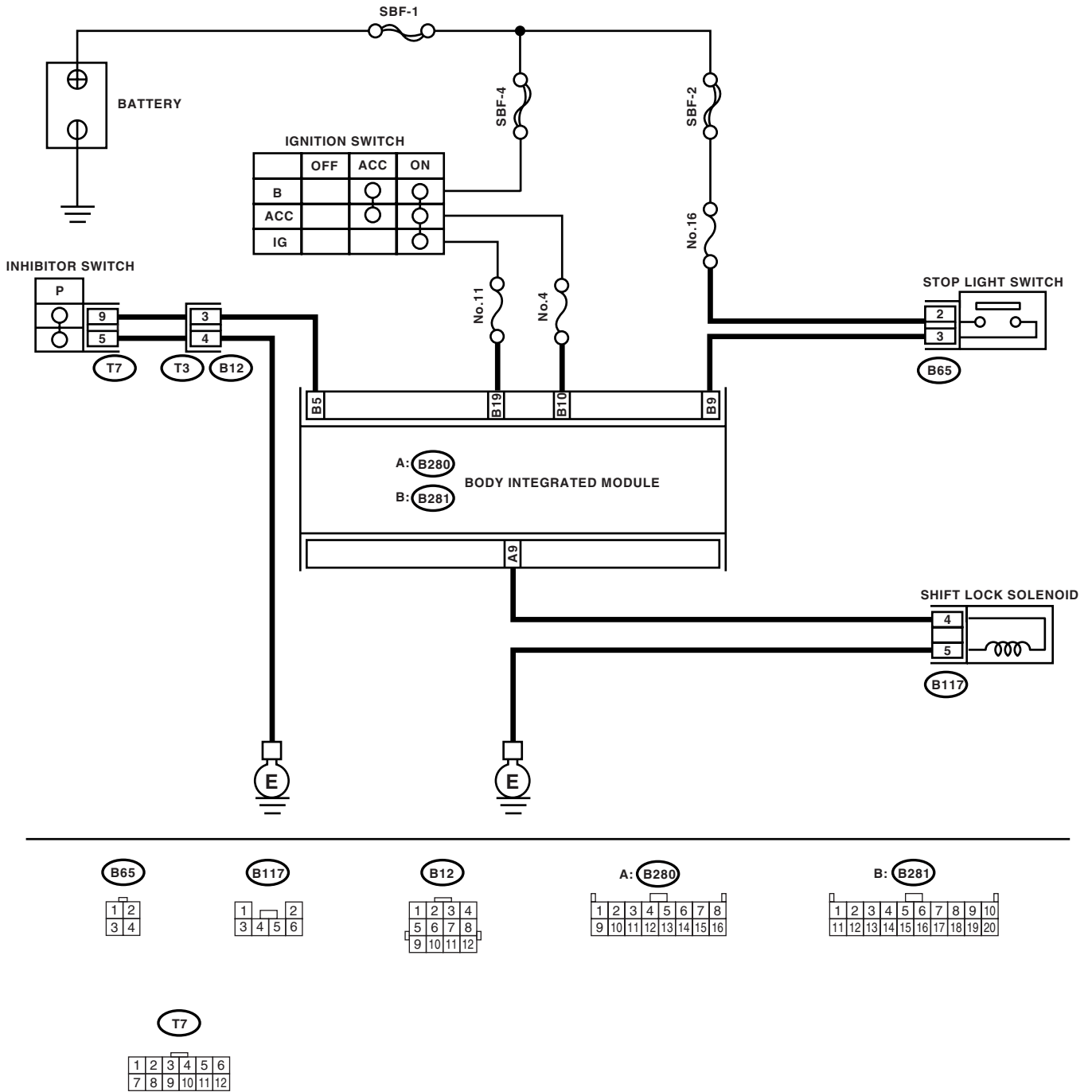
# AT Shift Lock Control System

## CONTROL SYSTEMS

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



## 4. SELECT LEVER SHIFT LOCK IS NOT OPERATED



CS-00681

# AT Shift Lock Control System

## CONTROL SYSTEMS

Step	Check	Yes	No
<b>1 CHECK INHIBITOR SWITCH.</b> 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.
<b>2 CHECK IGNITION POWER SUPPLY CIRCUIT.</b> 1) Turn the ignition switch to ON (engine OFF). 2) Measure the voltage between body integrated module and chassis ground. <i>Connector &amp; terminal</i> <i>(B281) No. 19 (+) — Chassis ground (-):</i>	Is the voltage more than 9 V?	Go to step 3.	Repair the open circuit harness between battery and body integrated module, and poor contact in coupling connector.
<b>3 CHECK HARNESS BETWEEN INHIBITOR SWITCH AND BODY INTEGRATED MODULE.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector of transmission harness and body integrated module. 3) Measure the resistance of harness between body integrated module and chassis ground. <i>Connector &amp; terminal</i> <i>(B281) No. 5 — Chassis ground:</i>	Is the resistance less than 1 $\Omega$ ?	Repair the short circuit in harness between body integrated module and transmission connector.	Go to step 4.
<b>4 CHECK HARNESS BETWEEN INHIBITOR SWITCH AND BODY INTEGRATED MODULE.</b> Measure the resistance of harness between body integrated module and inhibitor switch. <i>Connector &amp; terminal</i> <i>(B12) No. 3 — (B281) No. 5:</i>	Is the resistance more than 1 $M\Omega$ ?	Repair the open circuit in harness between body integrated module and transmission connector	Go to step 5.
<b>5 CHECK HARNESS BETWEEN INHIBITOR SWITCH AND CHASSIS GROUND.</b> Measure the resistance of harness between body integrated module and chassis ground. <i>Connector &amp; terminal</i> <i>(B12) No. 4 — Chassis ground:</i>	Is the resistance less than 1 $\Omega$ ?	Go to step 6.	Repair the open circuit in harness between body integrated module and chassis ground.
<b>6 CHECK INHIBITOR SWITCH.</b> 1) Move the select lever to "P" range. 2) Measure the resistance of transmission harness connector terminals. <i>Connector &amp; terminal</i> <i>(T3) No. 3 — No. 4:</i>	Is the resistance more than 1 $M\Omega$ ?	Repair or replace the inhibitor switch.	Go to step 7.
<b>7 CHECK OUTPUT SIGNAL FOR BODY INTEGRATED MODULE.</b> 1) Connect all connectors. 2) Turn the ignition switch to ON. 3) Measure the voltage between body integrated module and chassis ground. <i>Connector &amp; terminal</i> <i>(B281) No. 5 (+) — Chassis ground (-):</i>	Is the voltage 9 — 16 V?	Go to step 8.	Go to step 16.
<b>8 CHECK STOP LIGHT SWITCH.</b> Depress the brake pedal.	Does the stop light turn on?	Go to step 9.	Inspect the stop light system.

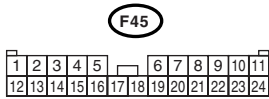
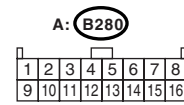
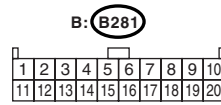
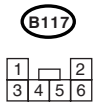
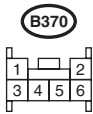
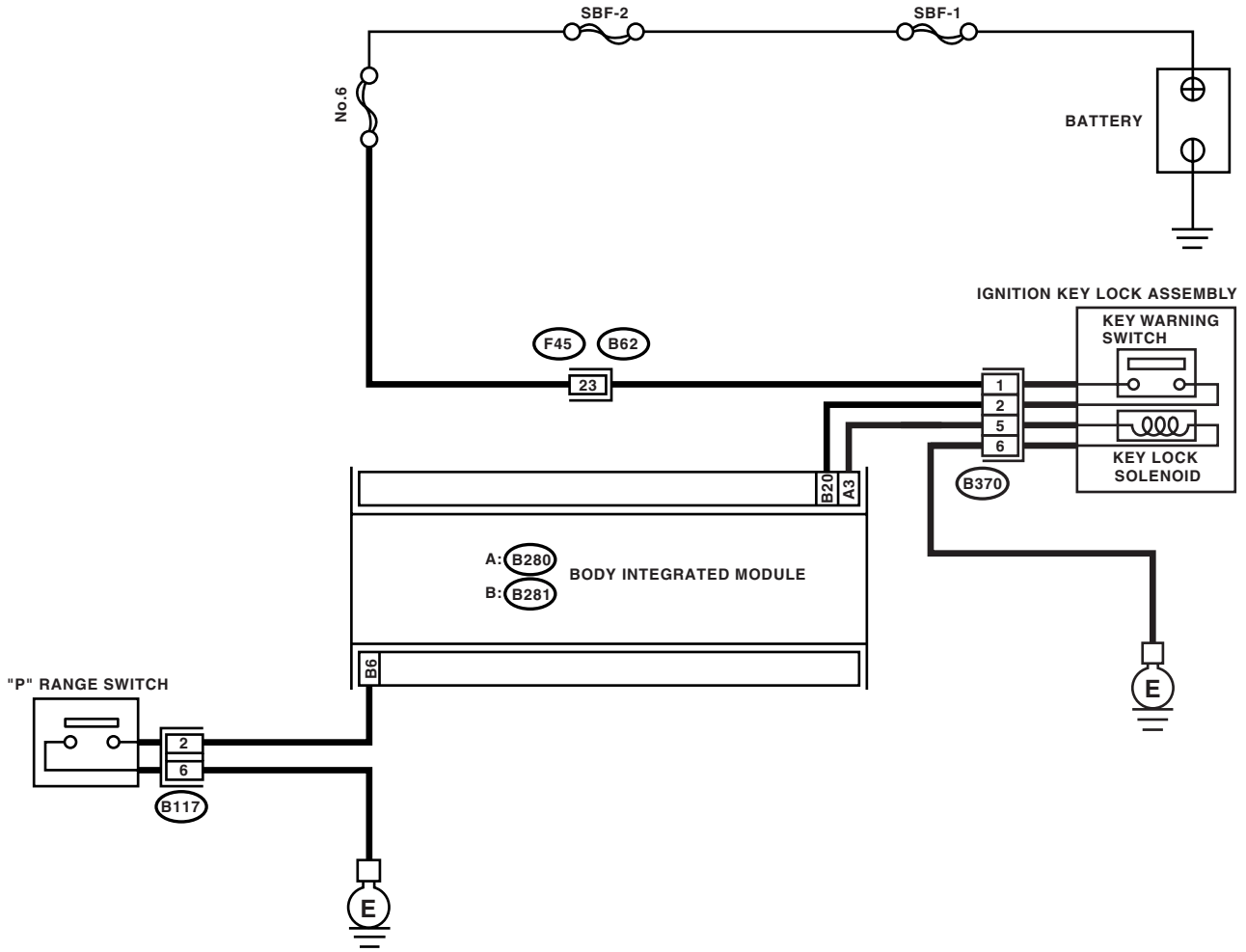
# AT Shift Lock Control System

Step	Check	Yes	No
<b>9 CHECK HARNESS BETWEEN STOP LIGHT SWITCH AND AT SHIFT LOCK CONTROL MODULE.</b> 1) Depress the brake pedal. 2) Measure the voltage between body integrated module and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B281) No. 9 (+) — Chassis ground (-):</b></i>	Is the voltage more than 9 V?	Go to step <b>10</b> .	Repair the open or short circuit in harness between body integrated module and stop light switch.
<b>10 CHECK HARNESS BETWEEN BODY INTEGRATED MODULE AND SHIFT LOCK SOLENOID.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from shift lock solenoid and body integrated module. 3) Measure the resistance of harness between body integrated module and shift lock solenoid. <i><b>Connector &amp; terminal</b></i> <i><b>(B280) No. 9 — (B117) No. 4:</b></i>	Is the resistance more than 1 M $\Omega$ ?	Repair the open circuit in harness between body integrated module and shift lock solenoid.	Go to step <b>11</b> .
<b>11 CHECK HARNESS BETWEEN BODY INTEGRATED MODULE AND SHIFT LOCK SOLENOID.</b> Measure the resistance of harness between shift lock solenoid and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B280) No. 9 — Chassis ground:</b></i>	Is the resistance less than 10 $\Omega$ ?	Go to step <b>12</b> .	Repair the short circuit in harness between body integrated module and shift lock solenoid.
<b>12 CHECK HARNESS BETWEEN SHIFT LOCK SOLENOID AND CHASSIS GROUND.</b> Measure the resistance of harness between shift lock solenoid and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B117) No. 5 — Chassis ground:</b></i>	Is the resistance less than 1 $\Omega$ ?	Go to step <b>13</b> .	Repair the open circuit in harness between shift lock solenoid and chassis ground.
<b>13 CHECK SHIFT LOCK SOLENOID.</b> Measure the resistance of shift lock solenoid connector terminals. <i><b>Terminals</b></i> <i><b>No. 4 — No. 5:</b></i>	Is the resistance 20 — 40 $\Omega$ ?	Go to step <b>14</b> .	Replace the shift lock solenoid.
<b>14 CHECK SHIFT LOCK SOLENOID.</b> Connect the battery with shift lock solenoid connector terminal and operate solenoid. <i><b>Terminals</b></i> <i><b>No. 4 (+) — No. 5 (-):</b></i>	Is the shift lock solenoid operating properly?	Go to step <b>15</b> .	Replace the shift lock solenoid.
<b>15 CHECK OUTPUT SIGNAL FOR AT SHIFT LOCK CONTROL MODULE.</b> 1) Turn the ignition switch to ON (engine OFF). 2) Measure the voltage between body integrated module and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B280) No. 9 (+) — Chassis ground (-):</b></i>	Is the voltage more than 8.5 V?	Go to step <b>16</b> .	Replace the body integrated module.
<b>16 CHECK POOR CONTACT.</b>	Is there poor contact in connector?	Repair the poor contact.	Replace the body integrated module.

# AT Shift Lock Control System

CONTROL SYSTEMS

## 5. KEY INTERLOCK DOES NOT LOCK OR RELEASE



CS-00467

# AT Shift Lock Control System

CONTROL SYSTEMS

Step	Check	Yes	No
<b>1 CHECK HARNESS BETWEEN BATTERY AND KEY WARNING SWITCH.</b> 1) Disconnect the connector key warning switch. 2) Measure the voltage of harness between key warning switch and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B370) No. 1 (+) — Chassis ground (-):</b></i>	Is the voltage 9 — 16 V?	Go to step 2.	Repair the open or short circuit in harness between battery and key warning switch.
<b>2 CHECK KEY WARNING SWITCH.</b> Measure the resistance of key warning switch connector terminals. <i><b>Terminals</b></i> <i><b>No. 1 — No. 2:</b></i>	Is the resistance more than 1 M $\Omega$ ?	Replace the key warning switch.	Go to step 3.
<b>3 CHECK KEY WARNING SWITCH.</b> 1) Remove the key. 2) Measure the resistance of key warning switch connector terminals. <i><b>Terminals</b></i> <i><b>No. 1 — No. 2:</b></i>	Is the resistance more than 1 M $\Omega$ ?	Go to step 4.	Replace the key warning switch.
<b>4 CHECK HARNESS BETWEEN AT SHIFT LOCK CONTROL MODULE AND KEY WARNING SWITCH.</b> 1) Disconnect the body integrated module connector. 2) Measure the voltage of harness body integrated module and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B281) No. 20 (+) — Chassis ground (-):</b></i>	Is the voltage more than 9 V?	Go to step 5.	Repair the open circuit in harness between body integrated module and key warning switch.
<b>5 CHECK HARNESS BETWEEN BODY INTEGRATED MODULE AND KEY LOCK SOLENOID.</b> 1) Disconnect the connector of key lock solenoid. 2) Measure the resistance of harness between body integrated module and key lock solenoid. <i><b>Connector &amp; terminal</b></i> <i><b>(B370) No. 5 — (B280) No. 3:</b></i>	Is the resistance more than 1 M $\Omega$ ?	Repair the open circuit in harness between body integrated module and key lock solenoid.	Go to step 6.
<b>6 CHECK HARNESS BETWEEN BODY INTEGRATED MODULE AND KEY LOCK SOLENOID.</b> Measure the resistance of harness between body integrated module and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B280) No. 3 — Chassis ground:</b></i>	Is the resistance more than 1 $\Omega$ ?	Go to step 7.	Repair the short circuit in harness between body integrated module and key lock solenoid.
<b>7 CHECK HARNESS BETWEEN KEY LOCK SOLENOID AND CHASSIS GROUND.</b> Measure the resistance of harness between key lock solenoid and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B370) No. 6 — Chassis ground:</b></i>	Is the resistance less than 10 $\Omega$ ?	Go to step 8.	Repair the open circuit in harness between key lock solenoid and chassis ground.
<b>8 CHECK KEY LOCK SOLENOID.</b> Measure the resistance of key lock solenoid connector terminals. <i><b>Terminals</b></i> <i><b>No. 5 — No. 6:</b></i>	Is the resistance 4 — 8 $\Omega$ ?	Go to step 9.	Replace the key lock solenoid.

# AT Shift Lock Control System

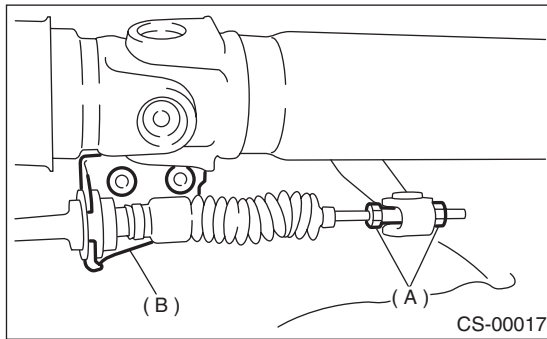
## CONTROL SYSTEMS

Step	Check	Yes	No
<b>9 CHECK HARNESS BETWEEN “P” RANGE SWITCH AND CHASSIS GROUND.</b> Measure the resistance of harness between “P” range switch and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B117) No. 2 — Chassis ground:</b></i>	Is the resistance less than 1 $\Omega$ ?	Go to step 10.	Repair the short circuit in harness between “P” range switch and body integrated module.
<b>10 CHECK HARNESS BETWEEN AT SHIFT LOCK CONTROL MODULE AND “P” RANGE SWITCH.</b> 1) Disconnect the connector from “P” range switch. 2) Measure the resistance of harness between body integrated module and “P” range switch. <i><b>Connector &amp; terminal</b></i> <i><b>(B117) No. 2 — (B281) No. 6:</b></i>	Is the resistance more than 1 $M\Omega$ ?	Repair the open circuit in harness between body integrated module and “P” range switch.	Go to step 11.
<b>11 CHECK HARNESS BETWEEN “P” RANGE SWITCH AND CHASSIS GROUND.</b> Measure the resistance of harness “P” range switch and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B117) No. 6 — Chassis ground:</b></i>	Is the resistance more than 1 $M\Omega$ ?	Repair the open circuit in harness between “P” range switch and chassis ground.	Go to step 12.
<b>12 CHECK “P” RANGE SWITCH.</b> 1) Move the select lever to “P” range. 2) Measure resistance between “P” range switch connector terminals. <i><b>Terminals</b></i> <i><b>No. 2 — No. 6:</b></i>	Is the resistance less than 1 $\Omega$ ?	Go to step 13.	Replace the “P” range switch.
<b>13 CHECK “P” RANGE SWITCH.</b> 1) Move the select lever to other than “P” range. 2) Measure resistance between “P” range switch connector terminals. <i><b>Terminals</b></i> <i><b>No. 2 — No. 6:</b></i>	Is the resistance more than 1 $M\Omega$ ?	Go to step 14.	Replace the “P” range switch.
<b>14 CHECK OUTPUT SIGNAL FOR BODY INTEGRATED MODULE.</b> 1) Connect all connectors. 2) Turn the ignition switch to ON (engine OFF). 3) Move the select lever to “P” range. 4) Press the brake pedal. 5) Measure the voltage between body integrated module connector and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B280) No. 3 (+) — Chassis ground (-):</b></i>	Is the voltage 7.5 — 16 V?	Go to step 15.	Replace the body integrated module.
<b>15 CHECK POOR CONTACT.</b>	Is there poor contact in connector?	Repair the poor contact.	Replace the body integrated module.

## 3. Select Lever

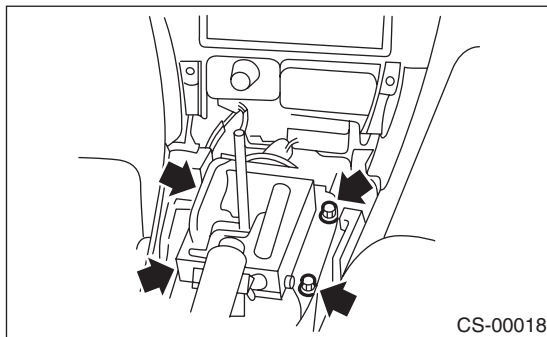
### A: REMOVAL

- 1) Set the vehicle on a lift.
- 2) Disconnect the ground cable from battery.
- 3) Set the select lever to the "N" range.
- 4) Lift-up the vehicle.
- 5) Remove the rear exhaust pipe and muffler.
  - SOHC model  
<Ref. to EX(H4SO)-7, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4SO)-8, REMOVAL, Muffler.>
  - DOHC turbo model  
<Ref. to EX(H4DOTC)-15, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-16, REMOVAL, Muffler.>
- 6) Disconnect the cable from select lever, and then remove the cable bracket.



- (A) Adjusting nuts  
(B) Cable bracket

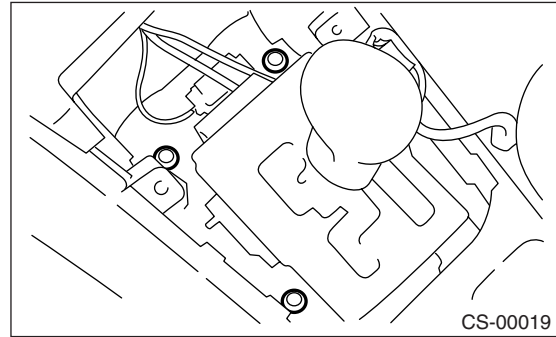
- 7) Lower the vehicle.
- 8) Remove the console box. <Ref. to EI-46, REMOVAL, Console Box.>
- 9) Disconnect the connectors, then remove the four bolts to take out the select lever from the body.



### B: INSTALLATION

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

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



- 3) Install the console box. <Ref. to EI-46, INSTALLATION, Console Box.>
- 4) Set location of the select lever at "N" range.
- 5) Lift-up the vehicle.
- 6) Set location of the range select lever to "N" range.
- 7) Insert the thread portion of the other inner cable and into the connector hole of the select lever, and fix the other outer cable end to the bracket.

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

- 8) Adjust the select cable position. <Ref. to CS-28, ADJUSTMENT, Select Cable.>
- 9) After completion of fitting, make sure that the select lever operates smoothly all across the operating range.
- 10) Install the rear exhaust pipe and muffler.
  - SOHC model  
<Ref. to EX(H4SO)-7, INSTALLATION, Rear Exhaust Pipe.> <Ref. to EX(H4SO)-8, INSTALLATION, Muffler.>
  - DOHC turbo model  
<Ref. to EX(H4DOTC)-15, INSTALLATION, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-16, INSTALLATION, Muffler.>
- 11) Inspect the following items. If the following inspection reveals faults, adjust the select cable and inhibitor switch. <Ref. to CS-28, ADJUSTMENT, Select Cable.> <Ref. to 4AT-48, ADJUSTMENT, Inhibitor Switch.>

- (1) The engine starts operating when select lever is in range "P" and "N", but not in other ranges.
- (2) The back-up light is lit when the select lever is in range "R", but not in other ranges.
- (3) Select lever and indicator ranges are matched.

### C: DISASSEMBLY

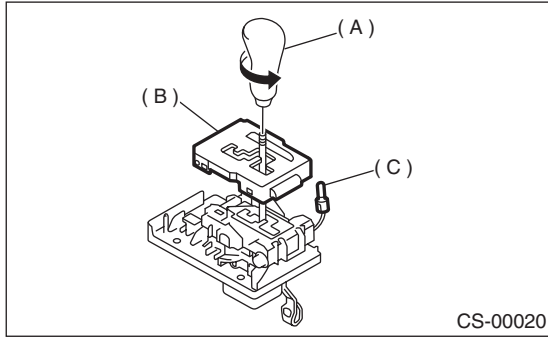
- 1) Remove the packing.
- 2) Remove the grip.
- 3) Remove the indicator light, and then remove the indicator cover.

# Select Lever

## CONTROL SYSTEMS

### NOTE:

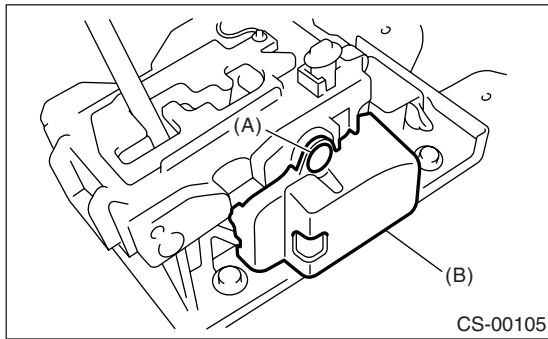
Be careful not to break the indicator light during removal.



- (A) Grip
- (B) Indicator cover
- (C) Indicator light

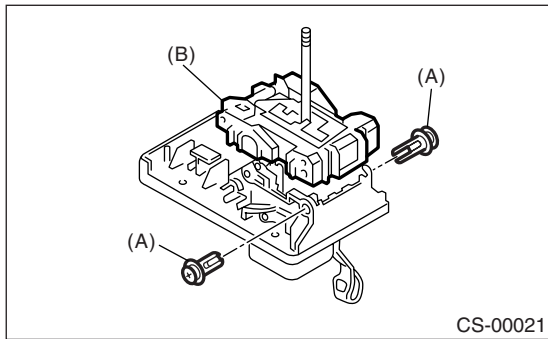
4) Remove the blind.

5) Remove the cover.



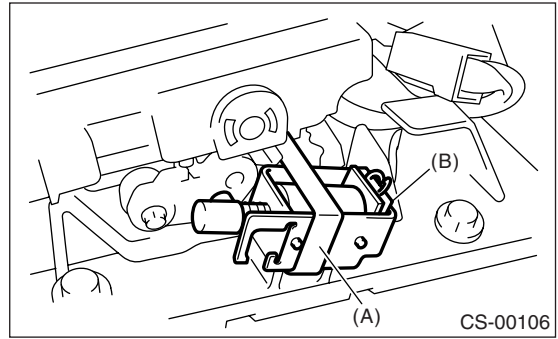
- (A) Clip
- (B) Cover

6) Remove the clips, and then remove the guide plate.



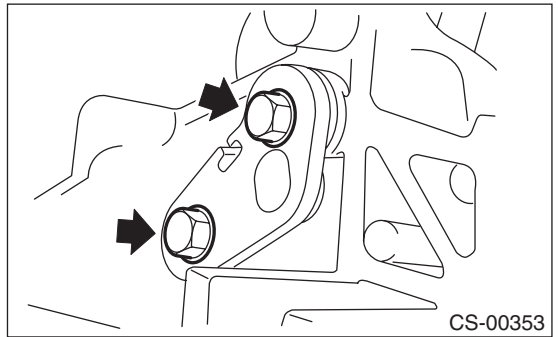
- (A) Clips
- (B) Guide plate

7) Remove the clamp, and then remove the shift lock solenoid.

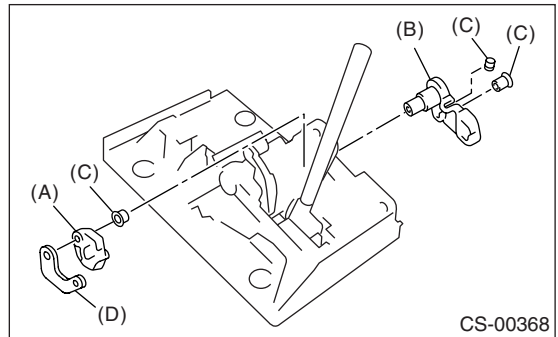


- (A) Clamp
- (B) Shift lock solenoid

8) Remove the bolt securing lock plate B.



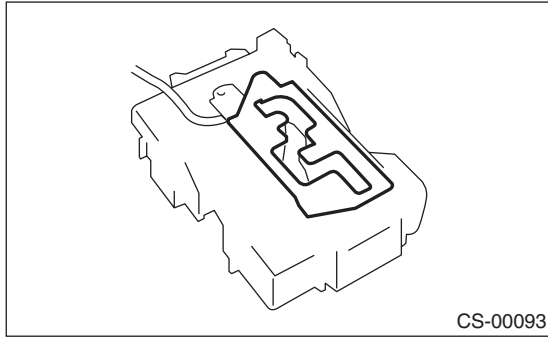
9) Remove the lock plates A, B, C and bushing.



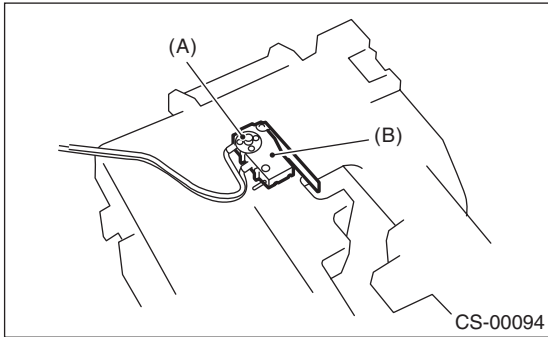
- (A) Lock plate A
- (B) Lock plate B
- (C) Bushing
- (D) Lock plate C



10) Remove the cushion plate.

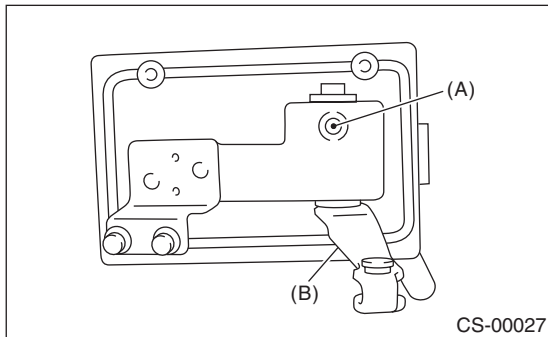


11) Remove the clip, and then remove the "P" range switch.



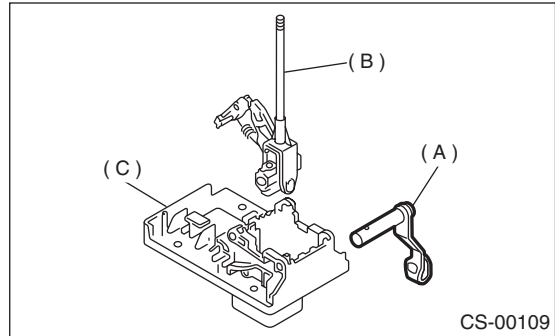
- (A) Clip
- (B) "P" range switch

12) Remove the grommet, and then extract spring pin.



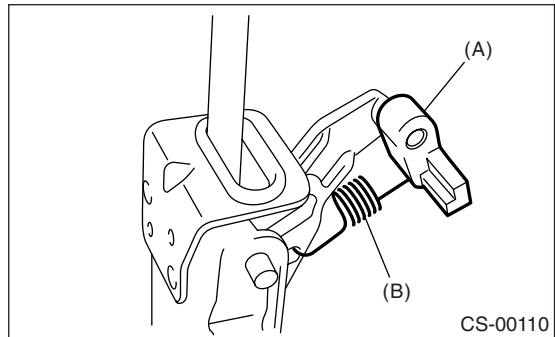
- (A) Spring pin
- (B) Select lever arm

13) Remove the select lever arm, and then take away the select lever assembly from plate.



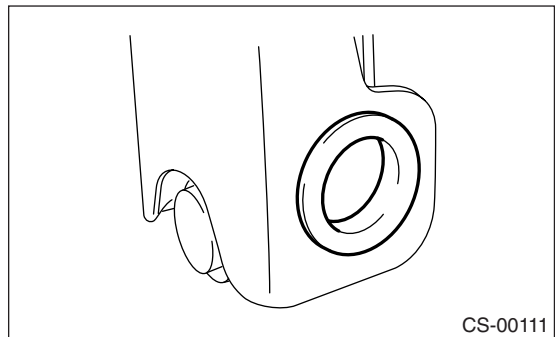
- (A) Select lever arm
- (B) Select lever ASSY
- (C) Plate

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

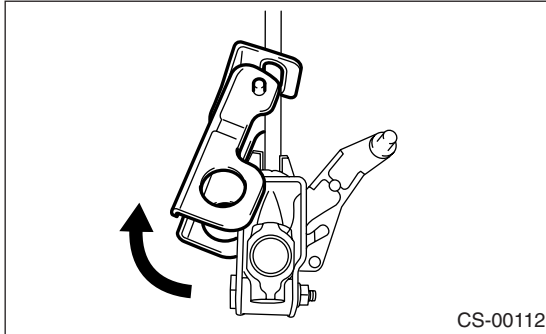


- (A) Detent arm
- (B) Detent spring

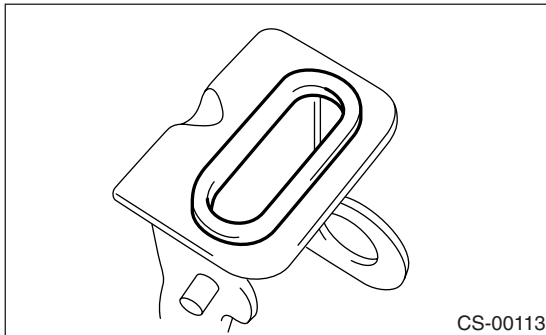
15) Remove the select lever assembly bushing from bracket.



- 16) Remove the bracket from select lever assembly.



- 17) Remove the bushing from bracket.



### D: ASSEMBLY

- 1) Clean all parts before assembly.
- 2) Apply grease to each select lever parts. <Ref. to CS-2, AT SELECT LEVER, COMPONENT, General Description.>

#### **Lock plate:**

**SUNCALL GREASE (Part No. 002948040)**

#### **Except lock plate:**

**KOPR-KOTE (Part No. 003603001) or equivalent**

- 3) Assembly is in the reverse order of disassembly.
- 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.

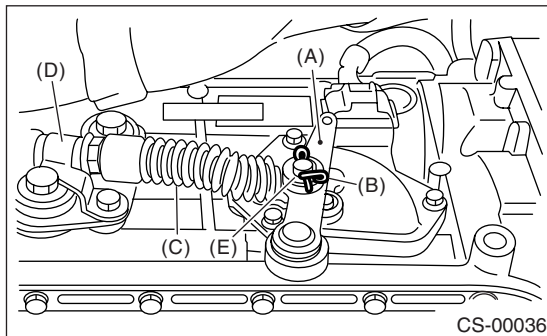
### E: INSPECTION

- 1) Inspect the removed parts 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 assembly, it should move smoothly.

## 4. Select Cable

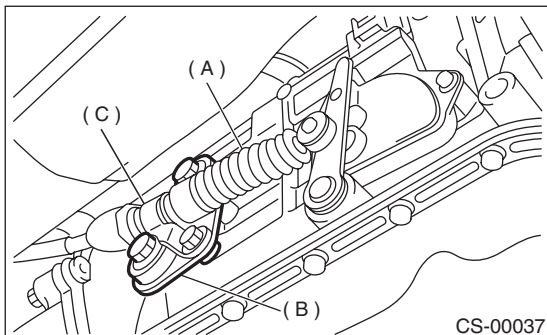
### A: REMOVAL

- 1) Set the vehicle on a lift.
- 2) Set the select lever to "N" range.
- 3) Disconnect negative cable from battery.
- 4) Lift-up the vehicle.
- 5) Remove front, center, rear exhaust pipe and muffler. (SOHC model)  
<Ref. to EX(H4SO)-4, REMOVAL, Front Exhaust Pipe.> <Ref. to EX(H4SO)-6, REMOVAL, Center Exhaust Pipe.> <Ref. to EX(H4SO)-7, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4SO)-8, REMOVAL, Muffler.>
- 6) Remove the center and rear exhaust pipes and muffler. (DOHC turbo model)  
<Ref. to EX(H4DOTC)-10, REMOVAL, Center Exhaust Pipe.> <Ref. to EX(H4DOTC)-15, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-16, REMOVAL, Muffler.>
- 7) Remove the snap pin and washer from range select lever.



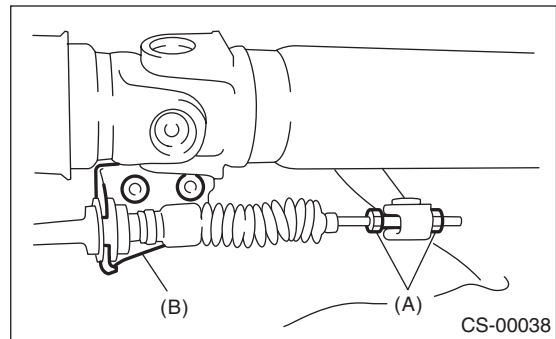
- (A) Range select lever
- (B) Snap pin
- (C) Select cable
- (D) Clamp
- (E) Washer

- 8) Remove the plate assembly from transmission case.



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

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



- (A) Adjusting nuts
- (B) Cable bracket

- 10) Remove the select cable from plate assembly.

### B: INSTALLATION

- 1) Install the select cable to plate assembly.

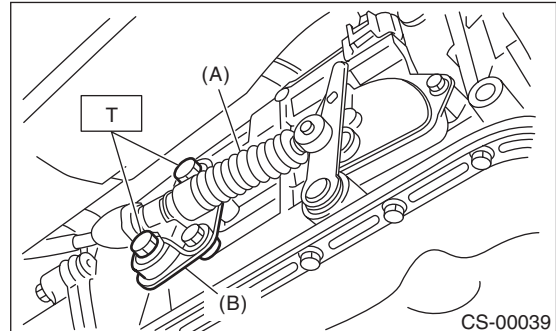
#### Tightening torque:

**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)**

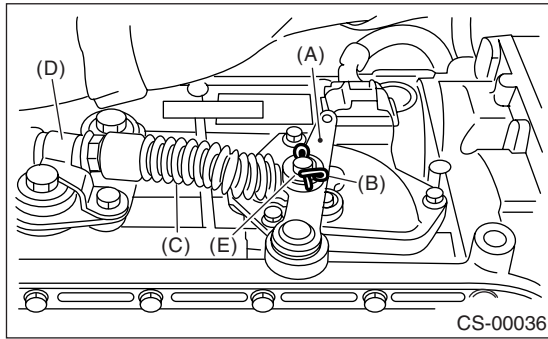


- (A) Select cable
- (B) Plate ASSY

## Select Cable

### CONTROL SYSTEMS

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) Insert the thread portion of other inner cable and into connector hole of select lever, and fix the other outer cable end to the bracket.

#### **Tightening torque:**

**18 N·m (1.8 kgf-m, 13.0 ft-lb)**

6) Move the select lever to “N” range, and then adjust the select cable position. <Ref. to CS-28, ADJUSTMENT, Select Cable.>

7) Install the front, center, rear exhaust pipe and muffler. (SOHC model)

<Ref. to EX(H4SO)-4, INSTALLATION, Front Exhaust Pipe.> <Ref. to EX(H4SO)-6, INSTALLATION, Center Exhaust Pipe.> <Ref. to EX(H4SO)-7, INSTALLATION, Rear Exhaust Pipe.> <Ref. to EX(H4SO)-8, INSTALLATION, Muffler.>

8) Install center and rear exhaust pipes and muffler. (DOHC turbo model)

<Ref. to EX(H4DOTC)-11, INSTALLATION, Center Exhaust Pipe.> <Ref. to EX(H4DOTC)-15, INSTALLATION, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-16, INSTALLATION, Muffler.>

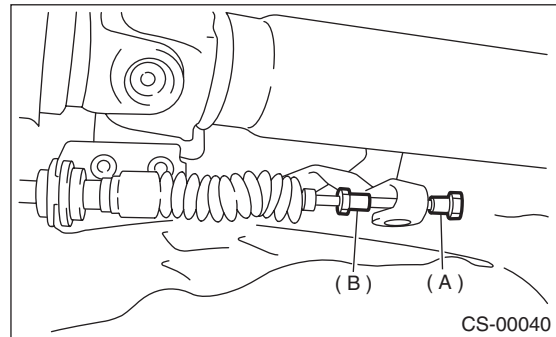
### **C: INSPECTION**

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” range to “1” range. You should be able to feel the detents in each range. If the detents cannot be felt or the range pointer is improperly aligned, adjust the cable.

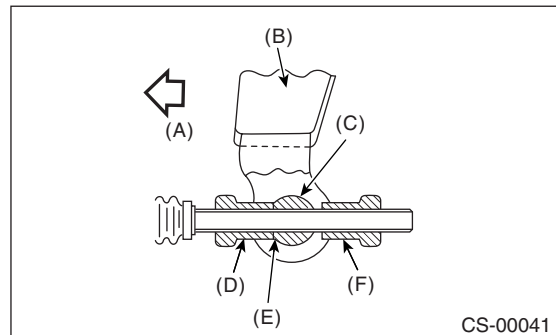
### **D: ADJUSTMENT**

- 1) Set the vehicle on a lift.
- 2) Set the select lever to “N” range.
- 3) Lift-up the vehicle.
- 4) Remove the rear exhaust pipe and muffler.
  - SOHC model  
<Ref. to EX(H4SO)-7, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4SO)-8, REMOVAL, Muffler.>
  - DOHC turbo model  
<Ref. to EX(H4DOTC)-15, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-16, REMOVAL, Muffler.>
- 5) Loosen the adjusting nut on each side.



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

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

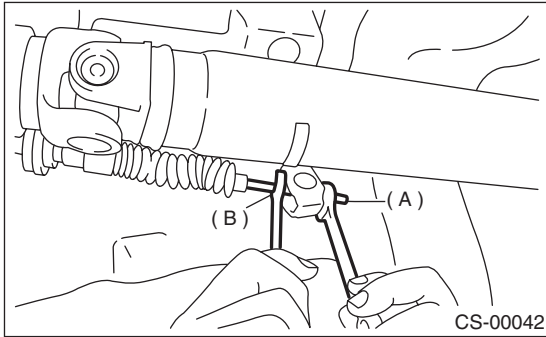


- (A) Front side
- (B) Select lever
- (C) Connector
- (D) Adjusting nut B
- (E) Contact point
- (F) Adjusting nut A

7) 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

8) After completion of fitting, make sure that the select lever operates smoothly all across the operating range.

9) Install in the reverse order of removal.

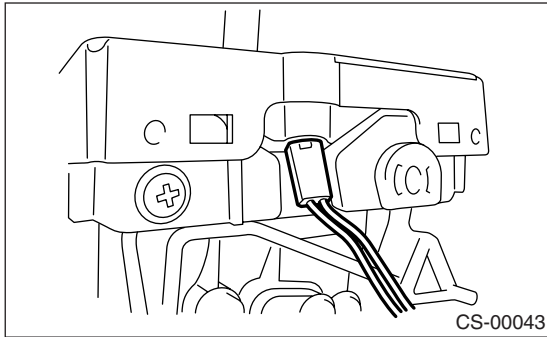
# AT Shift Lock Solenoid and "P" Range Switch

## CONTROL SYSTEMS

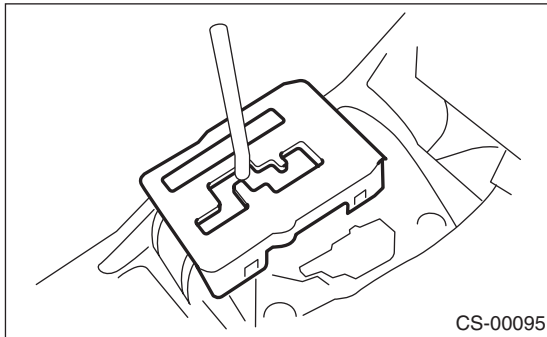
### 5. AT Shift Lock Solenoid and "P" Range Switch

#### A: REMOVAL

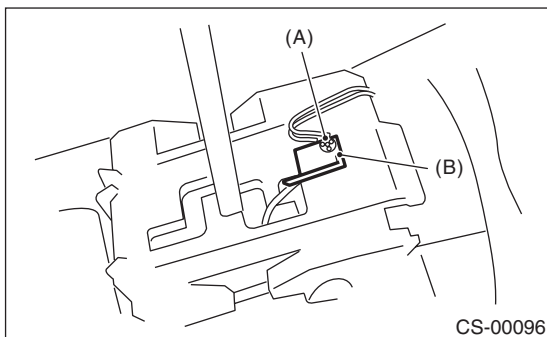
- 1) Disconnect the ground cable from battery.
- 2) Remove the console box. <Ref. to EI-46, REMOVAL, Console Box.>
- 3) Disconnect the connector.
- 4) Remove the grip.
- 5) Remove the indicator bulb from indicator cover.



- 6) Remove the indicator cover.

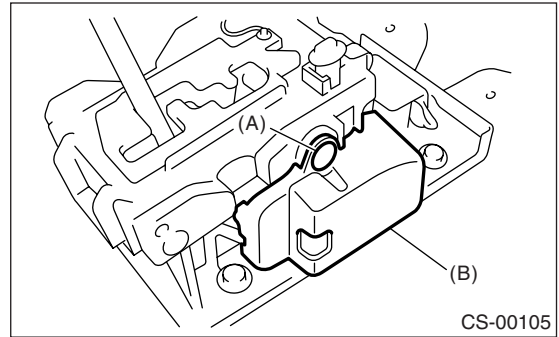


- 7) Remove the blind.
- 8) Remove the cushion.
- 9) Remove the clip, and then remove the "P" range switch.



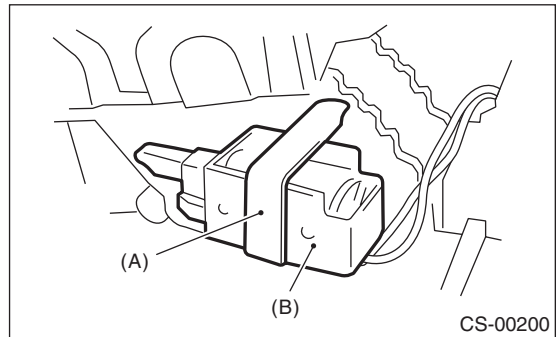
- (A) Clip
- (B) "P" range switch

- 10) Remove the cover.



- (A) Clip
- (B) Cover

- 11) Remove the clamp, and then remove the shift lock solenoid.



- (A) Clamp
- (B) Shift lock solenoid

#### B: INSTALLATION

Install in the reverse order of removal.

# AT Shift Lock Solenoid and “P” Range Switch

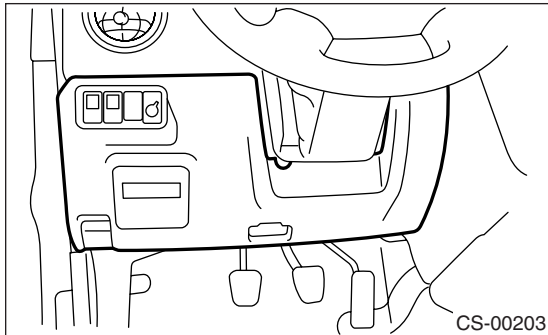
## C: INSPECTION

Step	Check	Yes	No
<b>1</b> <b>CHECK SHIFT LOCK SOLENOID.</b> Measure the resistance of shift lock solenoid connector terminals. <i>Terminals</i> <i>No. 4 — No. 5:</i>	Is the resistance between 20 and 40 $\Omega$ ?	Go to step 2.	Replace the shift lock solenoid and “P” range switch assembly.
<b>2</b> <b>CHECK SHIFT LOCK SOLENOID.</b> Connect the battery with shift lock solenoid connector terminal, operate solenoid. <i>Terminals</i> <i>No. 4 (+) — No. 5 (-):</i>	Is the shift lock solenoid operating properly?	Go to step 3.	Replace the shift lock solenoid and “P” range switch assembly.
<b>3</b> <b>CHECK “P” RANGE SWITCH.</b> 1) Move the select lever to “P” range. 2) Measure the resistance between “P” range switch connector terminals.	Is the resistance less than 1 $\Omega$ ?	Go to step 4.	Replace the “P” range switch.
<b>4</b> <b>CHECK “P” RANGE SWITCH.</b> 1) Move the select lever to other than “P” range. 2) Measure the resistance between “P” range switch connector terminals.	Is the resistance more than 1 $M\Omega$ ?	Normal	Replace the “P” range switch.

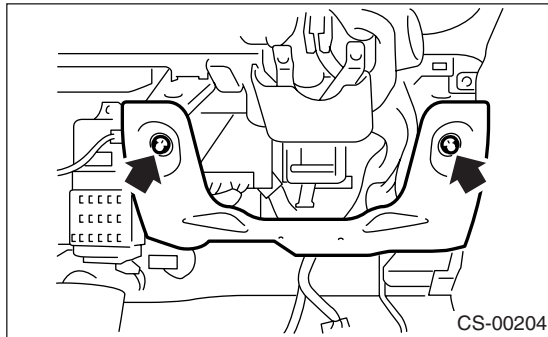
## 6. Body Integrated Module

### A: REMOVAL

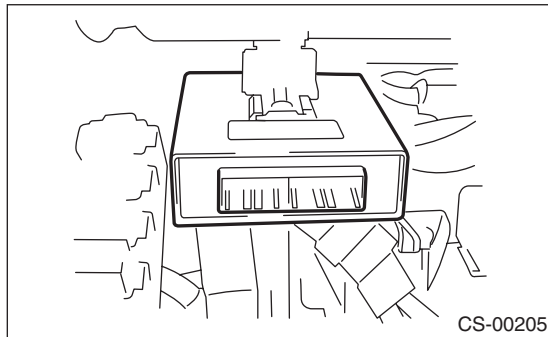
- 1) Disconnect the ground cable from battery.
- 2) Remove the lower cover.



- 3) Remove the knee bolster.



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



### B: INSTALLATION

Install in the reverse order of removal.

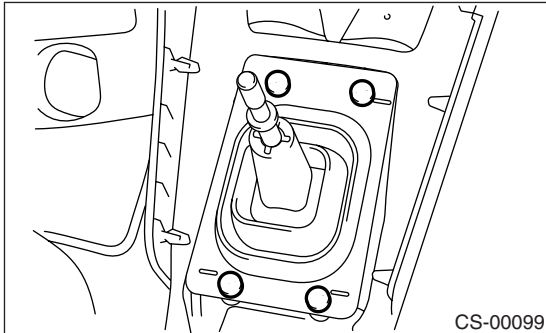


## 7. MT Gear Shift Lever

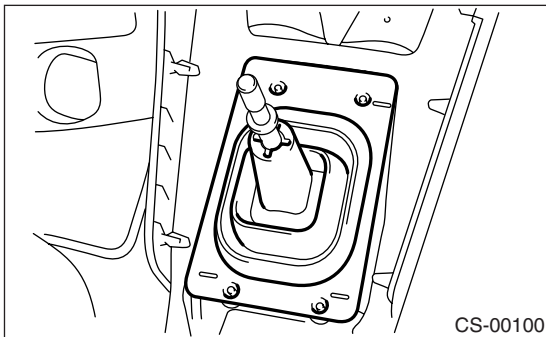
### A: REMOVAL

#### 1. 5MT

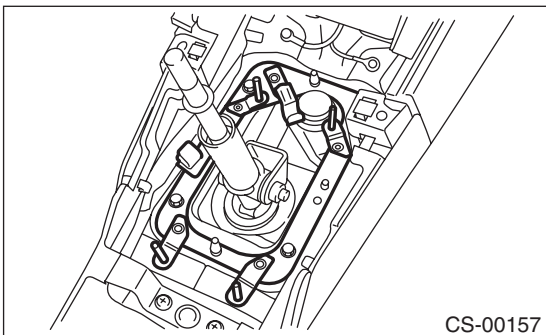
- 1) Set the vehicle on a lift.
- 2) Disconnect the ground cable from battery.
- 3) Remove the gear shift knob.
- 4) Remove the console box. <Ref. to EI-46, REMOVAL, Console Box.>
- 5) Remove the clamp.



- 6) Remove the boot and insulator assembly.

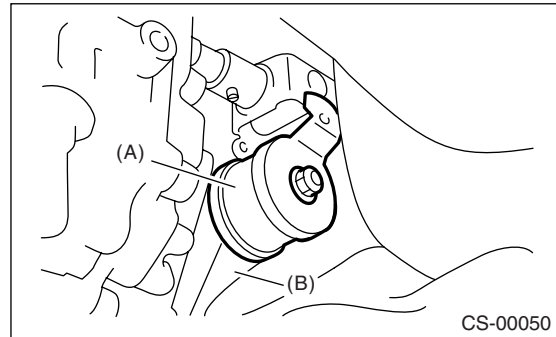


- 7) Remove the plate assembly from body.



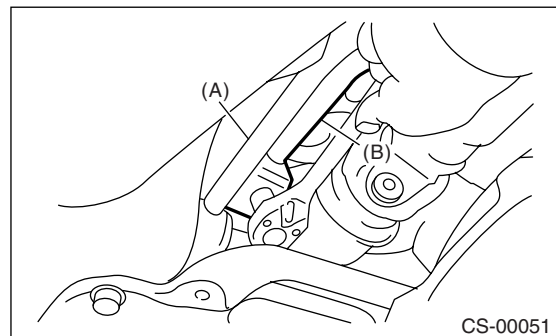
- 8) Lift-up the vehicle.
- 9) Remove the rear exhaust pipe and muffler.
  - SOHC model  
<Ref. to EX(H4SO)-7, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4SO)-8, REMOVAL, Muffler.>
  - DOHC turbo model  
<Ref. to EX(H4DOTC)-15, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-16, REMOVAL, Muffler.>

- 10) Remove the stay from transmission bracket.



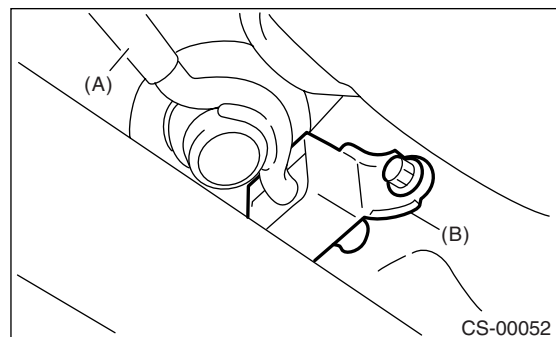
- (A) Stay
- (B) Transmission bracket

- 11) Remove the rod from joint.



- (A) Stay
- (B) Rod

- 12) Remove the cushion rubber from body.

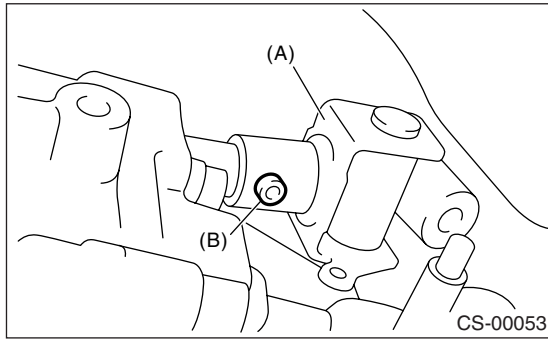


- (A) Stay
- (B) Cushion rubber

# MT Gear Shift Lever

## CONTROL SYSTEMS

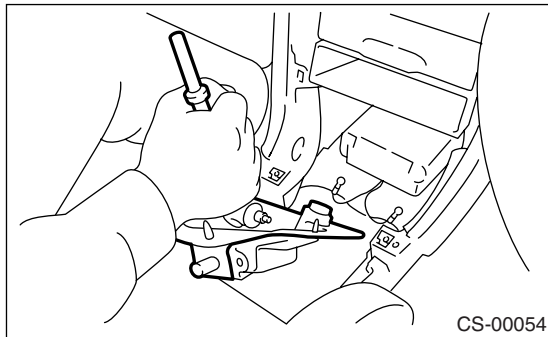
13) Extract the spring pin, and then remove the joint.



- (A) Joint
- (B) Spring pin

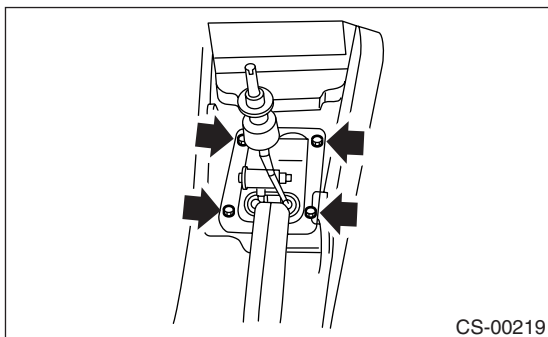
14) Lower the vehicle.

15) Remove the gear shift lever.



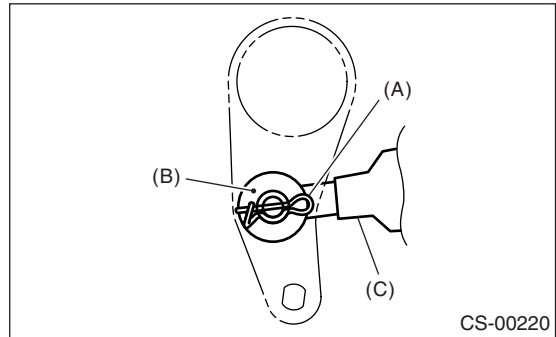
## 2. 6MT

- 1) Set the vehicle on a lift.
- 2) Disconnect the ground cable from battery.
- 3) Remove the gear shift knob.
- 4) Remove the console box front. <Ref. to EI-46, REMOVAL, Console Box.>
- 5) Remove the boot plate from body.



- 6) Lift-up the vehicle.
- 7) Remove the under cover.
- 8) Remove the rear exhaust pipe and muffler. <Ref. to EX(H4DOTC)-15, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-16, REMOVAL, Muffler.>
- 9) Remove the crossmember. <Ref. to 6MT-33, REMOVAL, Transmission Mounting System.>

10) Remove the snap pin and washer, and then remove the reverse check cable from reverse check lever.

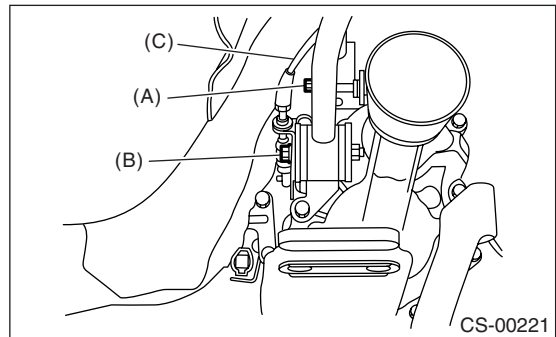


- (A) Snap pin
- (B) Washer
- (C) Reverse check cable

11) Move the transmission to right side, and then remove the joint COMPL, stay bolt and reverse check cable.

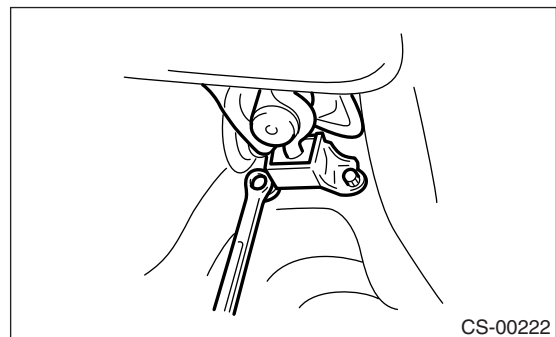
### NOTE:

If the transmission is not moved, the joint COMPL and stay bolt will contact body and damage may occur.



- (A) Joint COMPL bolt
- (B) Stay bolt
- (C) Reverse check cable

12) Remove the cushion rubber from body.



- 13) Lower the vehicle.
- 14) Remove the gear shift lever.

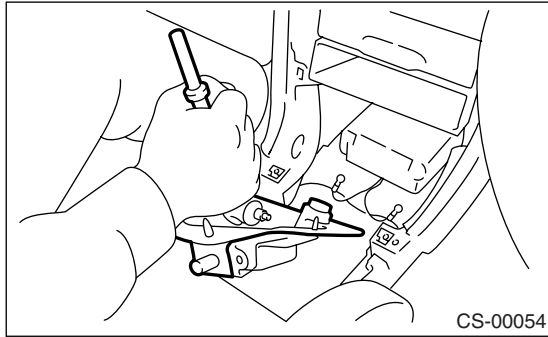
## B: INSTALLATION

### 1. 5MT

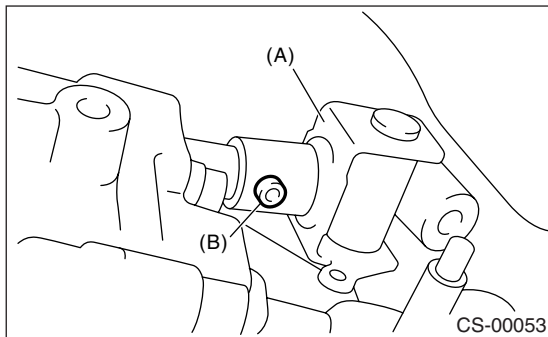
- 1) Install the joint to the transmission and secure with the spring pin.
- 2) Insert gear shift lever from room side.

**NOTE:**

After inserting rod and stay, position them onto transmission mount.



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

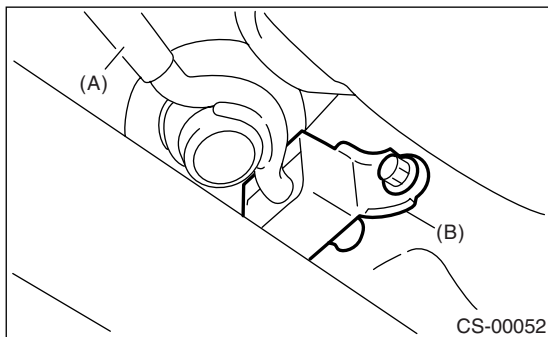


- (A) Joint
- (B) Spring pin

- 6) Mount the cushion rubber on body.

**Tightening torque:**

**18 N·m (1.8 kgf-m, 13.0 ft-lb)**

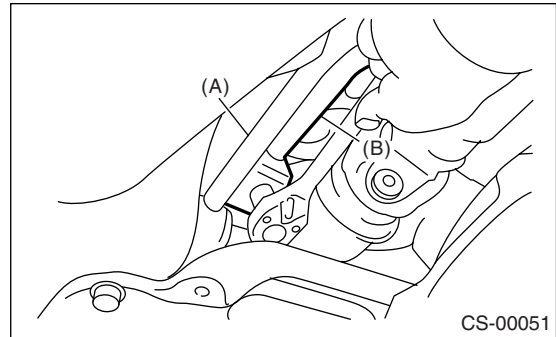


- (A) Stay
- (B) Cushion rubber

- 7) Connect the rod to the joint.

**Tightening torque:**

**12 N·m (1.2 kgf-m, 8.9 ft-lb)**

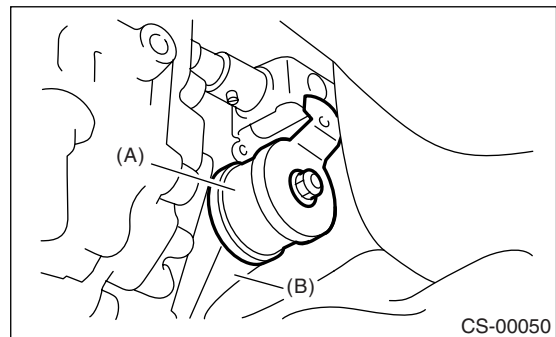


- (A) Stay
- (B) Rod

- 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 rear exhaust pipe and muffler.

- SOHC model  
<Ref. to EX(H4SO)-7, INSTALLATION, Rear Exhaust Pipe.> <Ref. to EX(H4SO)-8, INSTALLATION, Muffler.>

- DOHC turbo model  
<Ref. to EX(H4DOTC)-15, INSTALLATION, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-16, INSTALLATION, Muffler.>

- 10) Lower the vehicle.

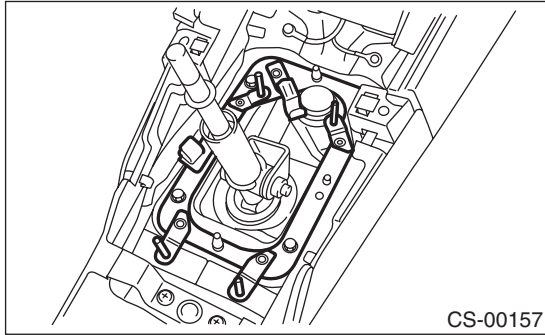
- 11) Install the plate assembly to body.

# MT Gear Shift Lever

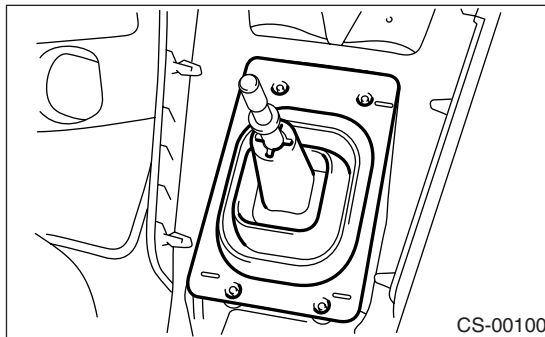
## CONTROL SYSTEMS

### Tightening torque:

**7.5 N·m (0.76 kgf-m, 5.5 ft-lb)**



12) Pay attention to the direction of boot and insulator assembly and install them to the vehicle.



13) Install the clamp.

14) Install console box. <Ref. to EI-46, INSTALLATION, Console Box.>

## 2. 6MT

1) Insert the gear shift lever from room side.

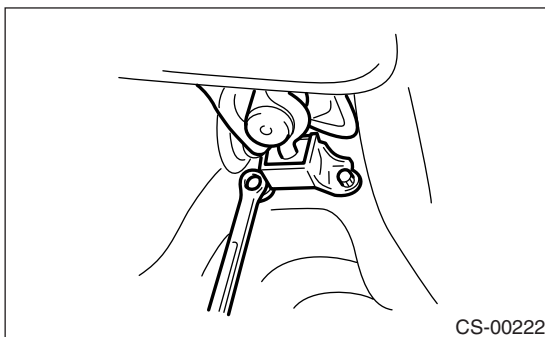
### NOTE:

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

2) Mount the cushion rubber on body.

### Tightening torque:

**18 N·m (1.8 kgf-m, 13.0 ft-lb)**

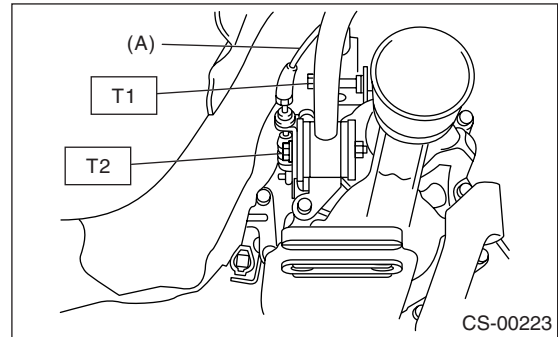


3) Move the transmission to right side, and then install the joint COMPL and stay.

### Tightening torque:

**T1: 11.8 N·m (1.2 kgf-m, 8.7 ft-lb)**

**T2: 32 N·m (3.3 kgf-m, 23.6 ft-lb)**



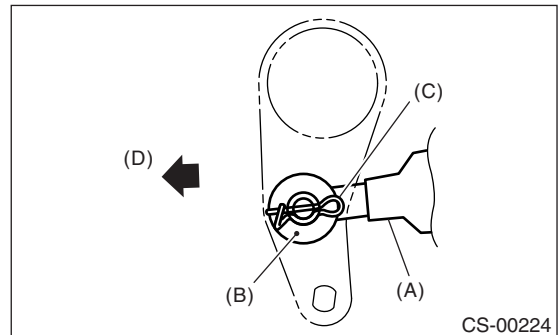
(A) Reverse check cable

4) Install the crossmember. <Ref. to 6MT-33, INSTALLATION, Transmission Mounting System.>

5) Install the reverse check cable end, washer and snap pin to reverse check lever.

### NOTE:

- Take care to install the snap pin in proper direction.
- Conduct the adjustment of reverse check cable before installation. <Ref. to CS-49, ADJUSTMENT, Reverse Check Cable.>



(A) Reverse check cable

(B) Washer

(C) Snap pin

(D) Front side

6) Install the rear exhaust pipe and muffler. <Ref. to EX(H4DOTC)-15, INSTALLATION, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-16, INSTALLATION, Muffler.>

7) Install the under cover.

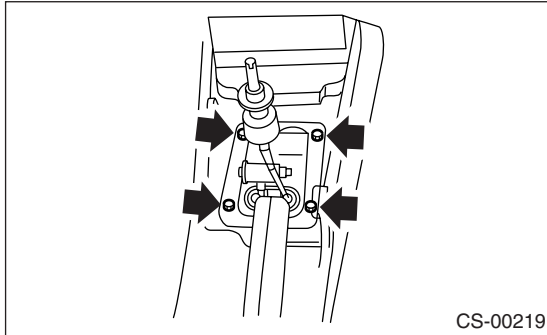
8) Install the boot plate.

### NOTE:

Install the inner boot without any twist.

**Tightening torque:**

**7.5 N·m (0.76 kgf-m, 5.5 ft-lb)**



CS-00219

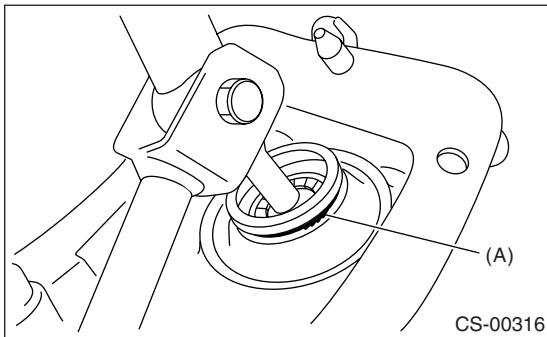
9) Install the console box. <Ref. to EI-46, INSTALLATION, Console Box.>

10) Check that the gear shift is correctly shifted to each gear.

## C: DISASSEMBLY

### 1. 5MT

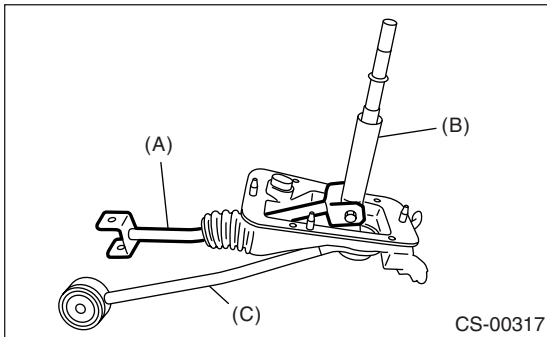
1) Disassemble the lock wire.



CS-00316

(A) Lock wire

2) Remove the rod from lever.

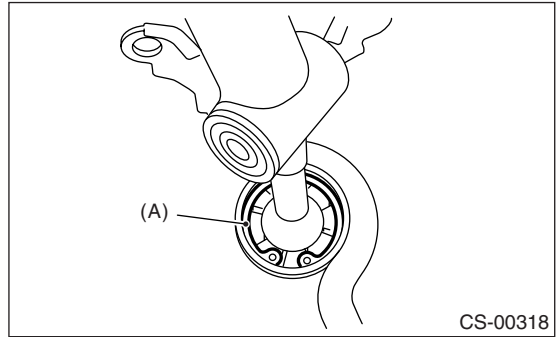


CS-00317

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

3) Separate the rod and inner boot.

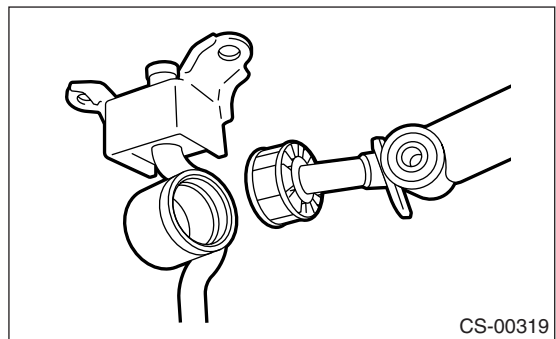
4) Remove the snap ring from the stay.



CS-00318

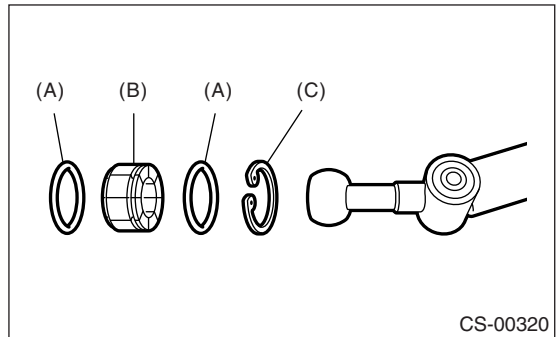
(A) Snap ring

5) Separate the gear shift lever and the stay.



CS-00319

6) Remove the boot, bushing and snap ring from gear shift lever.



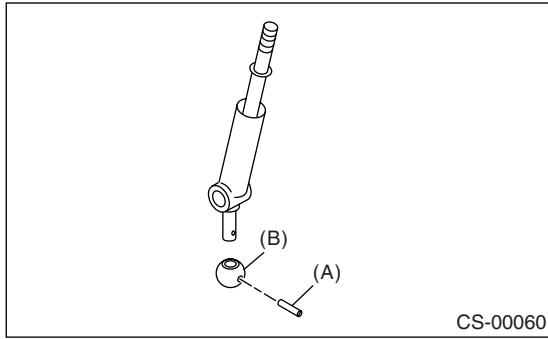
CS-00320

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

# MT Gear Shift Lever

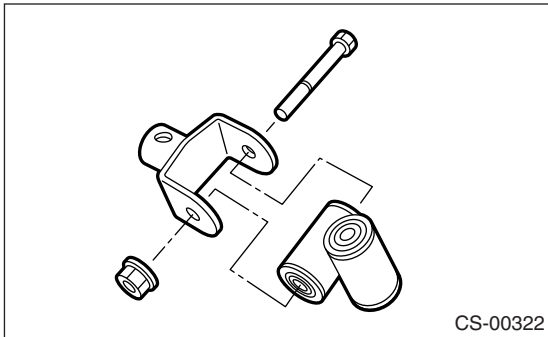
## CONTROL SYSTEMS

7) Remove the spring pin, and then remove the bushing and snap ring.



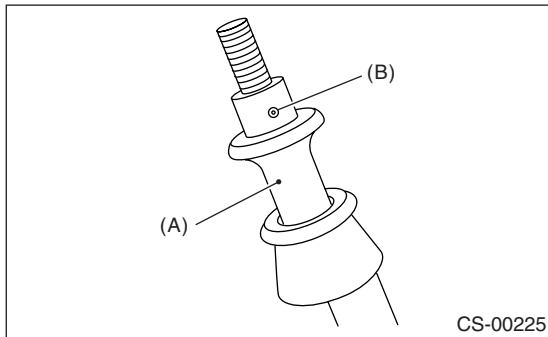
- (A) Spring pin
- (B) Bushing

8) Remove the boss from the joint.



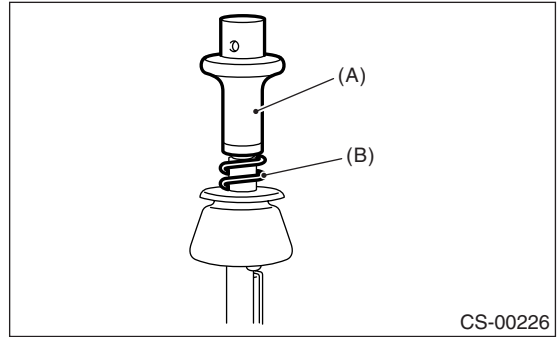
## 2. 6MT

1) Remove the spring pin from slider.



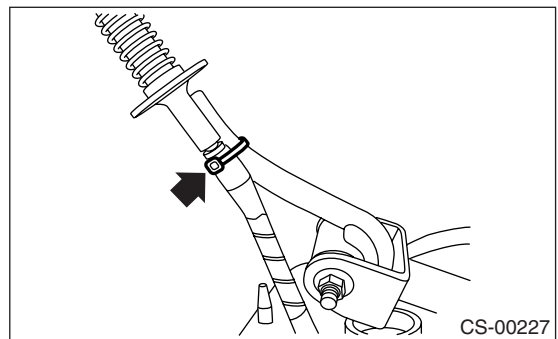
- (A) Slider
- (B) Spring pin

2) Remove the slider and spring.

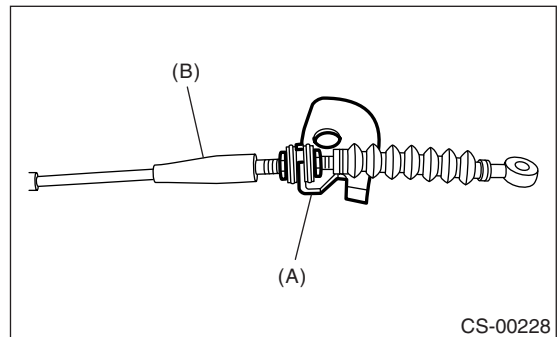


- (A) Slider
- (B) Spring

3) Cut the band clip.

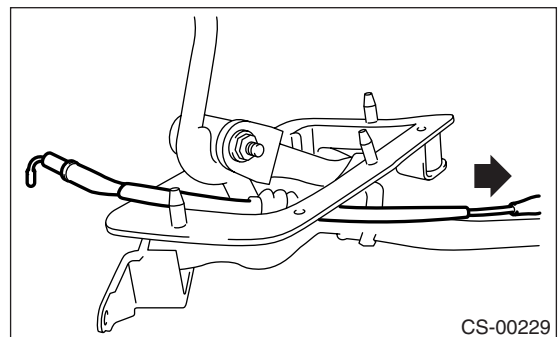


4) Remove the reverse check cable from cable plate.

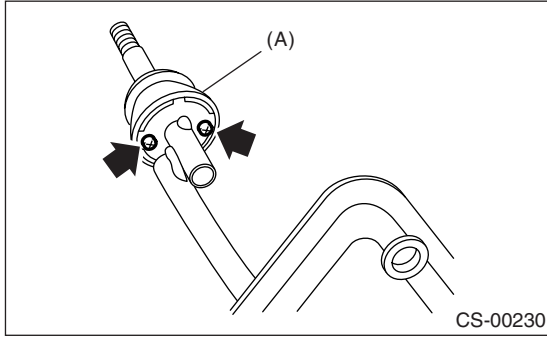


- (A) Cable plate
- (B) Reverse check cable

5) Remove the reverse check cable from gear shift assembly.



6) Remove the holder and spring seat.

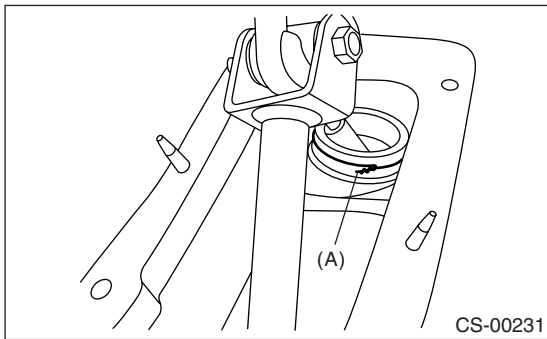


(A) Holder

7) Disassemble the lock wire.

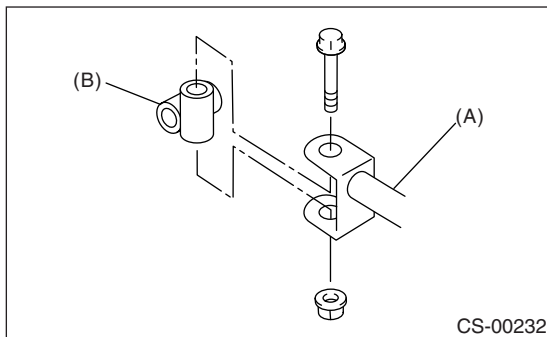
**NOTE:**

Do not reuse the lock wire.



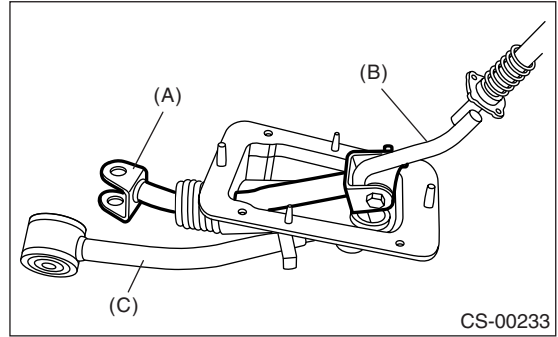
(A) Lock wire

8) Remove the boss from rod.



(A) Rod  
(B) Boss

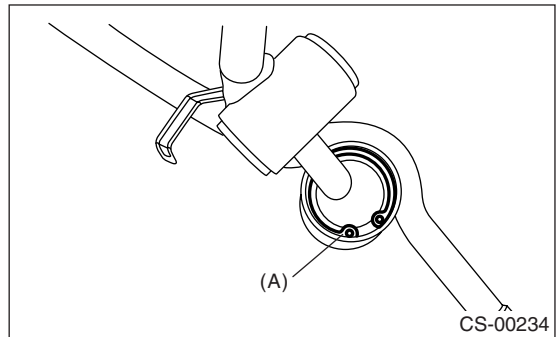
9) Remove the rod from lever.



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

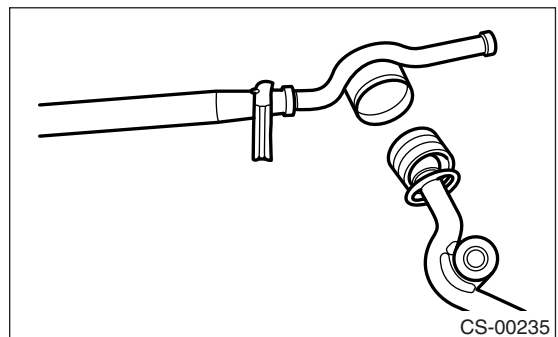
10) Separate the rod and inner boot.

11) Remove the snap ring from stay.



(A) Snap ring

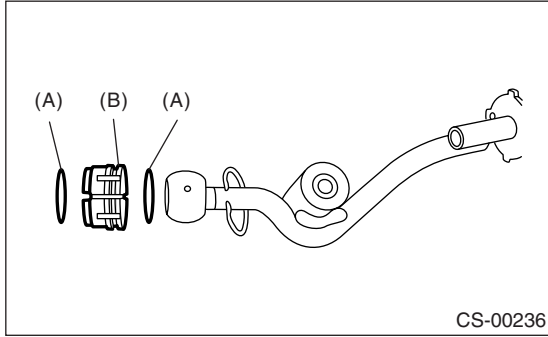
12) Separate the gear shift lever and stay.



# MT Gear Shift Lever

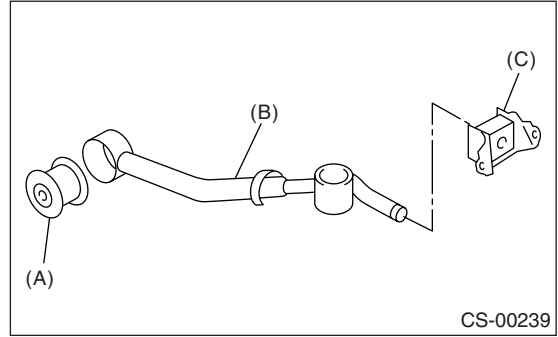
## CONTROL SYSTEMS

13) Remove the boot and bushing from gear shift lever.



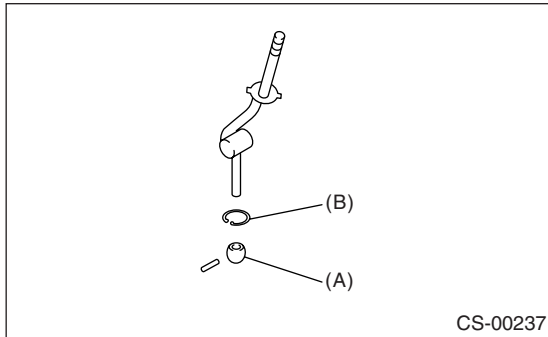
- (A) O-ring
- (B) Bushing

16) Remove the bushing and cushion rubber from stay.



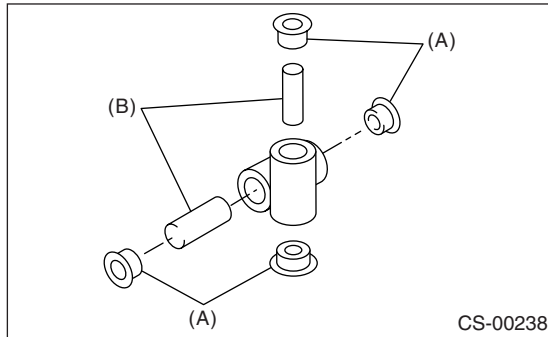
- (A) Bushing
- (B) Stay
- (C) Cushion rubber

14) Remove the spring pin, and then remove the bushing and snap ring.



- (A) Bushing
- (B) Snap ring

15) Remove the bushing and spacer from boss.



- (A) Bushing
- (B) Spacer

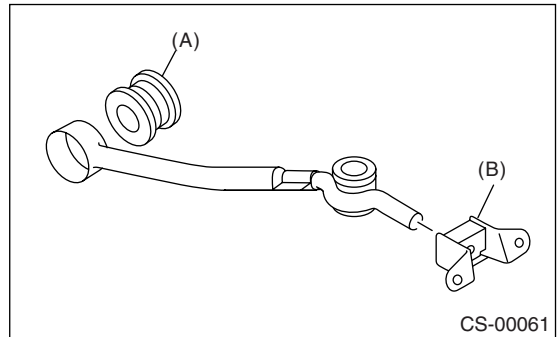
## D: ASSEMBLY

### 1. 5MT

#### NOTE:

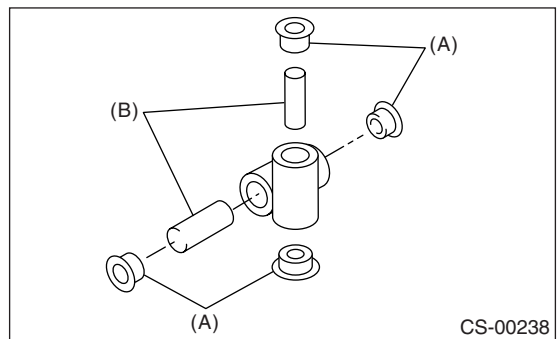
- Clean all the parts before assembly.
- Apply grease [KOPR-KOTE (Part No. 003603001) or equivalent] to each part.

1) Mount the bushing and cushion rubber on the stay.



- (A) Bushing
- (B) Cushion rubber

2) Install the bushing and spacer to boss.



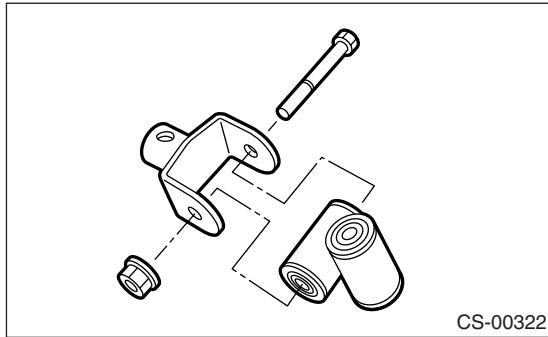
- (A) Bushing
- (B) Spacer



3) Using new self-locking nuts, install the boss to the joint.

**Tightening torque:**

**12 N·m (1.2 kgf·m, 8.9 ft·lb)**

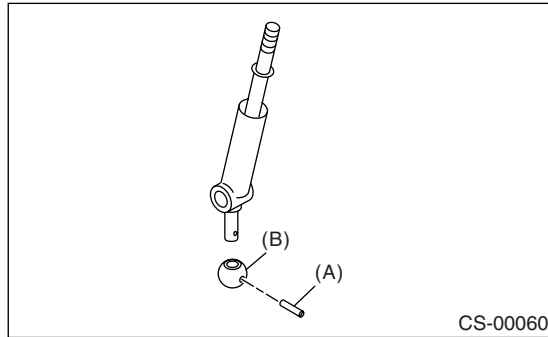


CS-00322

4) Install the snap ring to gear shift lever and install the bushing.

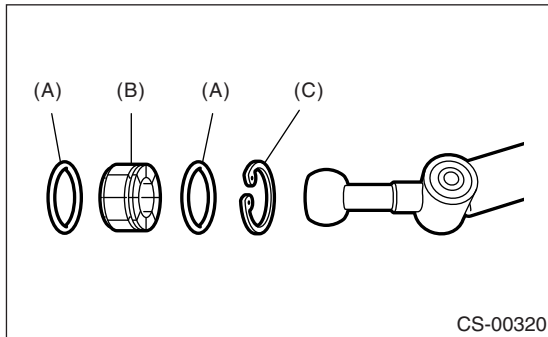
**NOTE:**

Apply grease to the bushing.



CS-00060

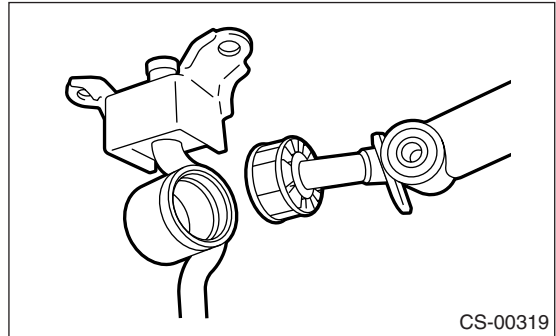
5) Apply grease to the bushing and O-ring, and then install to the gear shift lever.



CS-00320

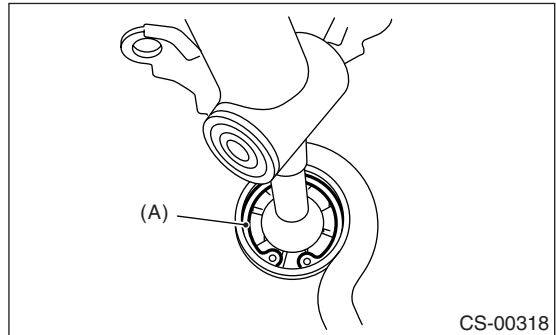
- (A) O-ring
- (B) Bushing
- (C) Snap ring

6) Apply sufficient grease into boss, and then install the gear shift lever to the stay.



CS-00319

7) Install the washer and snap ring.



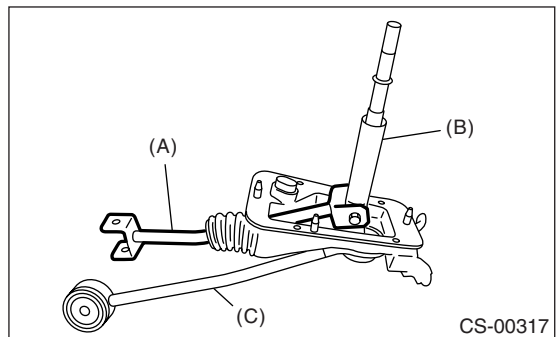
CS-00318

- (A) Snap ring

8) Insert the gear shift lever and rod into boot hole.  
9) Install the rod.

**Tightening torque:**

**12 N·m (1.2 kgf·m, 8.9 ft·lb)**



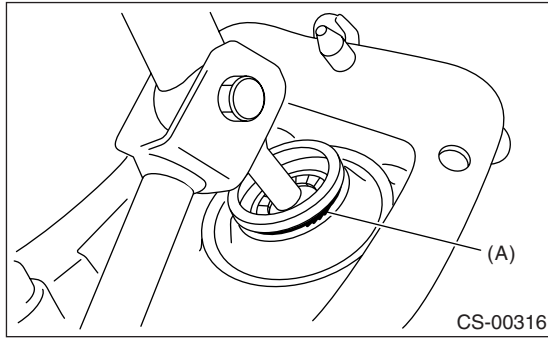
CS-00317

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

# MT Gear Shift Lever

## CONTROL SYSTEMS

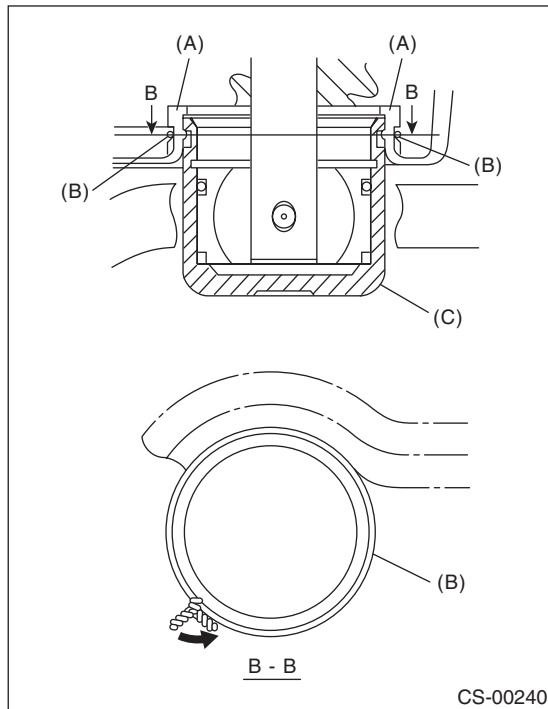
10) Install a new lock wire.



(A) Lock wire

**NOTE:**

- Install the lock wire to the stay groove.
- Bend the extra wire to same direction of lock wire winding.



(A) Inner boot  
(B) Lock wire  
(C) Stay

11) Check the swing torque of rod in relation to the gear shift lever.

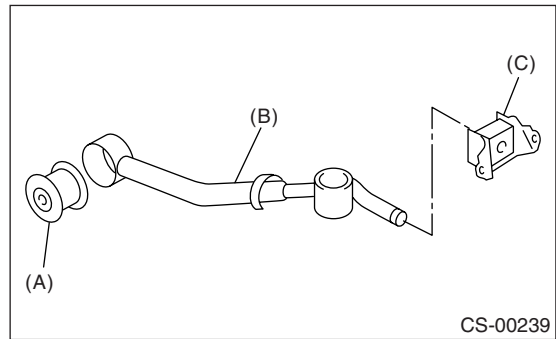
12) Check that there is no excessive play and that parts move smoothly.

## 2. 6MT

**NOTE:**

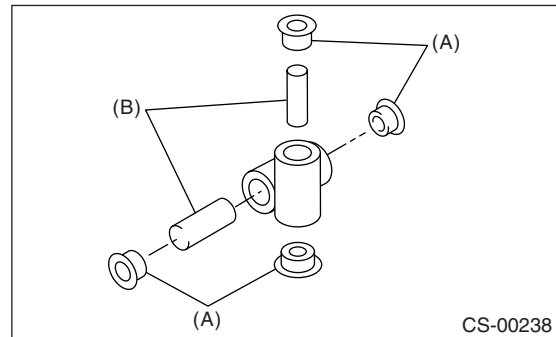
- Clean all parts before assembly.
- Apply NIGTIGHT LYW No. 2 grease or equivalent to each parts.

1) Mount the bushing and cushion rubber on the stay.



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

2) Install the bushing and spacer to boss.

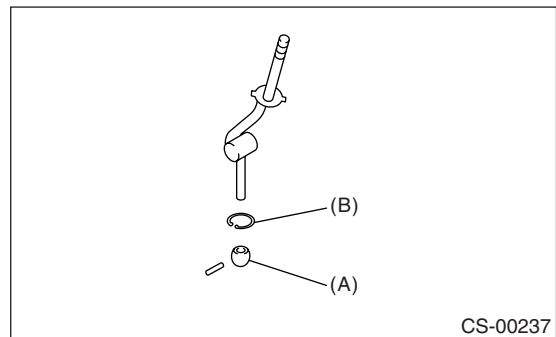


(A) Bushing  
(B) Spacer

3) Install the snap ring to gear shift lever, and then install the bushing.

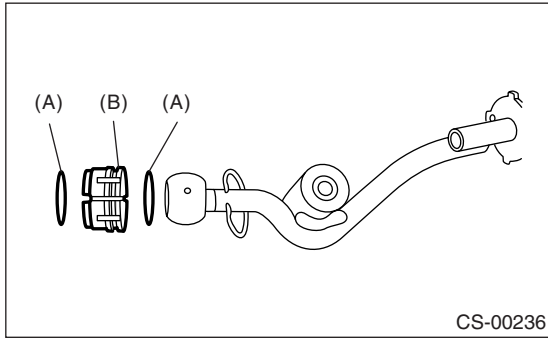
**NOTE:**

Apply grease to the bushing.



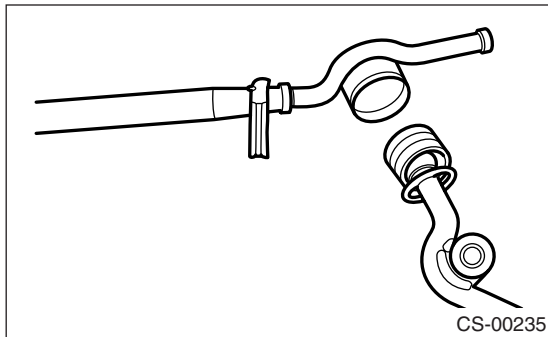
(A) Bushing  
(B) Snap ring

4) Apply grease to the bushing and O-ring, and then install to the gear shift lever.

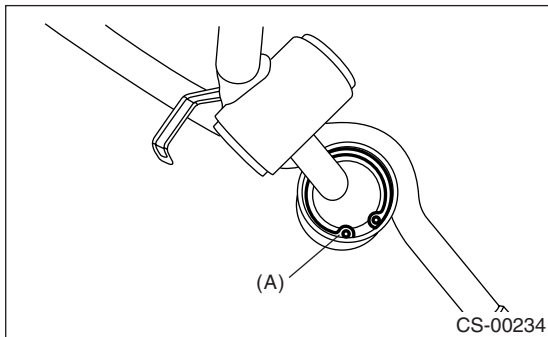


- (A) O-ring
- (B) Bushing

5) Apply sufficient grease into the boss, and then install the gear shift lever to stay.



6) Install the washer and snap ring.



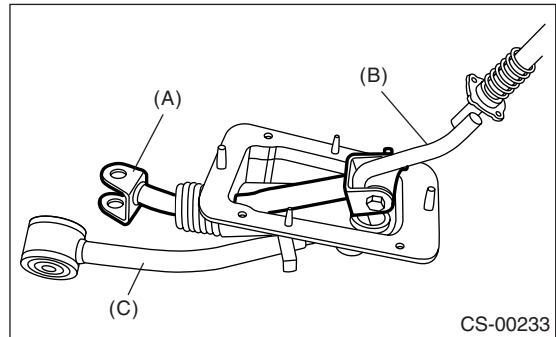
- (A) Snap ring

7) Insert the gear shift lever and rod into boot hole.

8) Install the rod.

**Tightening torque:**

**11.8 N·m (1.2 kgf-m, 8.7 ft-lb)**

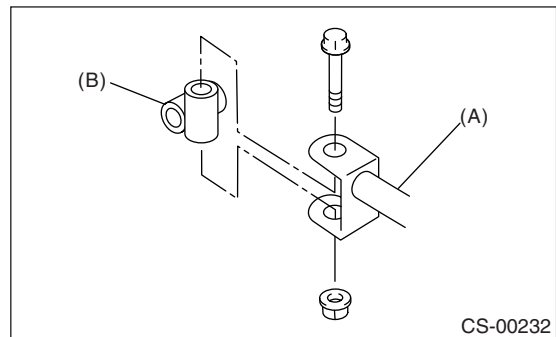


- (A) Rod
- (B) Lever
- (C) Stay

9) Install the boss to rod.

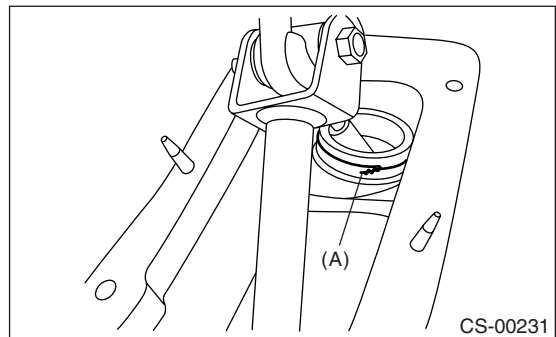
**Tightening torque:**

**11.8 N·m (1.2 kgf-m, 8.7 ft-lb)**



- (A) Rod
- (B) Boss

10) Install a new lock wire.



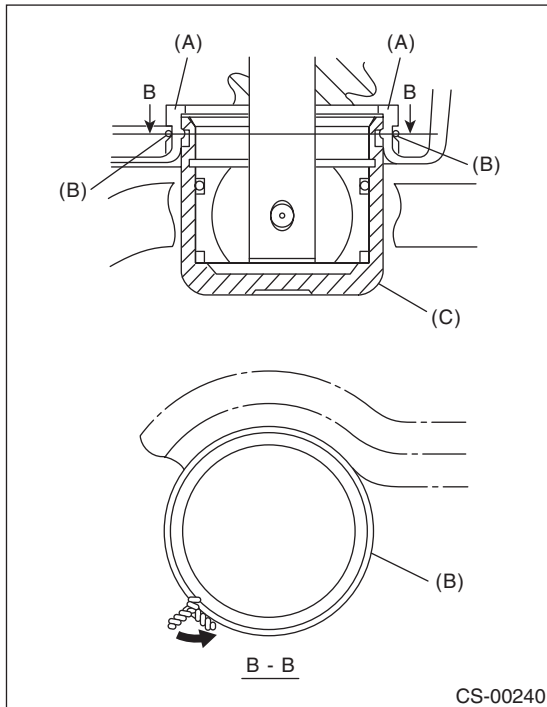
- (A) Lock wire

# MT Gear Shift Lever

## CONTROL SYSTEMS

### NOTE:

- Install the lock wire to the stay groove.
- Bend the extra wire to same direction of lock wire winding.

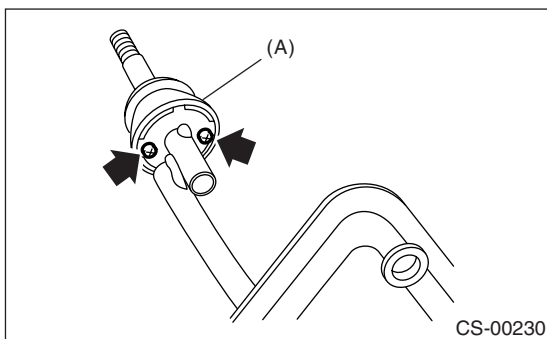


- (A) Inner boot
- (B) Lock wire
- (C) Stay

11) Install the holder.

### Tightening torque:

**1.3 N·m (0.13 kgf·m, 0.96 ft·lb)**



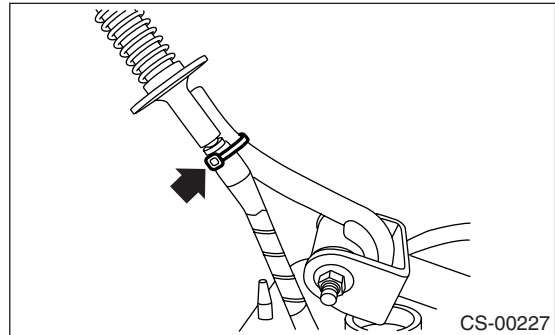
- (A) Holder

12) Insert the reverse check cable into boot hole.

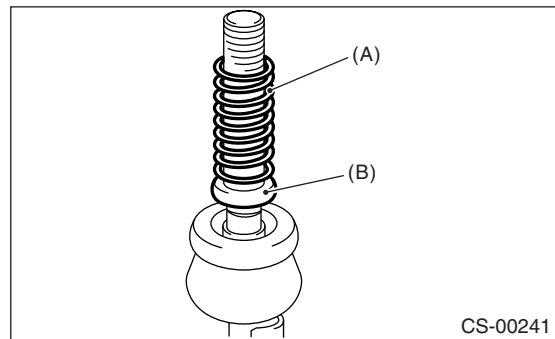
13) Insert the reverse check cable into gear shift assembly, and fix with band clip.

### NOTE:

- Cut off the extra band clip.
- Make sure that the reverse check cable is inserted into gear shift lever assembly without any clearance.



14) Install the seat cushion and spring.

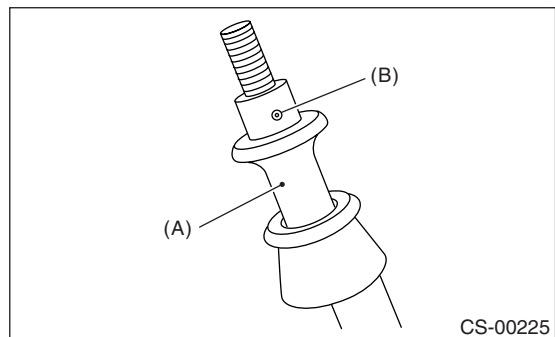


- (A) Spring
- (B) Seat cushion

15) Fix the slider and reverse check cable end with spring pin.

### NOTE:

Apply grease to the sliding part of slider.

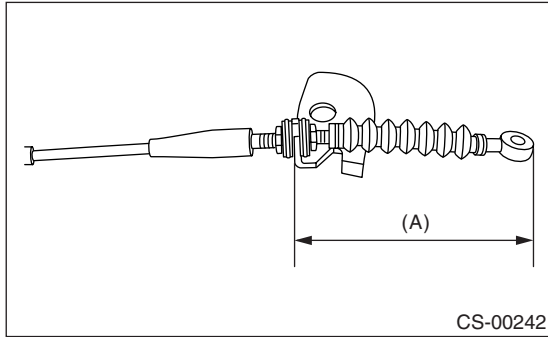


- (A) Slider
- (B) Spring pin

16) With the cable pulled (slider lowered), adjust the length between end of cable plate and reverse check cable to 84 mm (3.31 in), and then tighten the lock nut.

**Tightening torque:**

**6 N·m (0.6 kgf·m, 4.4 ft·lb)**

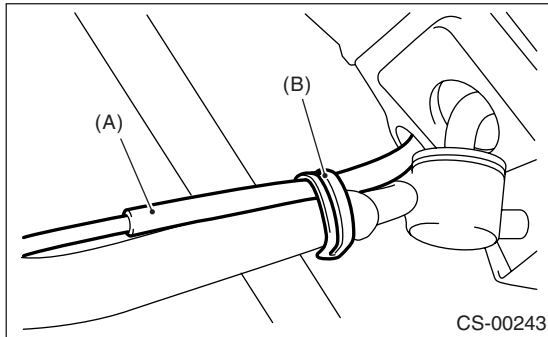


(A) 84 mm (3.31 in)

17) Fix the reverse check cable to clip of stay.

**NOTE:**

Install the reverse check cable to upper side of stay.

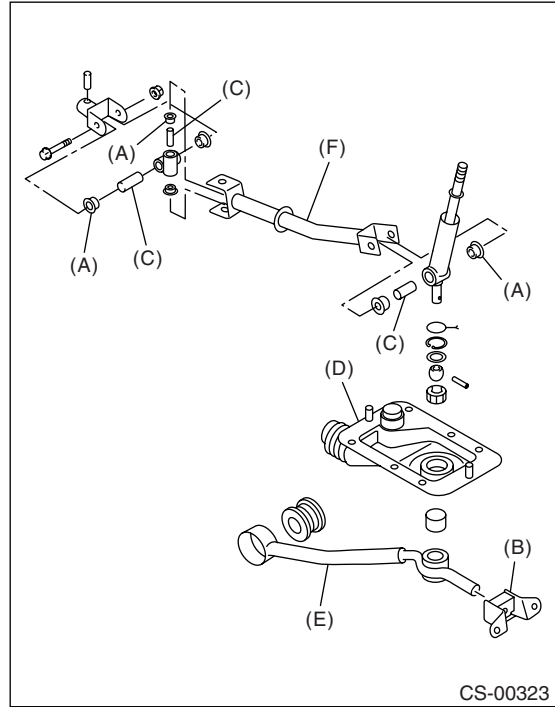


(A) Reverse check cable  
(B) Clip

**E: INSPECTION**

1) Check the removed parts (bushing, cushion rubber, spacer, boot, stay, rod, etc.) for deformation, damage and wear. Repair or replace any defective part.

- 5MT

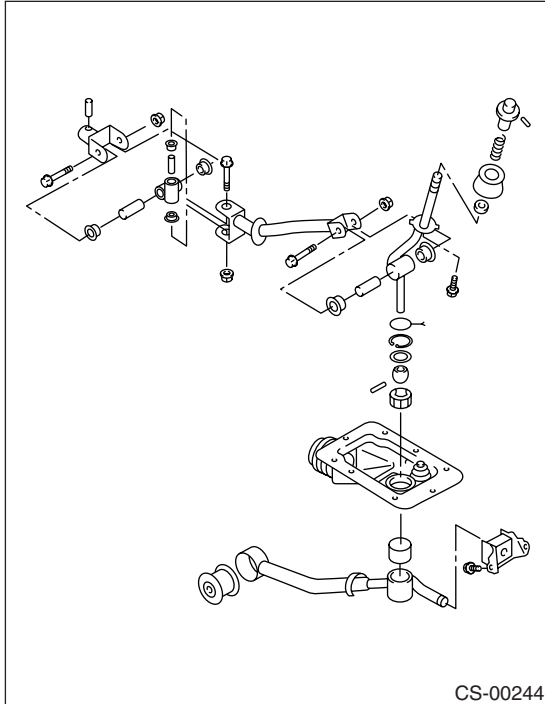


(A) Bushing  
(B) Cushion rubber  
(C) Spacer  
(D) Boot  
(E) Stay  
(F) Rod

# MT Gear Shift Lever

## CONTROL SYSTEMS

- 6MT

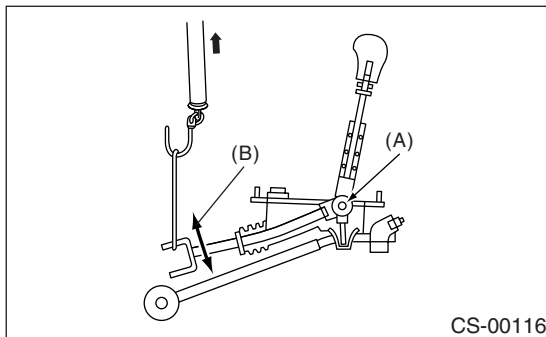


2) Check the swing torque of the rod in relation of the gear shift lever.

If the torque exceeds the specification, replace the bushing or retighten the nuts.

### **Swing torque:**

**3.7 N (0.38 kgf, 0.84 lbf) or less**

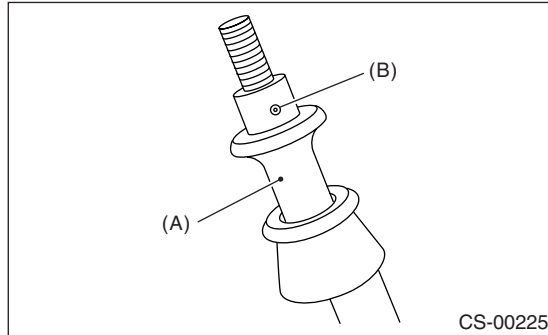


- (A) Center of rotation
- (B) Swing torque

## 8. Reverse Check Cable

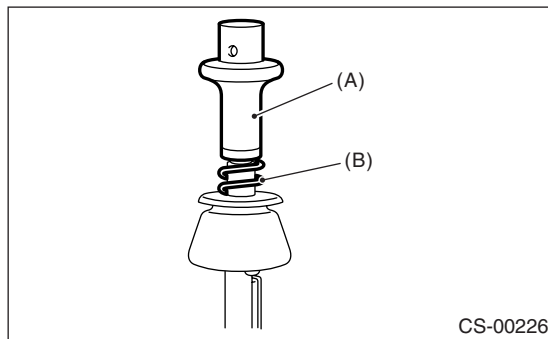
### A: REMOVAL

- 1) Set the vehicle on a lift.
- 2) Remove the gear shift knob.
- 3) Remove the console box front. <Ref. to EI-46, REMOVAL, Console Box.>
- 4) Remove the spring pin from slider.



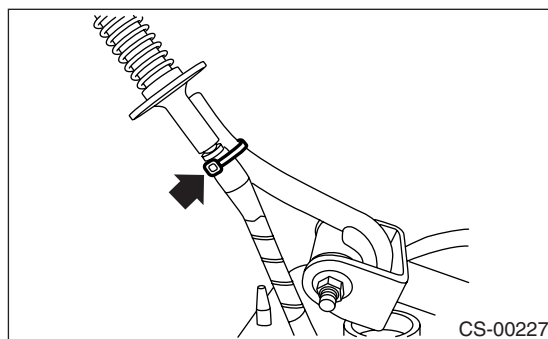
- (A) Slider
- (B) Spring pin

- 5) Remove the slider and spring.



- (A) Slider
- (B) Spring

- 6) Cut the band clip, and then separate the reverse check cable from gear shift lever.

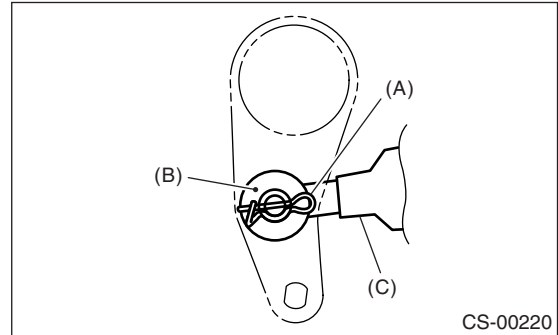


- 7) Lift-up the vehicle.
- 8) Remove the under cover.

- 9) Remove the rear exhaust pipe and muffler. <Ref. to EX(H4DOTC)-15, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-16, REMOVAL, Muffler.>

- 10) Remove the crossmember. <Ref. to 6MT-33, REMOVAL, Transmission Mounting System.>

- 11) Remove the snap pin and washer, and then separate the reverse check cable from reverse check lever.

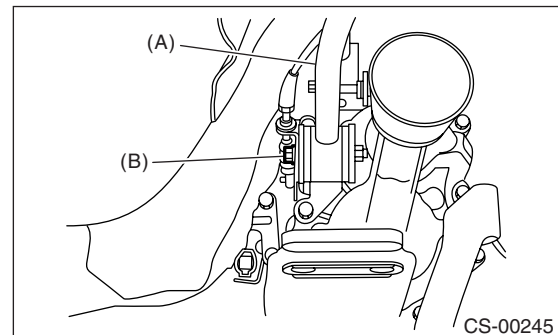


- (A) Snap pin
- (B) Washer
- (C) Reverse check cable

- 12) Move the transmission to right side, and then remove the stay bolt and reverse check cable.

### NOTE:

If the transmission is not moved, the stay bolt will contact body and damage may occur.

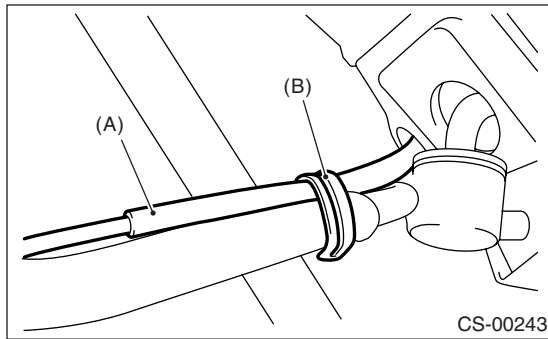


- (A) Stay
- (B) Stay bolt

# Reverse Check Cable

## CONTROL SYSTEMS

13) Raise the clip of stay, and then separate the stay and reverse check cable.



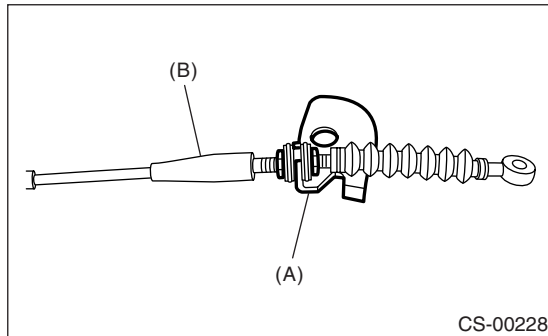
- (A) Reverse check cable
- (B) Clip

14) Remove the reverse check cable by pulling from underneath the vehicle.

### NOTE:

Take care not to damage the inner boot.

15) Loosen the lock nut, then remove the reverse check cable from cable plate.



- (A) Cable plate
- (B) Reverse check cable

## B: INSTALLATION

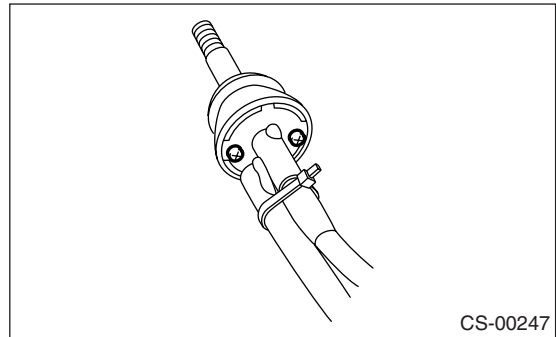
1) Insert the reverse check cable to the hole of inner boots from underneath the vehicle.

2) Insert the reverse check cable to the gear shift lever assembly, then fix with the band clip.

### NOTE:

- Cut off the extra band clip.

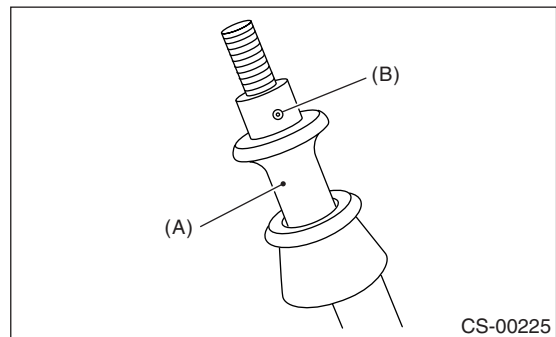
- Make sure that the reverse check cable is inserted into gear shift lever assembly without any clearance.



3) Fix the slider and reverse check cable end with spring pin.

### NOTE:

Apply grease to the sliding part of slider.

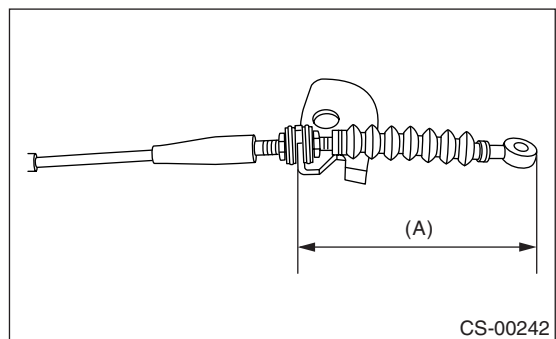


- (A) Slider
- (B) Spring pin

4) With the cable pulled (slider lowered), adjust the length between end of cable plate and reverse check cable to 84 mm (3.31 in), and then tighten the lock nut.

### Tightening torque:

**6 N·m (0.6 kgf-m, 4.4 ft-lb)**



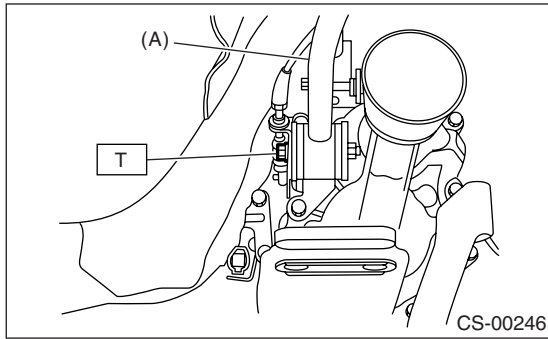
- (A) 84 mm (3.31 in)

5) Move the transmission to right side, and then install the stay.



**Tightening torque:**

**T: 32 N·m (3.3 kgf·m, 23.6 ft·lb)**

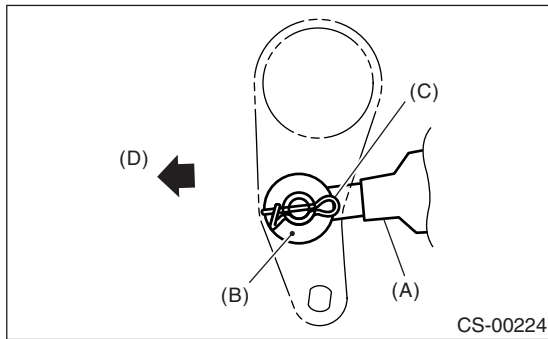


(A) Stay

6) Install the reverse check cable end, washer and snap pin to reverse check lever.

**NOTE:**

Take care to install the snap pin in proper direction.

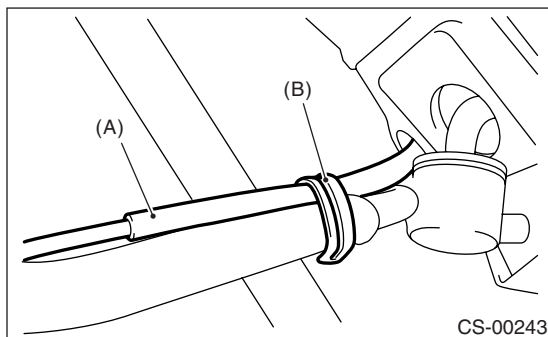


(A) Reverse check cable  
 (B) Washer  
 (C) Snap pin  
 (D) Front side

7) Fix the reverse check cable to clip of stay.

**NOTE:**

Install the reverse check cable to upper side of stay.



(A) Reverse check cable  
 (B) Clip

8) Install the rear exhaust pipe and muffler. <Ref. to EX(H4DOTC)-15, INSTALLATION, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-16, INSTALLATION, Muffler.>

9) Install the console box. <Ref. to EI-46, INSTALLATION, Console Box.>

**C: INSPECTION**

1) Verify whether the slider moves smoothly. If not, adjust the reverse check cable or check damage of slider. <Ref. to CS-49, ADJUSTMENT, Reverse Check Cable.>

2) Check that the gear can be shift to reverse, when the slider is pulled up. If the gear can not be shift to reverse, adjust the reverse check cable. <Ref. to CS-49, ADJUSTMENT, Reverse Check Cable.>

3) Check that the gear can not be shift to reverse, when the slider is not pulled up. If the gear can be shift to reverse, adjust or replace the reverse check cable. <Ref. to CS-49, ADJUSTMENT, Reverse Check Cable.>

**D: ADJUSTMENT**

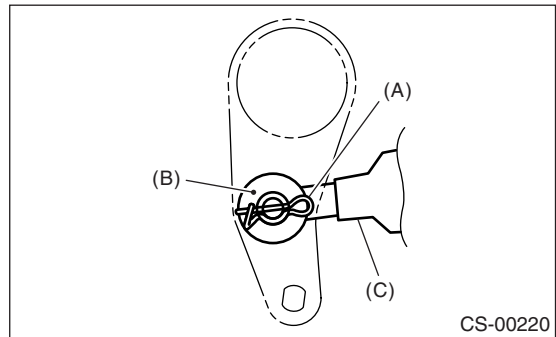
1) Set the vehicle on a lift.

2) Remove the under cover.

3) Remove the rear exhaust pipe and muffler. <Ref. to EX(H4DOTC)-15, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-16, REMOVAL, Muffler.>

4) Remove the crossmember. <Ref. to 6MT-33, REMOVAL, Transmission Mounting System.>

5) Remove the snap pin and washer, and then separate the reverse check cable from reverse check lever.



(A) Snap pin  
 (B) Washer  
 (C) Reverse check cable

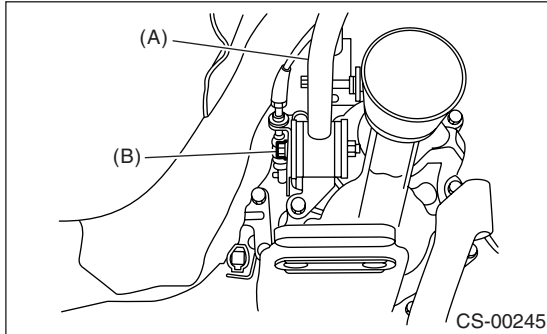
6) Move the transmission to right side, and then remove the stay bolt and reverse check cable.

# Reverse Check Cable

## CONTROL SYSTEMS

### NOTE:

If the transmission is not moved, the stay bolt will contact body and damage may occur.

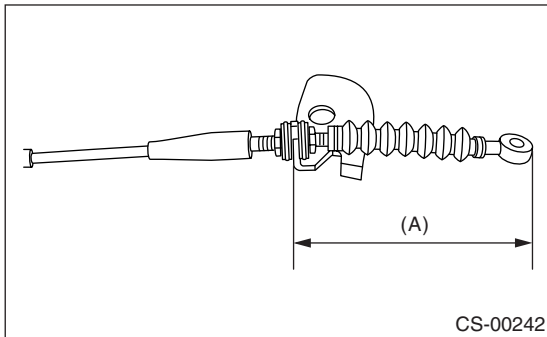


- (A) Stay
- (B) Stay bolt

7) With the cable pulled (slider lowered), adjust the length between end of cable plate and reverse check cable to 84 mm (3.31 in), and then tighten the lock nut.

### Tightening torque:

**6 N·m (0.6 kgf·m, 4.4 ft·lb)**

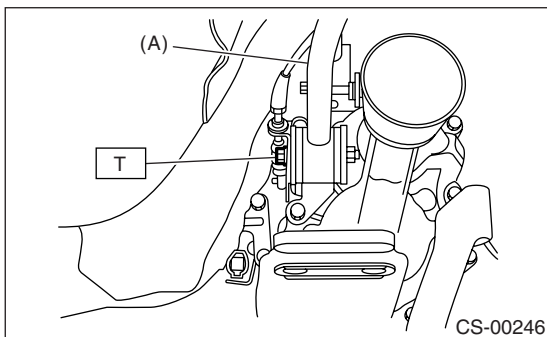


- (A) 84 mm (3.31 in)

8) Move the transmission to right side, and then install the stay.

### Tightening torque:

**T: 32 N·m (3.3 kgf·m, 23.6 ft·lb)**



- (A) Stay

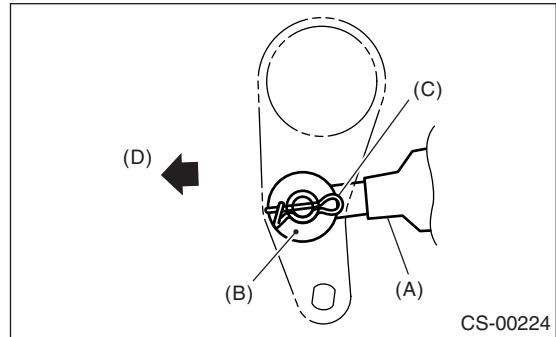
9) Install the crossmember. <Ref. to 6MT-33, INSTALLATION, Transmission Mounting System.>

10) Install the rear exhaust pipe and muffler. <Ref. to EX(H4DOTC)-15, INSTALLATION, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-16, INSTALLATION, Muffler.>

11) Install the reverse check cable end, washer and snap pin to reverse check lever.

### NOTE:

Take care to install the snap pin in proper direction.



- (A) Reverse check cable
- (B) Washer
- (C) Snap pin
- (D) Front side

12) Install the under cover.

## 9. General Diagnostic Table

### A: INSPECTION

Symptom	Remedy
Starter does not run.	Adjust select cable and inhibitor switch, or inspect circuit.
Back-up light does not light up.	Adjust select cable and inhibitor switch, or inspect circuit.
AT shift lock system does not operate normally.	Adjust select cable and inhibitor switch, or inspect circuit.
Shift into reverse is impossible. (6MT)	Adjust reverse check cable.
Shift into reverse is possible without pulling up slider. (6MT)	Adjust or replace reverse check cable.
Slider cannot be pulled up. Or slider is pulled up being sticked. (6MT)	<ul style="list-style-type: none"> <li>• Inspect reverse check system of transmission.</li> <li>• Adjust or replace reverse check cable.</li> </ul>

# General Diagnostic Table

CONTROL SYSTEMS

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