

## 22. Control Valve Body Assembly

SS10593

### A: REMOVAL

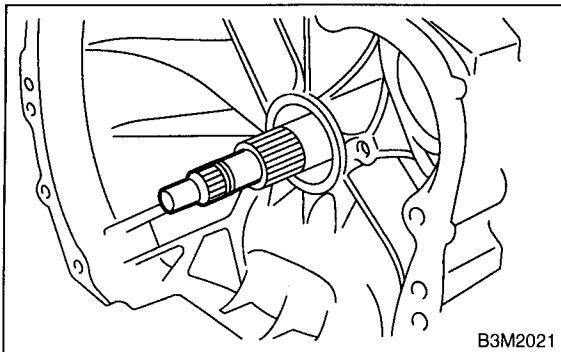
SS10593A18

1) Extract the torque converter clutch assembly.  
<Ref. to AT-34 REMOVAL, Torque Converter Clutch Assembly.>

**NOTE:**

- Extract the torque converter clutch horizontally. Be careful not to scratch the bushing inside the oil pump shaft.
- Note that oil pump shaft also comes out.

2) Remove the input shaft.



3) Disconnect transmission harness connector from stay.

**NOTE:**

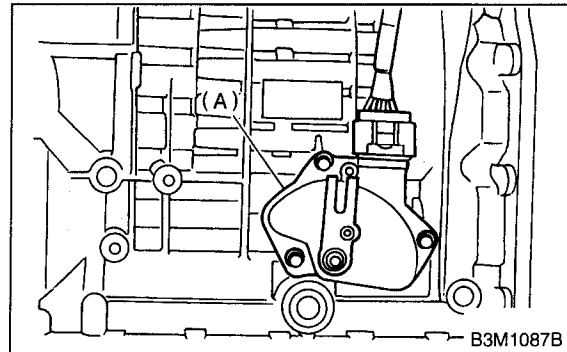
Lift-up lever behind the connector and disconnect it from stay.

- 4) Disconnect inhibitor switch from stay.
- 5) Disconnect the air breather hose. <Ref. to AT-27 REMOVAL, Air Breather Hose.>
- 6) Remove the oil charger pipe. <Ref. to AT-28 REMOVAL, Oil Charger Pipe.>
- 7) To plug the hole, wrap vinyl tape around the nipple attached to the air breather hose.
- 8) Remove pitching stopper bracket.

9) Remove the inhibitor switch.

**NOTE:**

For removal procedures of inhibitor switch, refer to "AT" sections for each model.



(A) Inhibitor switch

10) Prepare a block of wood. Turn the transmission case over, and support it with the block of wood.

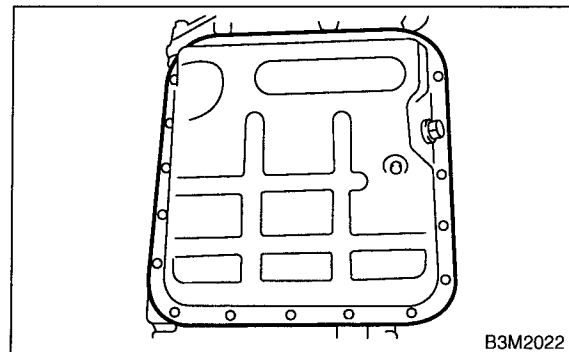
**NOTE:**

Turn the transmission case in the direction the inhibitor switch was installed.

11) Remove the oil pan.

**NOTE:**

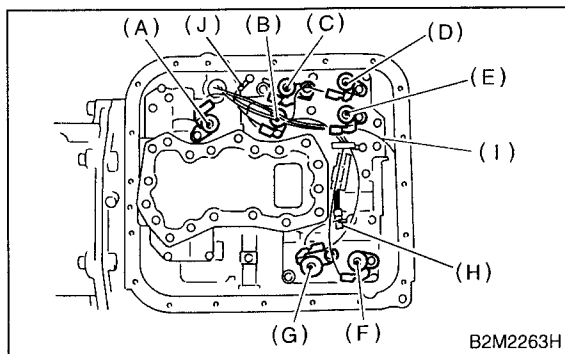
Use a scraper to remove oil pan.



# CONTROL VALVE BODY ASSEMBLY

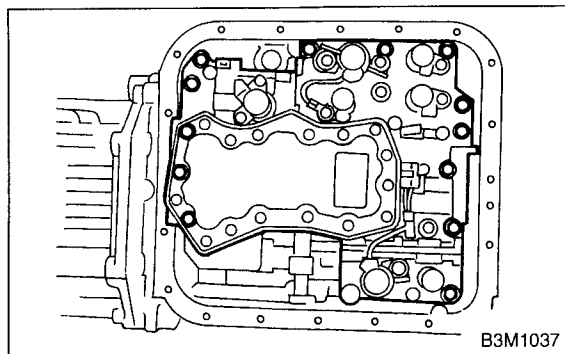
Automatic Transmission

12) Disconnect the harness connectors for the solenoids, duty solenoids, ATF temperature sensor and the ground cord.



- (A) Lock-up duty solenoid (Blue)
- (B) Low clutch timing solenoid (Gray)
- (C) Line pressure duty solenoid (Red)
- (D) Shift solenoid 2 (Yellow)
- (E) Shift solenoid 1 (Green)
- (F) 2-4 brake timing solenoid (Black)
- (G) 2-4 brake duty solenoid (Red)
- (H) ATF temperature sensor
- (I) Transfer duty solenoid (Brown)
- (J) Transmission ground

13) Remove the control valve body assembly.

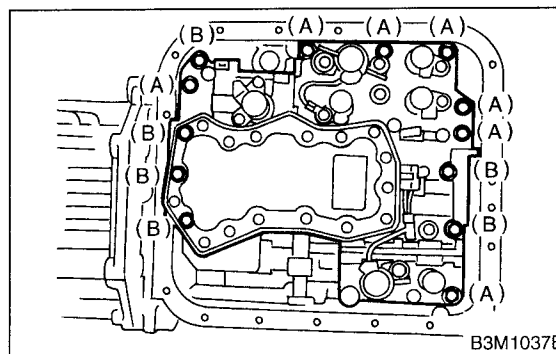


## B: INSTALLATION S510593A11

- 1) Set the select lever in range "N".
- 2) Align the groove of the manual valve to the protrusion of the manual lever, and then install the control valve body assembly.

**Tightening torque:**

**8 N·m (0.8 kgf-m, 5.8 ft-lb)**



- (A) Short bolts
- (B) Long bolts

3) Tighten the valve body to the specified torque.

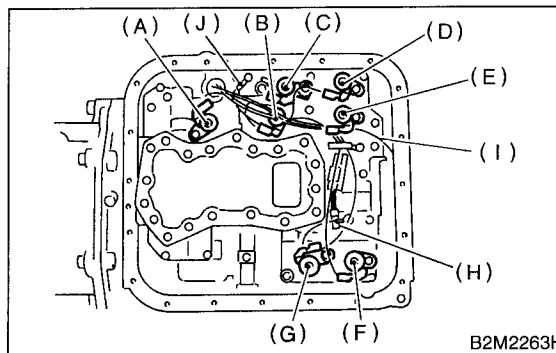
**CAUTION:**

**Tighten the control valve mounting bolts evenly.**

**Tightening torque:**

**8 N·m (0.8 kgf-m, 5.8 ft-lb)**

4) Connect all connectors.

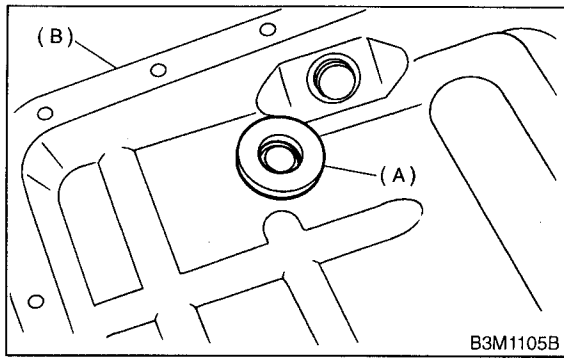


- (A) Lock-up duty solenoid (Blue)
- (B) Low clutch timing solenoid (Gray)
- (C) Line pressure duty solenoid (Red)
- (D) Shift solenoid 2 (Yellow)
- (E) Shift solenoid 1 (Green)
- (F) 2-4 brake timing solenoid (Black)
- (G) 2-4 brake duty solenoid (Red)
- (H) ATF temperature sensor
- (I) Transfer duty solenoid (Brown)
- (J) Transmission ground

# CONTROL VALVE BODY ASSEMBLY

Automatic Transmission

5) Attach the magnet at the specified position.

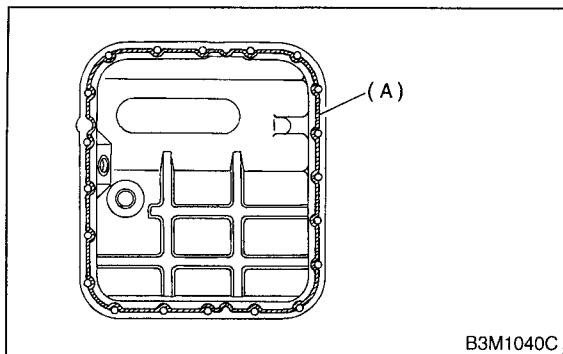


- (A) Magnet
- (B) Oil pan

6) Apply proper amount of liquid gasket to the entire oil pan mating surface.

**Liquid gasket:**

**THREE BOND 1217B**



- (A) THREE BOND (Part No. 1217B)

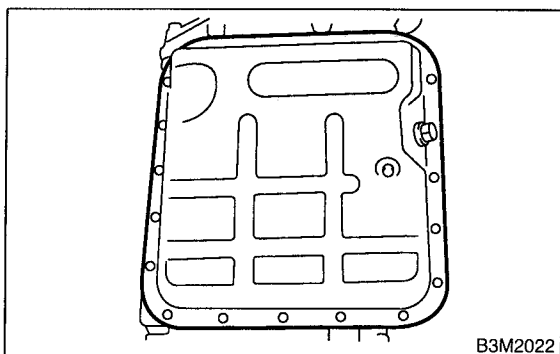
7) Install the oil pan to the transmission case assembly, and secure with 20 bolts.

**NOTE:**

Tighten the bolts evenly.

**Tightening torque:**

**4.9 N·m (0.50 kgf·m, 3.6 ft·lb)**

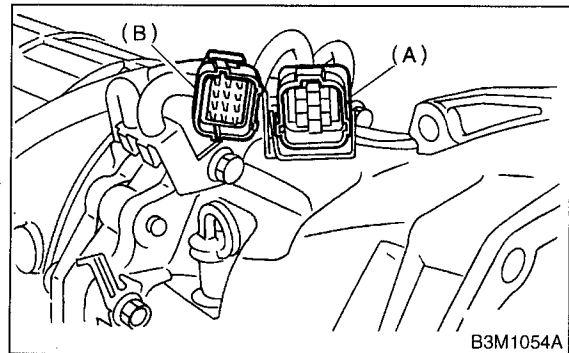


8) Turn over the transmission case to its original position.

9) Install air breather hose. <Ref. to AT-27 INSTALLATION, Air Breather Hose.>

10) Install inhibitor switch and adjust the inhibitor switch by referring to Supplement AT section.

11) Insert inhibitor switch and transmission connector into stay.



- (A) Transmission harness
- (B) Inhibitor switch harness

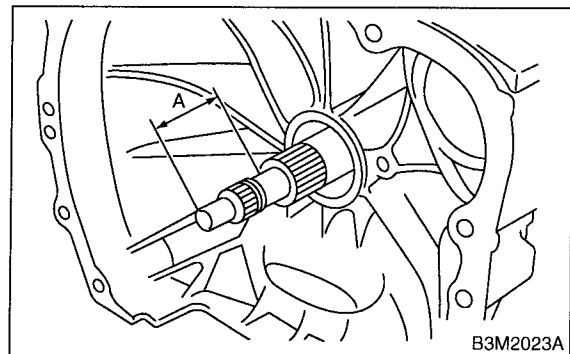
12) Insert the input shaft while turning lightly by hand.

**CAUTION:**

**Be careful not to damage the bushing.**

**Normal protrusion A:**

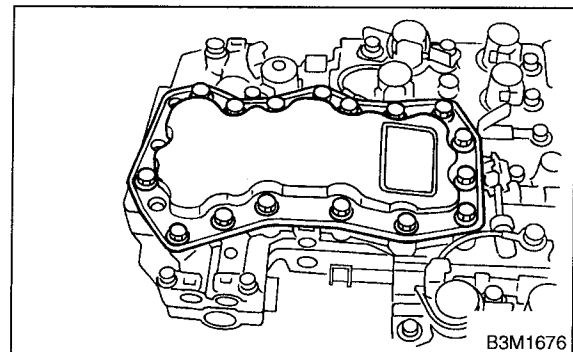
**50 — 55 mm (1.97 — 2.17 in)**



13) Install the torque converter clutch assembly. <Ref. to AT-34 INSTALLATION, Torque Converter Clutch Assembly.>

## C: DISASSEMBLY S510593A06

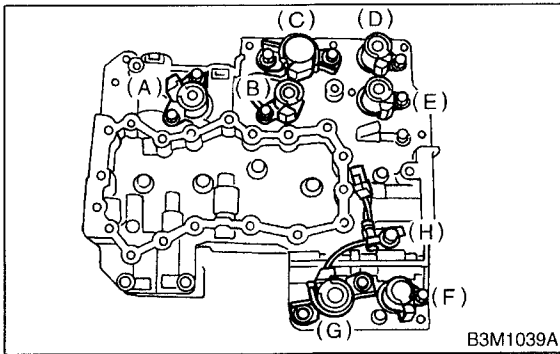
1) Remove oil strainer from lower control valve body.



# CONTROL VALVE BODY ASSEMBLY

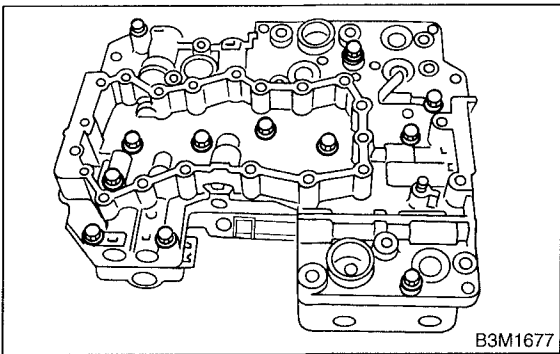
## Automatic Transmission

2) Remove the duty solenoids, solenoids and sensor from the lower valve body.



- (A) Lock-up duty solenoid (Blue)
- (B) Low clutch timing solenoid (Gray)
- (C) Line pressure duty solenoid (Red)
- (D) Shift solenoid 1 (Yellow)
- (E) Shift solenoid 2 (Green)
- (F) 2-4 brake timing solenoid (Black)
- (G) 2-4 brake duty solenoid (Red)
- (H) ATF temperature sensor

3) Remove the upper-lower valve body tightening bolts.



4) Separate the control valve body.

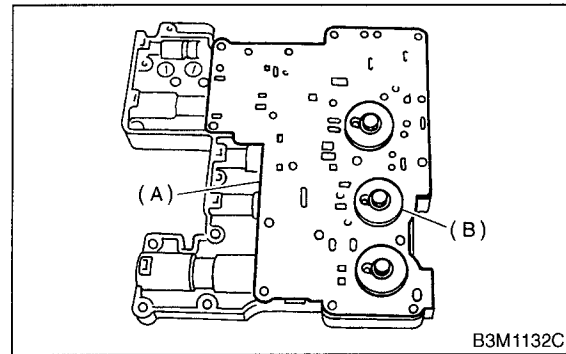
### CAUTION:

- Do not lose the ten (10) steel balls contained in the upper valve body and middle valve body.
- Do not lose strainers contained in the lower valve body.

### NOTE:

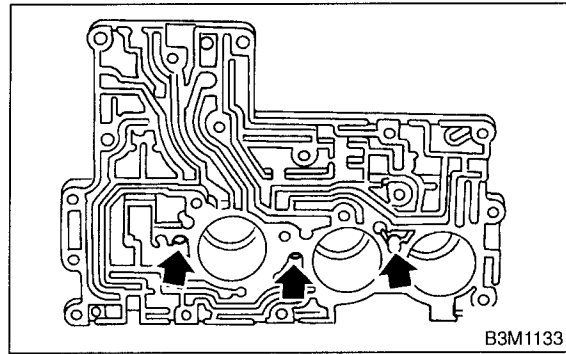
During ordinary servicing, clean the control valve bodies in this condition, without further disassembly. In the event of a seized clutch or other problem, disassemble the control valve bodies further, and clean the component parts.

5) Remove upper separator plate from middle valve body.



- (A) Upper separator plate
- (B) Side plate

6) Remove valve springs from upper valve body.  
7) Using air compressor, remove accumulator piston from upper valve body.

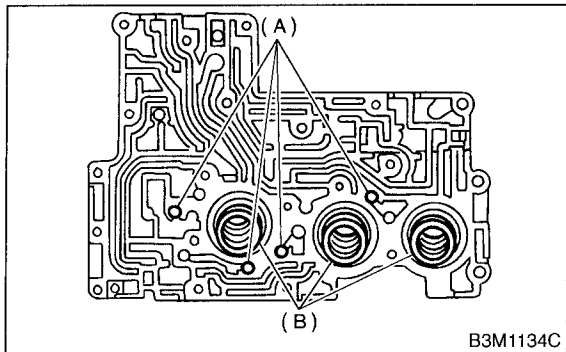


## D: ASSEMBLY S510593A02

1) Install accumulator pistons, valve springs and steel balls to upper valve body.

### NOTE:

Insert steel balls in their proper positions.



- (A) Steel balls
- (B) Valve spring

# CONTROL VALVE BODY ASSEMBLY

Automatic Transmission

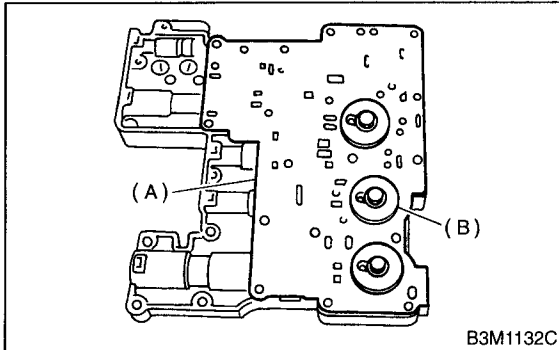
2) Install support plate and upper separator plate to middle valve body.

**NOTE:**

Align the hole in side plate with the hole in separator plate.

**Tightening torque:**

**8 N·m (0.8 kgf-m, 5.8 ft-lb)**

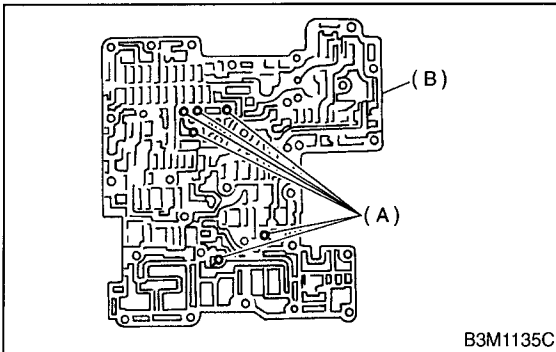


- (A) Upper separator plate
- (B) Side plate

3) Install steel balls to middle valve body.

**NOTE:**

Insert steel balls in their proper positions.

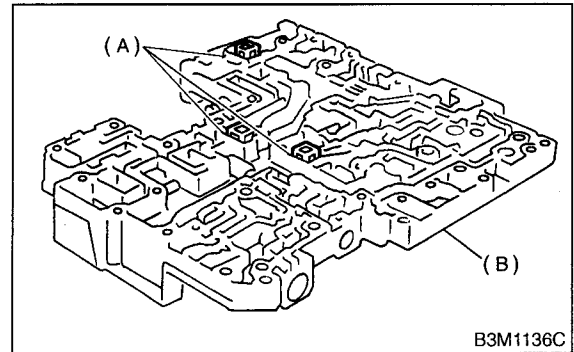


- (A) Steel ball
- (B) Middle valve body

4) Install three filters to lower valve body.

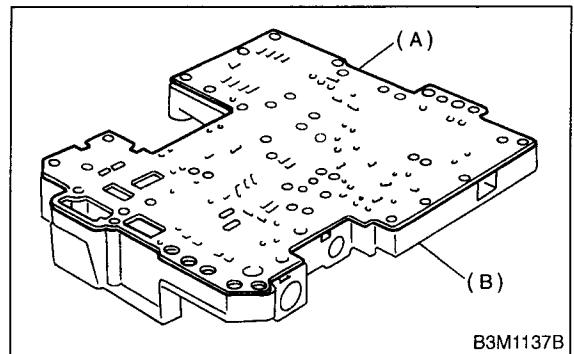
**CAUTION:**

**Pay attention to the location of filters.**



- (A) Strainer
- (B) Lower valve body

5) Install lower separator plate to lower valve body.

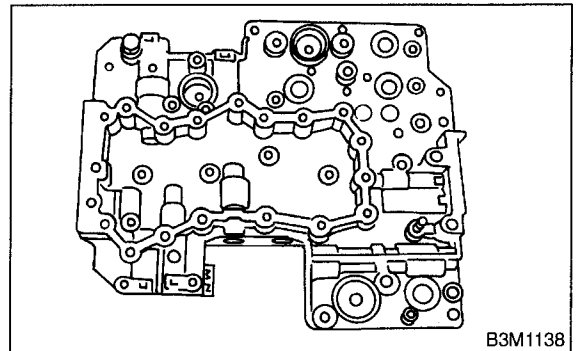


- (A) Lower separator plate
- (B) Lower valve body

6) Temporarily assemble valve body.

**CAUTION:**

**Be careful not to drop the middle valve body and upper body interior steel ball, or the lower body filter.**



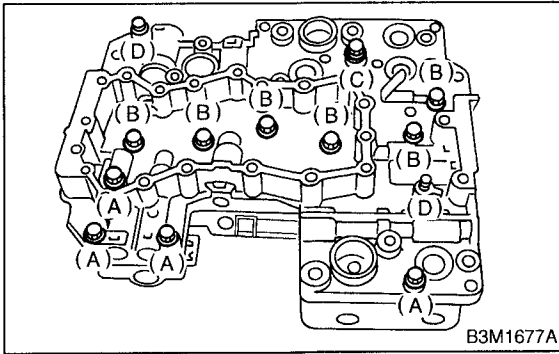
# CONTROL VALVE BODY ASSEMBLY

Automatic Transmission

7) Tighten bolts.

**Tightening torque:**

**8 N·m (0.8 kgf-m, 5.8 ft-lb)**

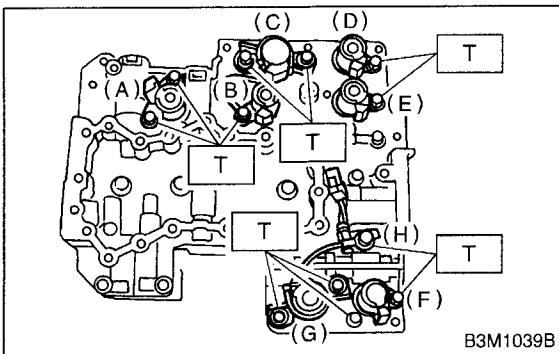


- (A) Short bolts
- (B) Middle bolts
- (C) Long bolt
- (D) Reamer bolts

8) Install the sensor, solenoids and duty solenoids.

**Tightening torque:**

**T: 8 N·m (0.8 kgf-m, 5.8 ft-lb)**



- (A) Lock-up duty solenoid (Blue)
- (B) Low clutch timing solenoid (Gray)
- (C) Line pressure duty solenoid (Red)
- (D) Shift solenoid 1 (Yellow)
- (E) Shift solenoid 2 (Green)
- (F) 2-4 brake timing solenoid (Black)
- (G) 2-4 brake duty solenoid (Red)
- (H) ATF temperature sensor

9) Install oil strainer to lower valve body.

**Tightening torque:**

**8 N·m (0.8 kgf-m, 5.8 ft-lb)**

## E: INSPECTION SS10593A10

Make sure that each component is free of harmful gouges, cuts, or dust.