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CONTROL SYSTEMS

General Description

CONTROL SYSTEMS

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1. General Description

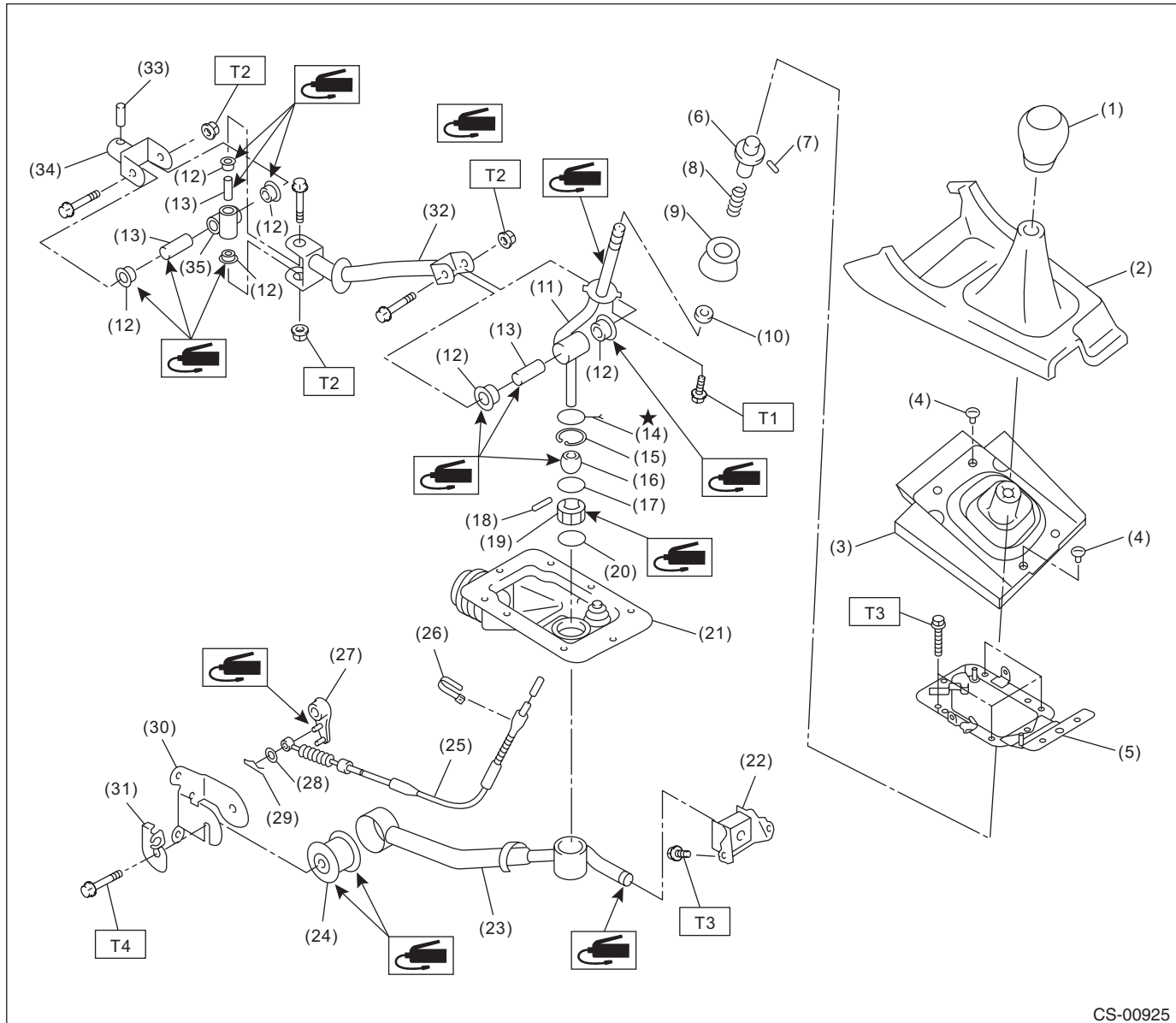
A: SPECIFICATION

Item	Specification
Swing torque of rod against lever N (kgf, lbf)	3.7(0.38, 0.83) or less

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B: COMPONENT

1. 6MT GEAR SHIFT LEVER



CS-00925

- | | | |
|-----------------------------|--------------------------|------------------|
| (1) Gear shift knob | (15) Snap ring | (29) Snap pin |
| (2) Console box front | (16) Bushing | (30) Bracket |
| (3) Boot and insulator ASSY | (17) O-ring | (31) Cable plate |
| (4) Clamp | (18) Spring pin | (32) Rod |
| (5) Plate ASSY | (19) Bushing | (33) Spring pin |
| (6) Slider | (20) O-ring | (34) Joint |
| (7) Spring pin | (21) Boot | (35) Boss |
| (8) Spring | (22) Cushion rubber | |
| (9) Holder | (23) Stay | |
| (10) Seat cushion | (24) Bushing | |
| (11) Lever | (25) Reverse check cable | |
| (12) Bushing | (26) Band clip | |
| (13) Spacer | (27) Reverse check lever | |
| (14) Lock wire | (28) Washer | |

Tightening torque: N·m (kgf·m, ft·lb)

T1: 1.3 (0.13, 0.96)

T2: 12 (1.2, 8.9)

T3: 18 (1.8, 13.3)

T4: 32 (3.3, 23.6)

C: CAUTION

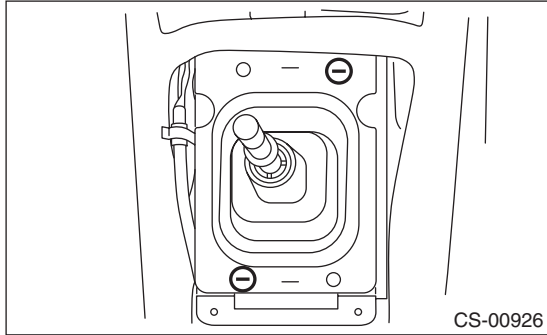
- Wear appropriate work clothing, including a cap, protective goggles and protective shoes when performing any work.
- Remove contamination including dirt and corrosion before removal, installation or disassembly.
- Keep the disassembled parts in order and protect them from dust and dirt.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly and replacement.
- Use SUBARU genuine fluid, grease etc. or equivalent. Do not mix fluid, grease, etc. of different grades or 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 revolving surfaces before installation.
- Before installing O-rings or snap rings, apply sufficient amount of fluid to avoid damage and deformation.
- Before securing a part in a vise, place cushioning material such as wood blocks, aluminum plate or cloth between the part and the vise.
- Before disconnecting electrical connectors, be sure to disconnect the negative terminal from battery.

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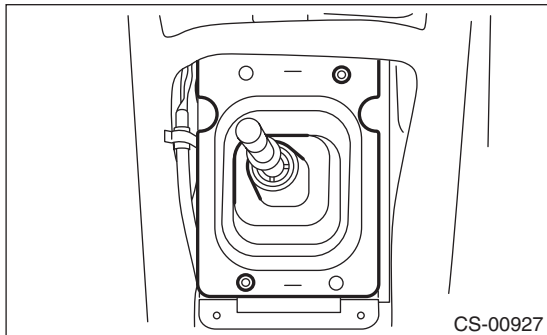
2. MT Gear Shift Lever

A: REMOVAL

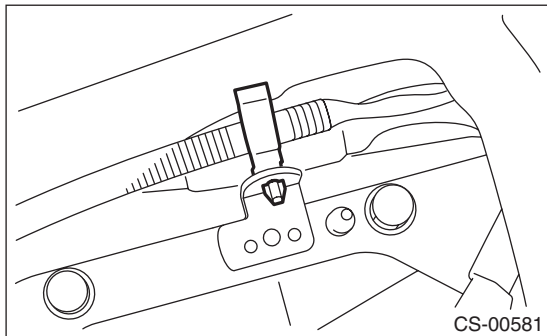
- 1) Set the vehicle on a lift.
- 2) Disconnect the ground cable from the battery.
- 3) Remove the gear shift knob.
- 4) Remove the console box front. <Ref. to EI-43, REMOVAL, Console Box.>
- 5) Remove the clamp.



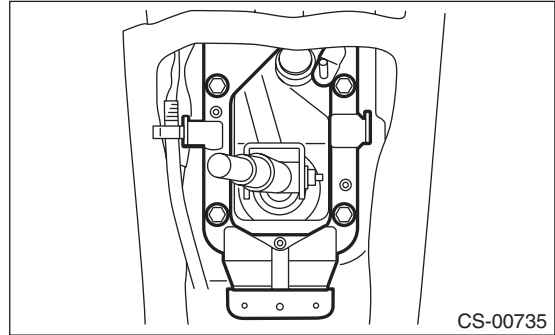
- 6) Remove the boot and insulator assembly.



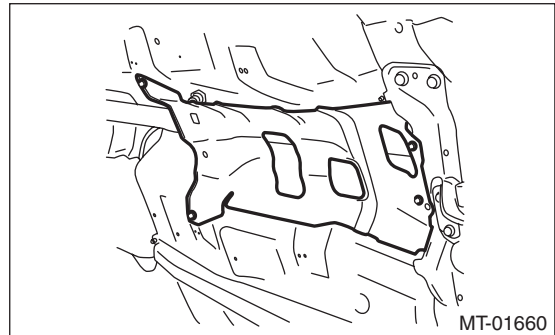
- 7) Remove the harness clamp from the plate assembly.



- 8) Remove the plate assembly from the body.

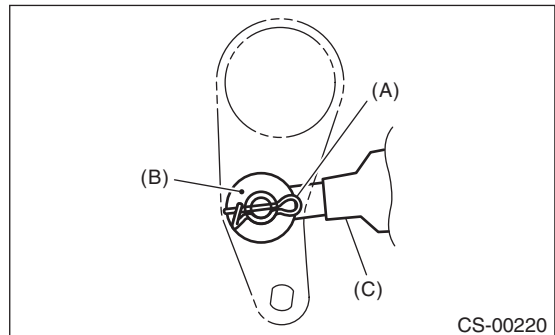


- 9) Lift up the vehicle.
- 10) Remove the under cover.
- 11) Remove the rear exhaust pipe and muffler. <Ref. to EX(STI)-12, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(STI)-14, REMOVAL, Muffler.>
- 12) Remove the heat shield cover.



- 13) Remove the crossmember. <Ref. to 6MT-30, REMOVAL, Transmission Mounting System.>

- 14) Remove the snap pin and washer, and remove the reverse check cable from the reverse check lever.



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

MT Gear Shift Lever

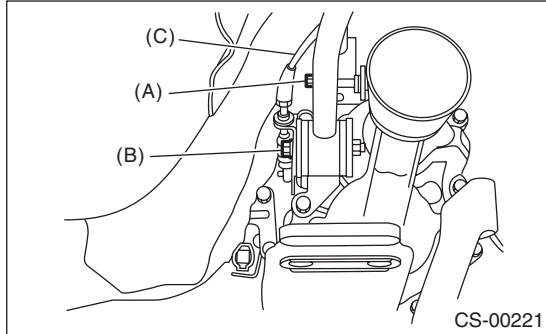
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15) Move the transmission to the right side, and remove the joint COMPL, stay bolts and reverse check cable.

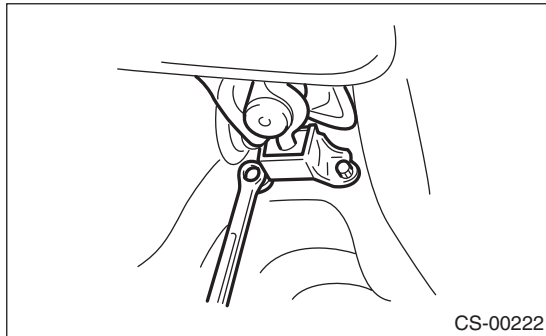
NOTE:

If the transmission is not moved aside, the joint COMPL and stay bolts may contact the body and cause damage.



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

16) Remove the cushion rubber from the body.



17) Lower the vehicle.

18) Remove the gear shift lever.

B: INSTALLATION

1) Insert the gear shift lever from the vehicle interior.

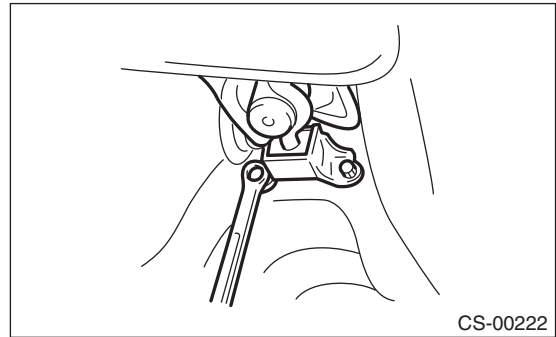
NOTE:

Insert the rod and the stay, and position the lever on top of the transmission mount.

2) Mount the cushion rubber on the body.

Tightening torque:

18 N·m (1.8 kgf-m, 13.3 ft-lb)

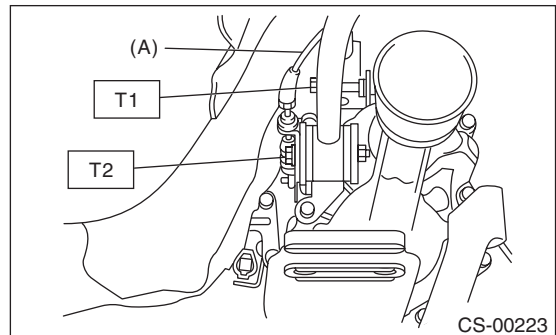


3) Move the transmission to the right side of the vehicle, and install the joint COMPL and stay.

Tightening torque:

T1: 12 N·m (1.2 kgf-m, 8.9 ft-lb)

T2: 32 N·m (3.3 kgf-m, 23.6 ft-lb)



- (A) Reverse check cable

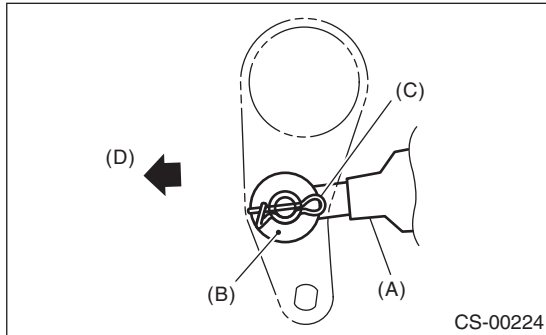
4) Install the crossmember. <Ref. to 6MT-30, INSTALLATION, Transmission Mounting System.>

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

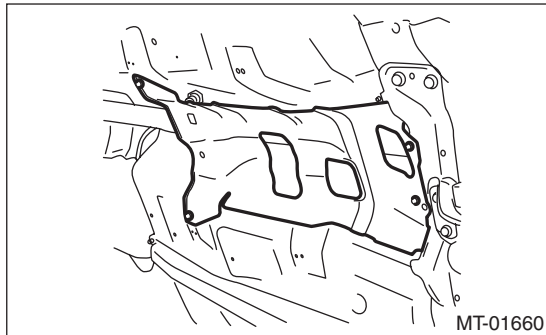
NOTE:

- Be careful to install the snap pin in the proper direction.
- Adjust the reverse check cable before installation. <Ref. to CS-17, ADJUSTMENT, Reverse Check Cable.>



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

6) Install the heat shield cover.



7) Install the rear exhaust pipe and muffler. <Ref. to EX(STI)-12, INSTALLATION, Rear Exhaust Pipe.>
<Ref. to EX(STI)-14, INSTALLATION, Muffler.>

8) Install the under cover.

9) Install the boot plate.

NOTE:

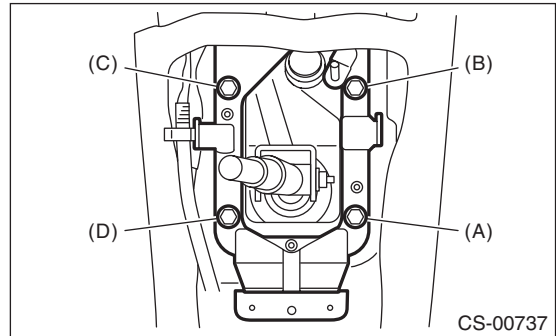
Be careful not to twist the inner boot when installing.

Tightening torque:

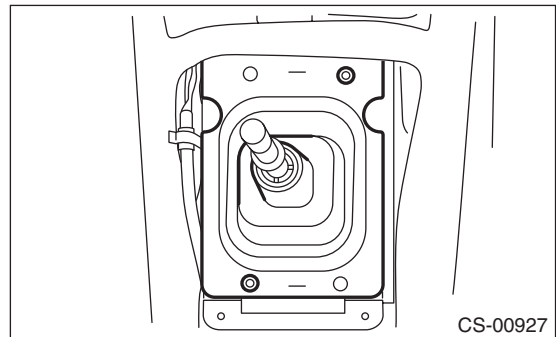
18 N·m (1.8 kgf·m, 13.3 ft·lb)

- (1) Set the plate assembly to the vehicle.
- (2) Temporarily tighten the bolt (A).
- (3) Tighten the bolt (B).
- (4) Tighten the bolt (A).

(5) Tighten the bolts (C) and (D).



- 10) Install the harness clamp to the plate assembly.
- 11) Install the boot and insulator assembly, and secure with a clamp.



12) Install the console box front. <Ref. to EI-43, INSTALLATION, Console Box.>

13) Check whether the gear shift shifts into each gear position.

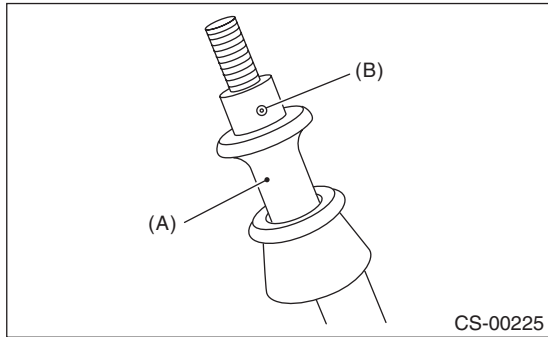
MT Gear Shift Lever

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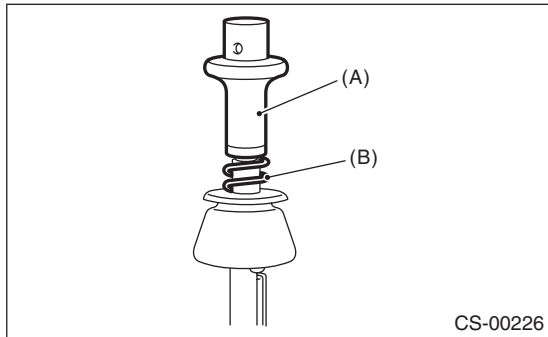
C: DISASSEMBLY

1) Remove the spring pin from the slider.



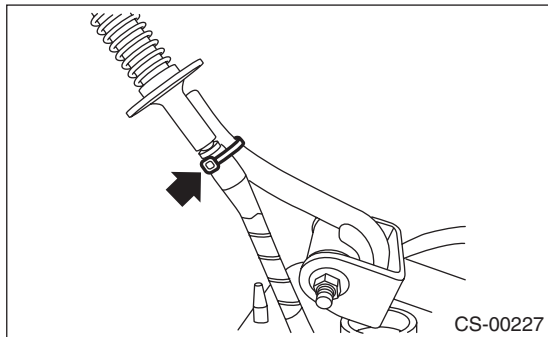
- (A) Slider
- (B) Spring pin

2) Remove the slider and spring.

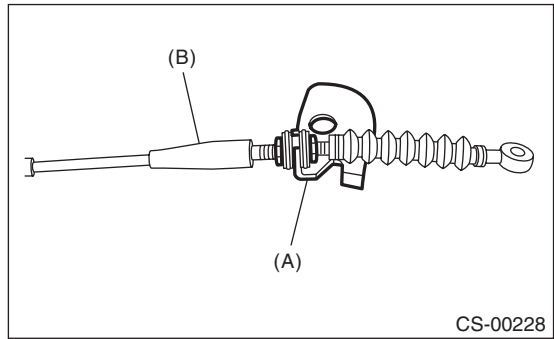


- (A) Slider
- (B) Spring

3) Cut off the band clip.

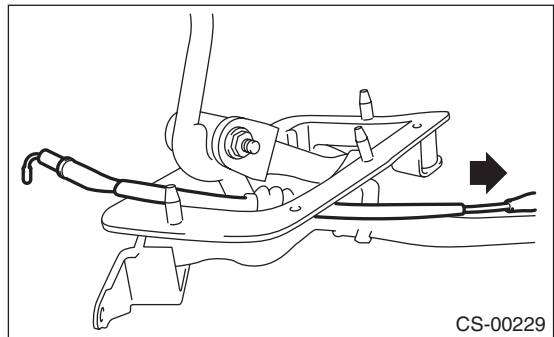


4) Remove the reverse check cable from the cable plate.

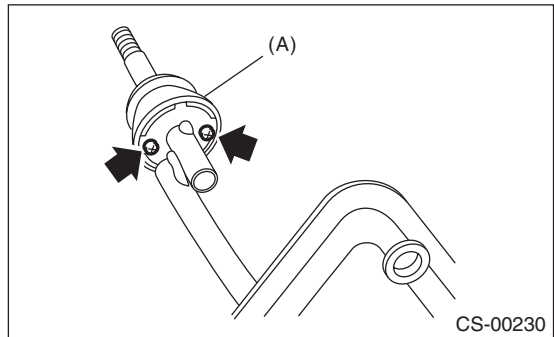


- (A) Cable plate
- (B) Reverse check cable

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



6) Remove the holder and spring.



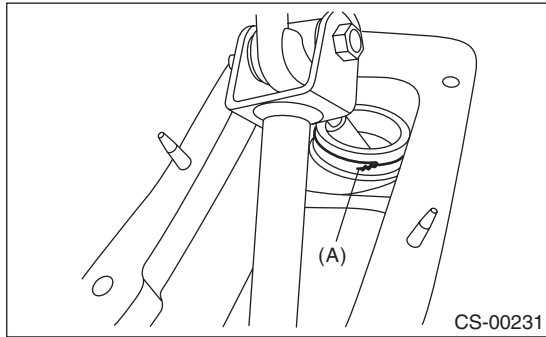
- (A) Holder

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7) Disassemble the lock wire.

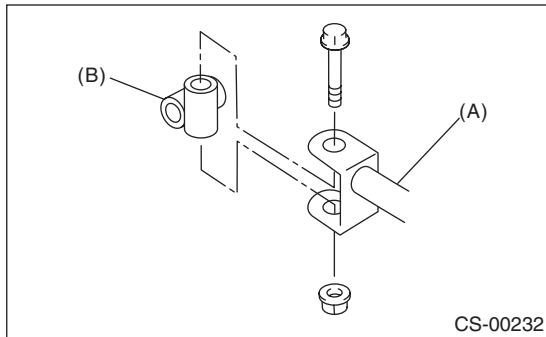
NOTE:

Do not reuse the lock wire.



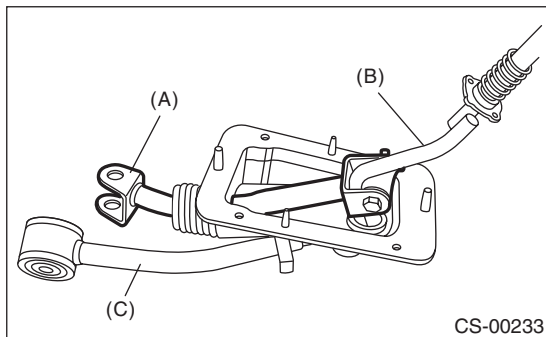
(A) Lock wire

8) Remove the boss from the rod.



(A) Rod
(B) Boss

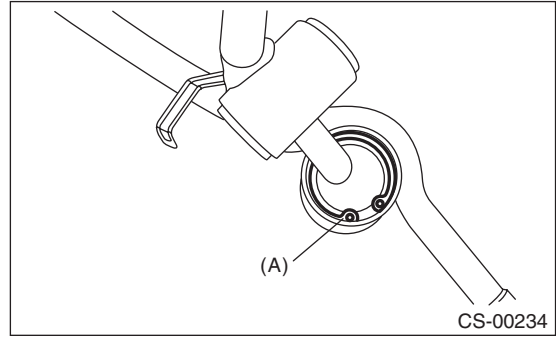
9) Remove the rod from lever.



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

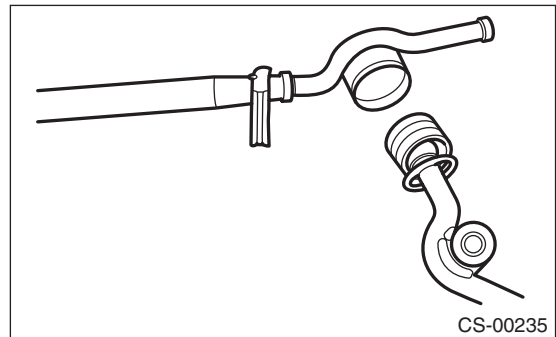
10) Separate the rod and inner boot.

11) Remove the snap ring from the stay.

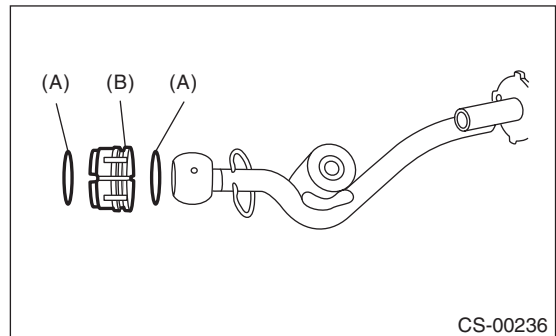


(A) Snap ring

12) Separate the gear shift lever and the stay.



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



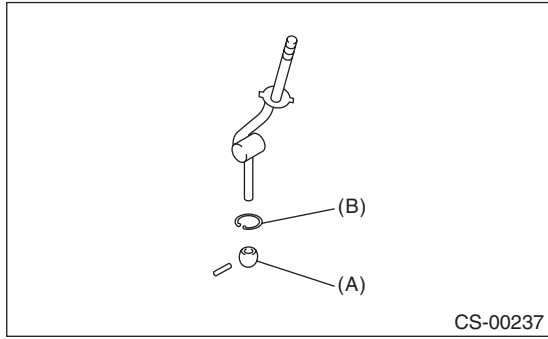
(A) O-ring
(B) Bushing

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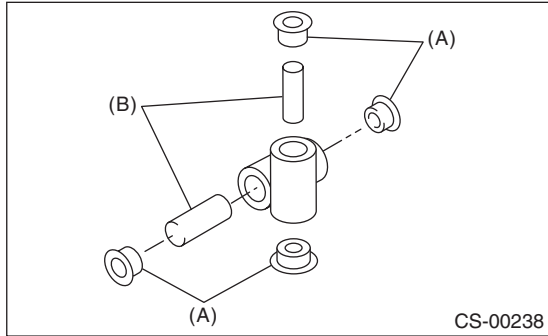
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14) Remove the spring pin, and then remove the bushing and snap ring.



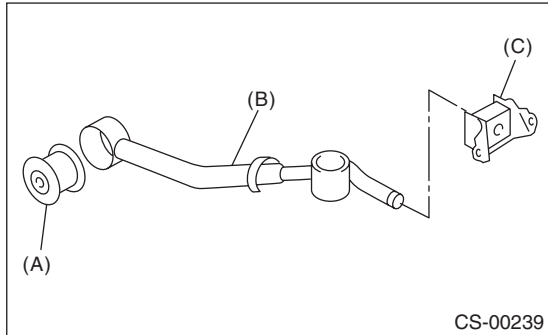
- (A) Bushing
- (B) Snap ring

15) Remove the bushing and spacer from the boss.



- (A) Bushing
- (B) Spacer

16) Remove the bushing and cushion rubber from the stay.

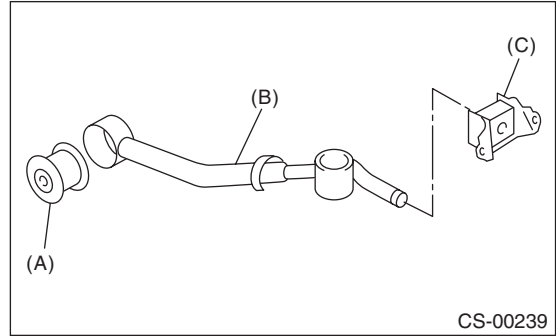


- (A) Bushing
- (B) Stay
- (C) Cushion rubber

D: ASSEMBLY

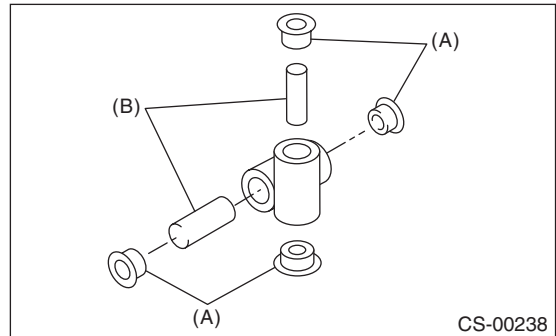
NOTE:

- Clean all the parts before assembly.
 - Apply NIGTIGHT LYW No. 2 grease or equivalent to each part. <Ref. to CS-3, 6MT GEAR SHIFT LEVER, COMPONENT, General Description.>
- 1) Mount the bushing and cushion rubber to the stay.



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

2) Install the bushing and spacer to boss.

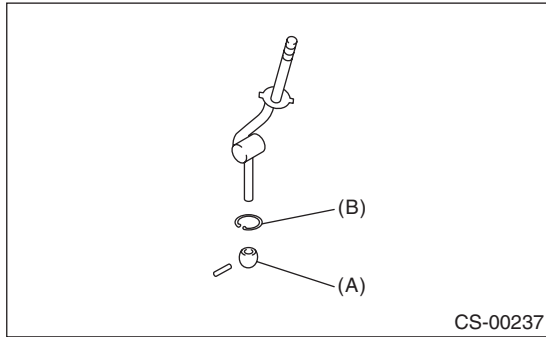


- (A) Bushing
- (B) Spacer

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

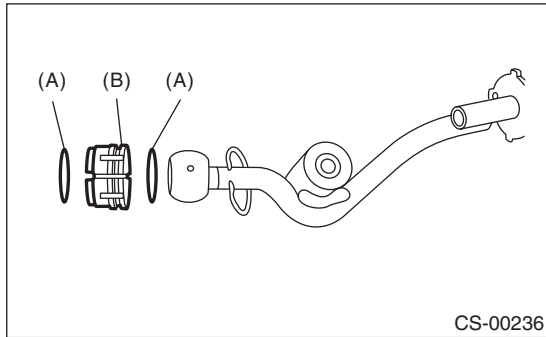
NOTE:

Apply grease to the bushing.



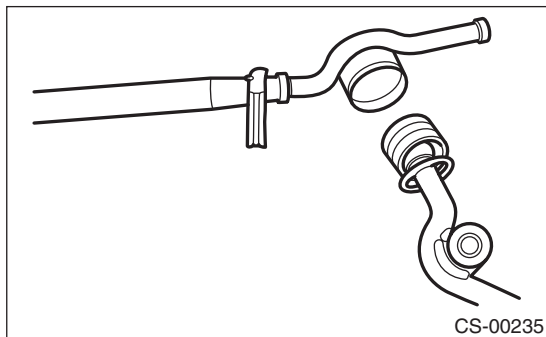
- (A) Bushing
- (B) Snap ring

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

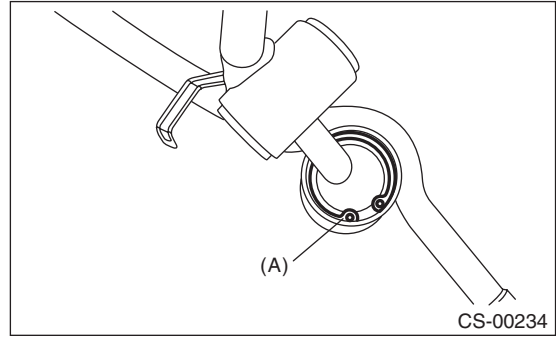


- (A) O-ring
- (B) Bushing

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



6) Install the washer and snap ring.



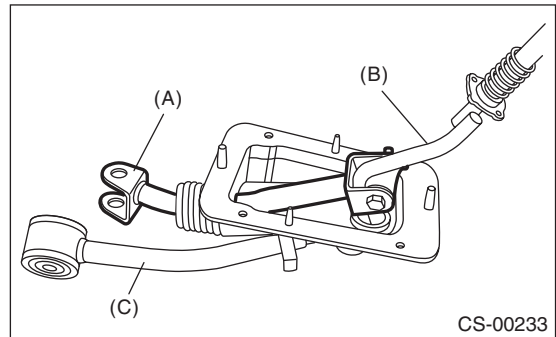
- (A) Snap ring

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

8) Install the rod.

Tightening torque:

12 N·m (1.2 kgf-m, 8.9 ft-lb)

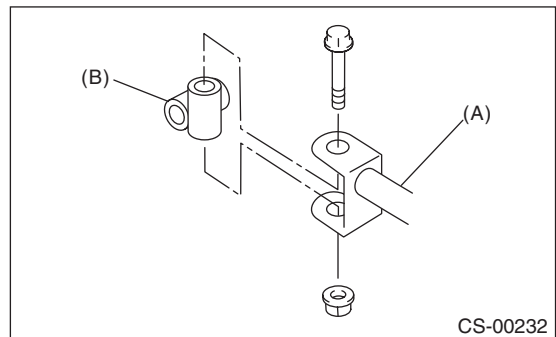


- (A) Rod
- (B) Lever
- (C) Stay

9) Install the rod to the boss.

Tightening torque:

12 N·m (1.2 kgf-m, 8.9 ft-lb)



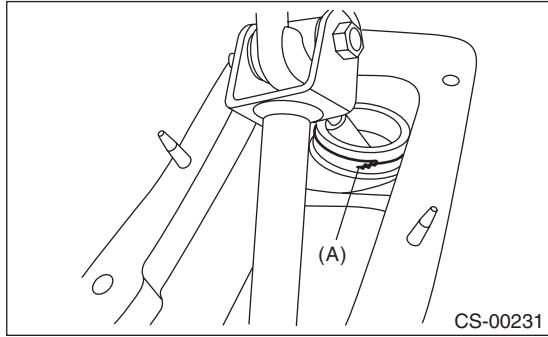
- (A) Rod
- (B) Boss

MT Gear Shift Lever

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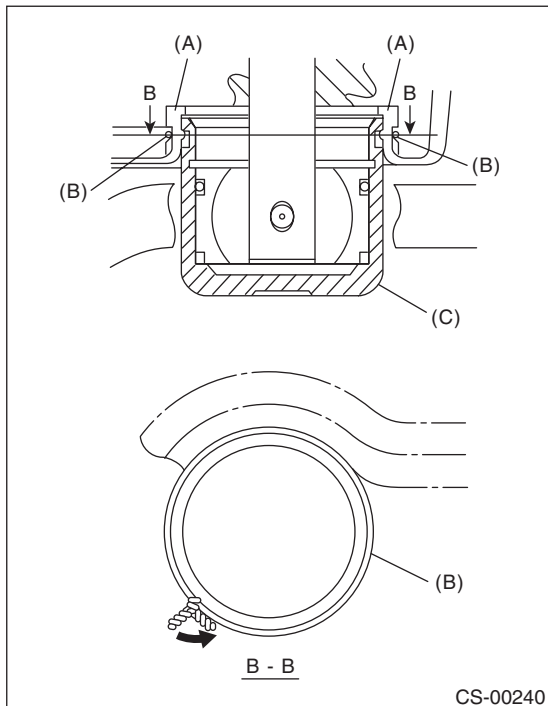
10) Install a new lock wire.



(A) Lock wire

NOTE:

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

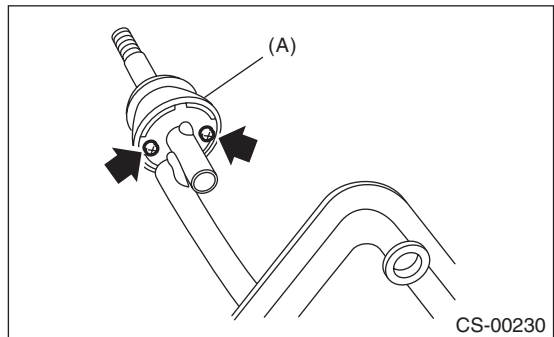


(A) Inner boot
(B) Lock wire
(C) Stay

11) Install the holder.

Tightening torque:

1.3 N·m (0.13 kgf-m, 0.96 ft-lb)



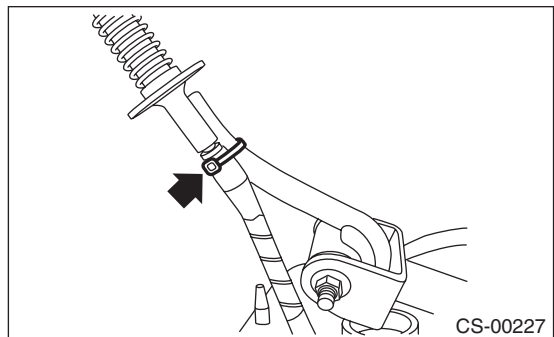
(A) Holder

12) Insert the reverse check cable into the boot hole.

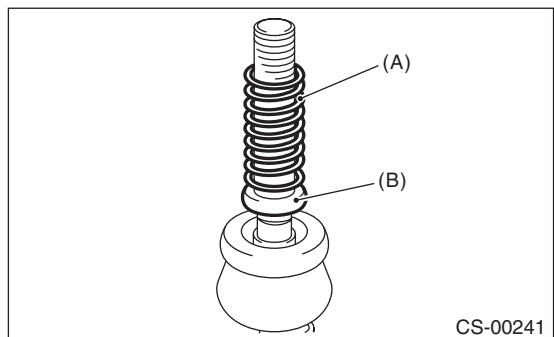
13) Insert the reverse check cable into the gear shift assembly, and secure it with the band clip.

NOTE:

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



14) Install the seat cushion and spring.



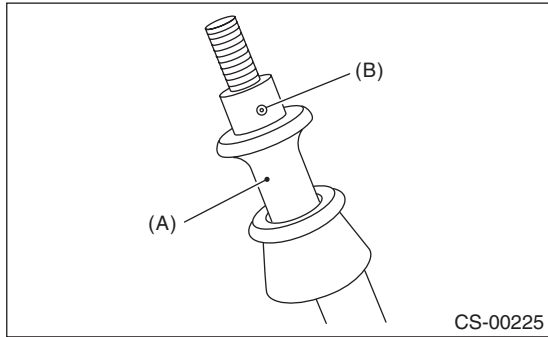
(A) Spring
(B) Seat cushion

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15) Use the spring pin to secure the end of the slider and reverse check cable.

NOTE:

Apply grease to the moving part of the slider.

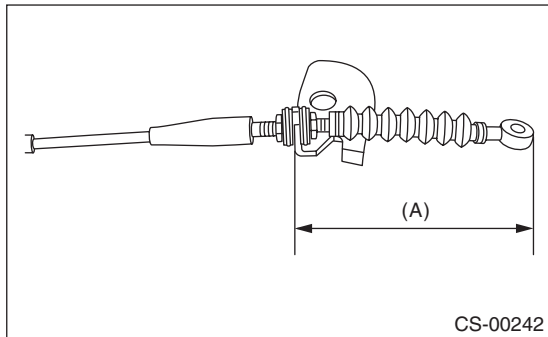


- (A) Slider
- (B) Spring pin

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

Tightening torque:

6 N-m (0.6 kgf-m, 4.4 ft-lb)

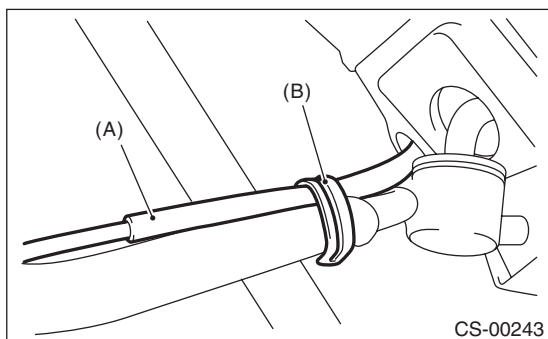


- (A) 84 mm (3.31 in)

17) Secure the reverse check cable to the stay clip.

NOTE:

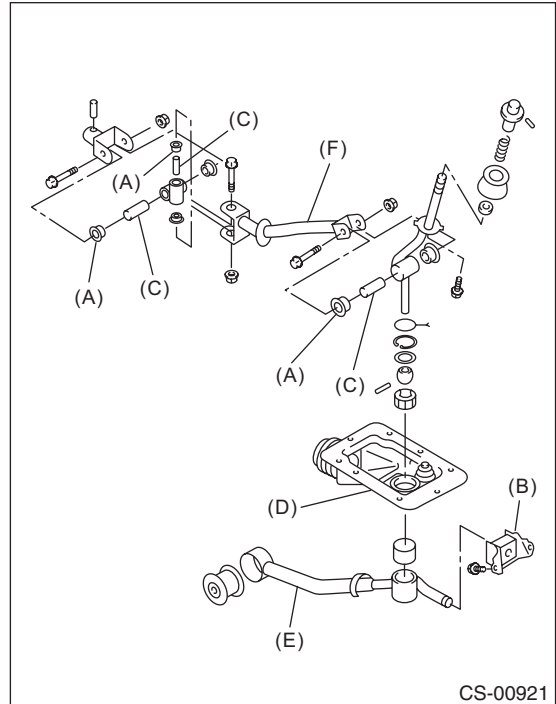
Install the reverse check cable to the upper side of the stay.



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

E: INSPECTION

1) Check the parts (bushing, cushion rubber, spacer, boot, stay and rod, etc.) for deformation, damage and wear. If necessary, correct or replace faulty parts. Compare the removed parts with new parts to judge if there are damages or not.



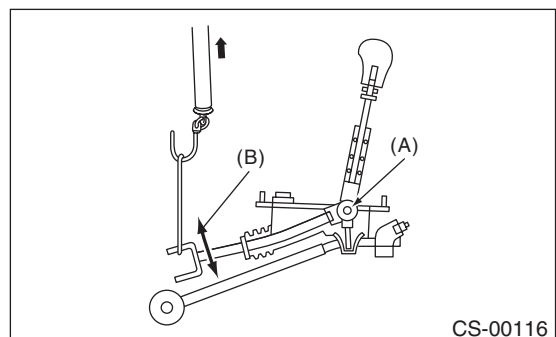
- (A) Bushing
- (B) Cushion rubber
- (C) Spacer
- (D) Boot
- (E) Stay
- (F) Rod

2) Check the swing torque of rod linked with the gear shift lever.

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

Swing torque:

3.7 N (0.38 kgf, 0.83 lbf) or less

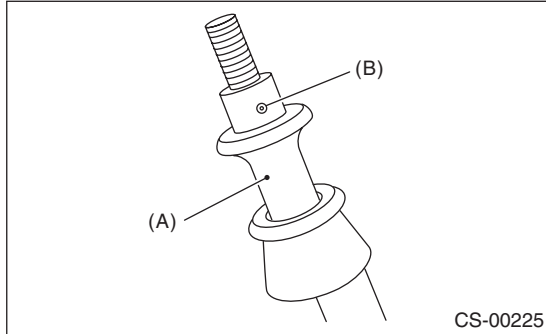


- (A) Pivot
- (B) Swing torque

3. Reverse Check Cable

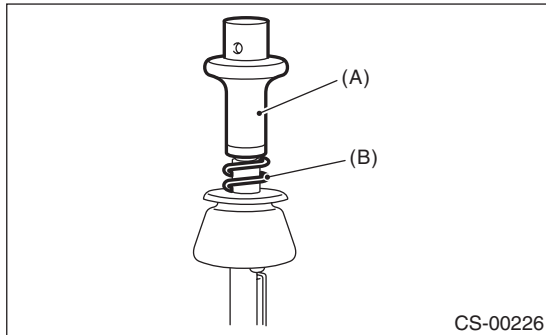
A: REMOVAL

- 1) Set the vehicle on a lift.
- 2) Remove the gear shift knob.
- 3) Remove the console box front. <Ref. to EI-43, REMOVAL, Console Box.>
- 4) Remove the boot and insulator assembly.
- 5) Remove the spring pin from the slider.



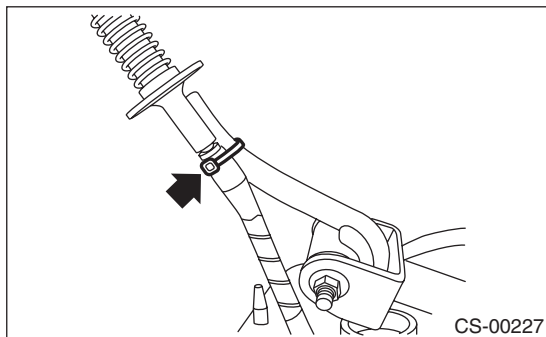
- (A) Slider
- (B) Spring pin

- 6) Remove the slider and spring.

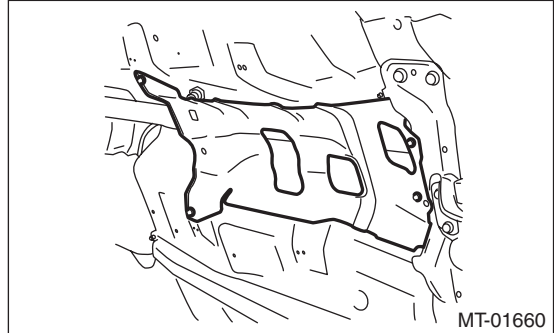


- (A) Slider
- (B) Spring

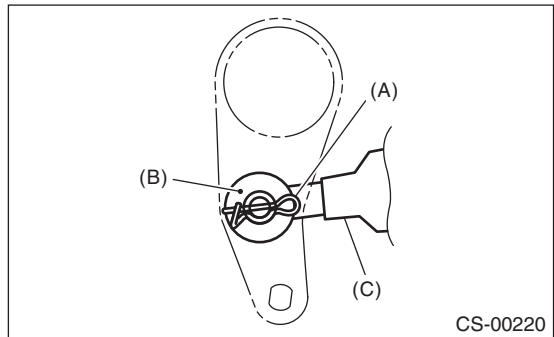
- 7) Cut off the band clip and separate the reverse check cable from the gear shift lever.



- 8) Lift up the vehicle.
- 9) Remove the under cover.
- 10) Remove the rear exhaust pipe and muffler. <Ref. to EX(STI)-12, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(STI)-14, REMOVAL, Muffler.>
- 11) Remove the heat shield cover.



- 12) Remove the crossmember. <Ref. to 6MT-30, REMOVAL, Transmission Mounting System.>
- 13) Remove the snap pin and washer, and separate the reverse check cable from the reverse check lever.

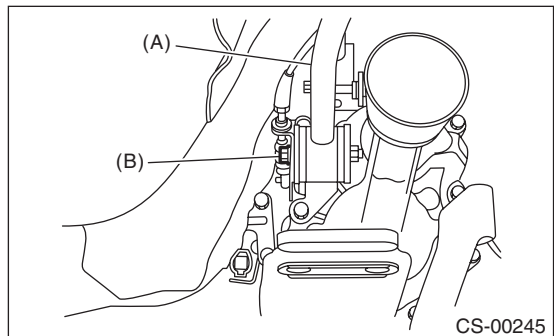


- (A) Snap pin
- (B) Washer
- (C) Reverse check cable

- 14) Move the transmission to the right side, and remove the stay bolts and the reverse check cable.

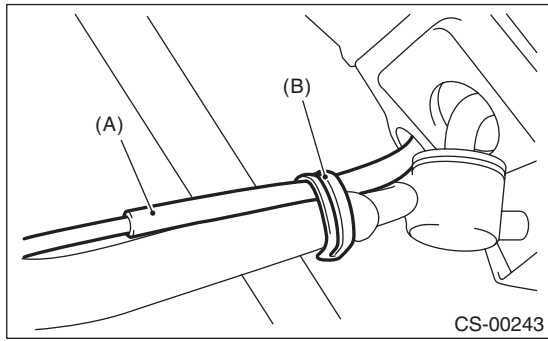
NOTE:

If the transmission is not moved aside, the stay bolts may contact the body and cause damage.



- (A) Stay
- (B) Stay bolt

15) Lift up the stay clip, and separate the stay from the reverse check cable.



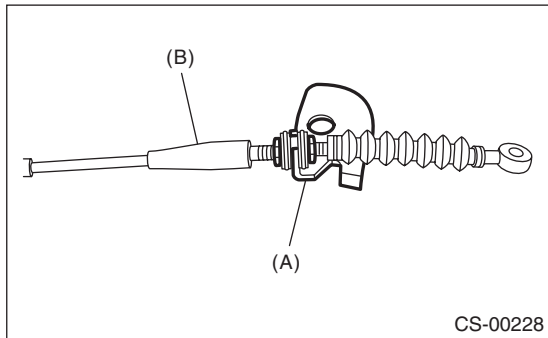
(A) Reverse check cable
 (B) Clip

16) Remove the reverse check cable by pulling it out from under the vehicle.

NOTE:

Be careful not to damage the inner boot.

17) Loosen the lock nut to remove the reverse check cable from the cable plate.



(A) Cable plate
 (B) Reverse check cable

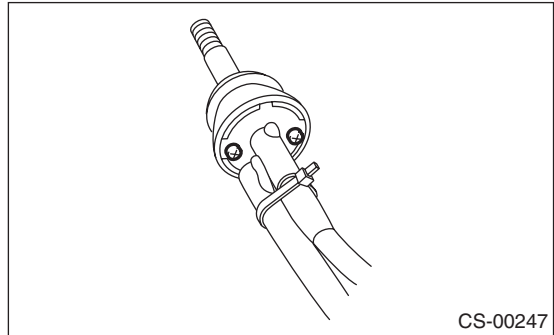
B: INSTALLATION

1) Insert the reverse check cable into the inner boot hole from under the vehicle.

2) Insert the reverse check cable into the gear shift lever assembly, and secure it with the band clip.

NOTE:

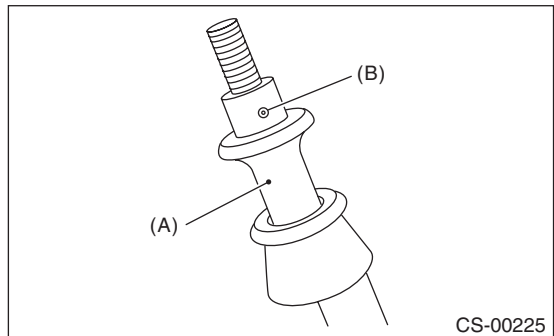
- Cut off the extra band clip.
- Make sure that the reverse check cable is inserted without any gap into gear shift lever assembly.



3) Use the spring pin to secure the end of the slider and the reverse check cable.

NOTE:

Apply grease to the moving part of the slider.

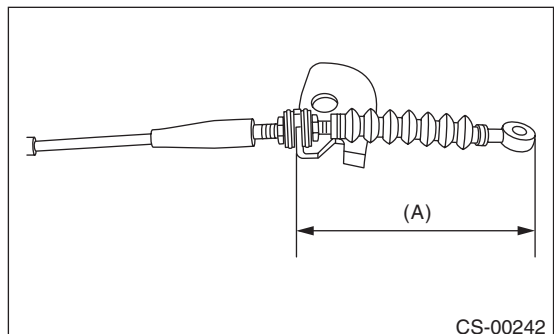


(A) Slider
 (B) Spring pin

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

Tightening torque:

6 N·m (0.6 kgf·m, 4.4 ft·lb)



(A) 84 mm (3.31 in)

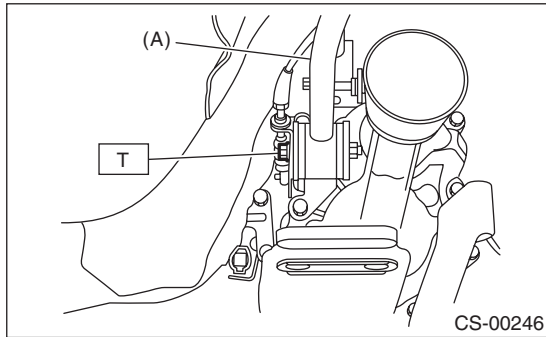
Reverse Check Cable

CONTROL SYSTEMS

5) Move the transmission to the right side of the vehicle and install the stay.

Tightening torque:

T: 32 N·m (3.3 kgf-m, 23.6 ft-lb)

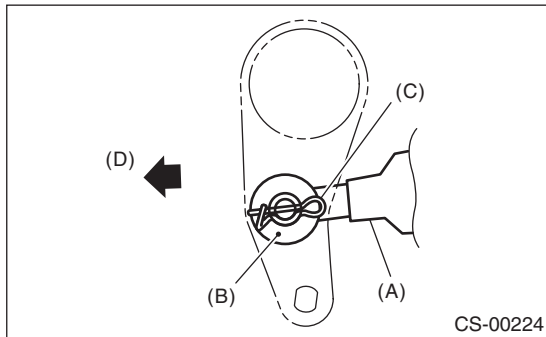


(A) Stay

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

NOTE:

Be careful to install the snap pin in the proper direction.

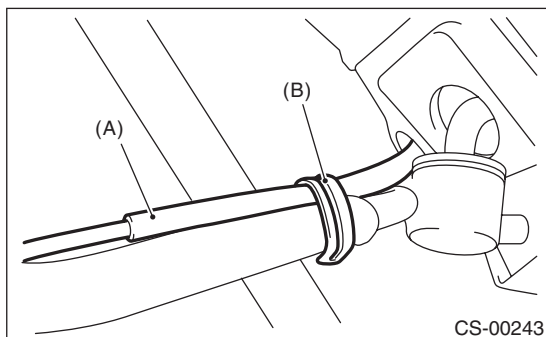


- (A) Reverse check cable
- (B) Washer
- (C) Snap pin
- (D) Front side

7) Secure the reverse check cable to the stay clip.

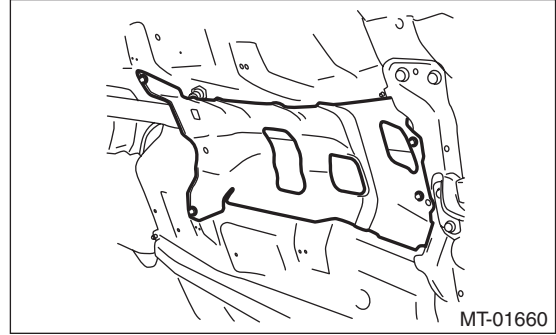
NOTE:

Install the reverse check cable to the upper side of the stay.



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

8) Install the heat shield cover.



9) Install the rear exhaust pipe and muffler. <Ref. to EX(STI)-12, INSTALLATION, Rear Exhaust Pipe.>

<Ref. to EX(STI)-14, INSTALLATION, Muffler.>

10) Install the boot and insulator assembly.

11) Install the console box. <Ref. to EI-43, INSTALLATION, Console Box.>

C: INSPECTION

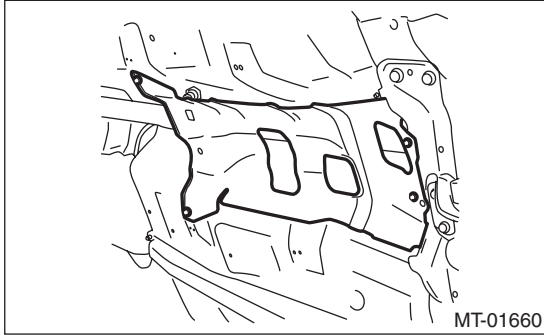
1) Check if the slider moves smoothly. If it does not, adjust the reverse check cable or check the slider for damage. <Ref. to CS-17, ADJUSTMENT, Reverse Check Cable.>

2) Check if the gear shifts into reverse when pulling up the slider. If the gear cannot shift into reverse, adjust the reverse check cable. <Ref. to CS-17, ADJUSTMENT, Reverse Check Cable.>

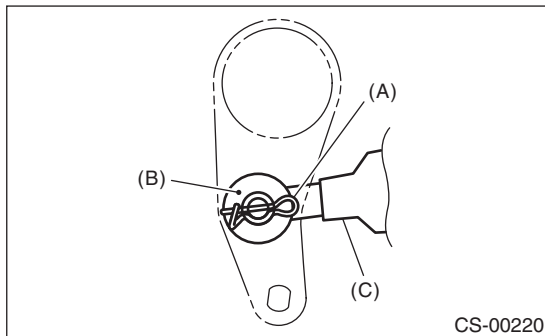
3) Check that the gear does not shift into reverse when not pulling up the slider. If the gear shifts into reverse, adjust or replace the reverse check cable. <Ref. to CS-17, ADJUSTMENT, Reverse Check Cable.>

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(STI)-12, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(STI)-14, REMOVAL, Muffler.>
- 4) Remove the heat shield cover.



- 5) Remove the crossmember. <Ref. to 6MT-30, REMOVAL, Transmission Mounting System.>
- 6) Remove the snap pin and washer, and separate the reverse check cable from the reverse check lever.

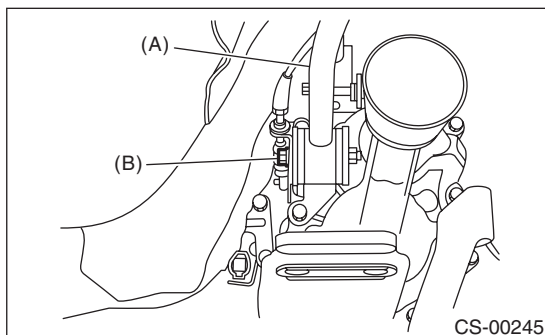


- (A) Snap pin
- (B) Washer
- (C) Reverse check cable

- 7) Move the transmission to the right side, and remove the stay bolts and the reverse check cable.

NOTE:

If the transmission is not moved aside, the stay bolts may contact the body and cause damage.

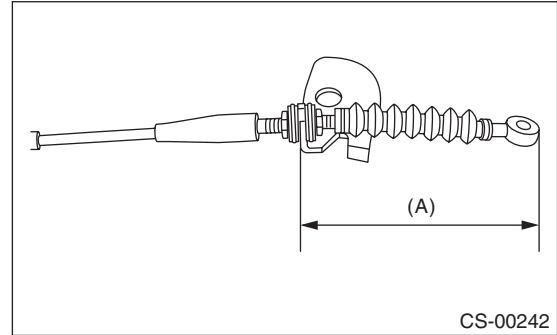


- (A) Stay
- (B) Stay bolt

- 8) With the cable pulled (the slider lowered), adjust the length from the cable plate end to the reverse check cable to 84 mm (3.31 in), and tighten the lock nut.

Tightening torque:

6 N·m (0.6 kgf·m, 4.4 ft·lb)

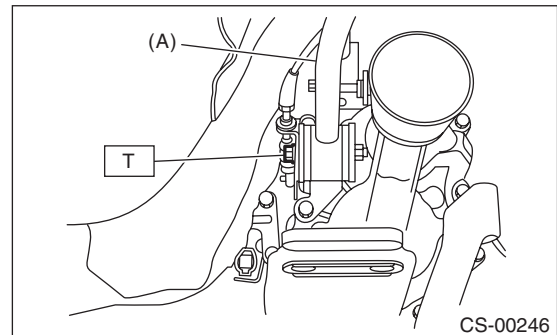


- (A) 84 mm (3.31 in)

- 9) Move the transmission to the right side of the vehicle and install the stay.

Tightening torque:

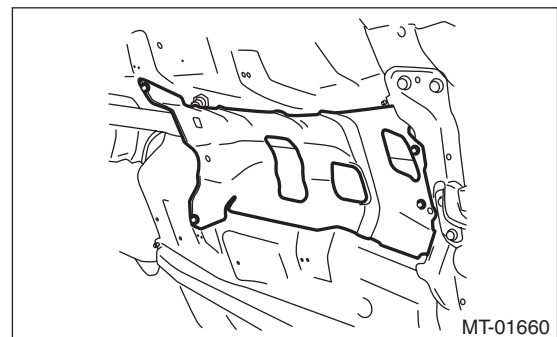
T: 32 N·m (3.3 kgf·m, 23.6 ft·lb)



- (A) Stay

- 10) Install the crossmember. <Ref. to 6MT-30, INSTALLATION, Transmission Mounting System.>

- 11) Install the heat shield cover.



- 12) Install the rear exhaust pipe and muffler. <Ref. to EX(STI)-12, INSTALLATION, Rear Exhaust Pipe.> <Ref. to EX(STI)-14, INSTALLATION, Muffler.>

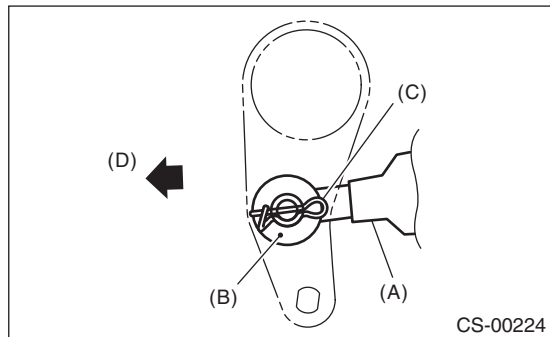
Reverse Check Cable

CONTROL SYSTEMS

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

NOTE:

Be careful to install the snap pin in the proper direction.



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

14) Install the under cover.

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4. General Diagnostic Table

A: INSPECTION

Symptoms	Possible cause	Corrective action
MT gear shift lever (6MT)	Cannot shift into reverse.	Adjust the reverse check cable.
	Can shift into reverse when the slider is not pulled up.	Adjust or replace the reverse check cable.
	Slider cannot be pulled up or sticks in the pulled-up position.	<ul style="list-style-type: none"> • Check the reverse check system of the transmission. • Adjust or replace the reverse check cable.

General Diagnostic Table

CONTROL SYSTEMS

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