

## 16. Control Valve Body

### A: REMOVAL

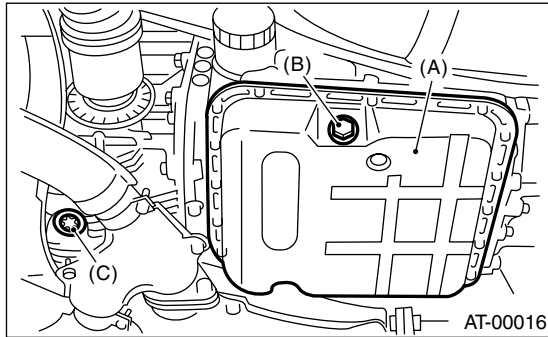
- 1) Lift-up the vehicle.
- 2) Clean the transmission exterior.
- 3) Drain the ATF completely.

**NOTE:**

- Tighten the ATF drain plug after draining the ATF.
- Replace the gasket with a new one.

**Tightening torque:**

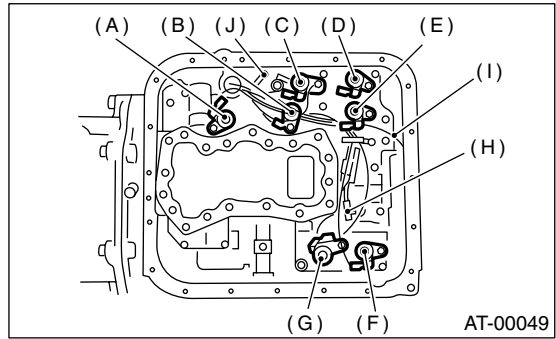
**25 N·m (2.5 kgf·m, 18.1 ft·lb)**



- (A) Oil pan
- (B) Drain plug
- (C) Differential oil drain plug

- 4) Remove the oil pan.
- 5) Remove and clean the magnet.
- 6) Remove the old gasket on the oil pan and transmission case completely.

- 7) Disconnect each solenoid connector and remove ATF temperature sensor from control valve.

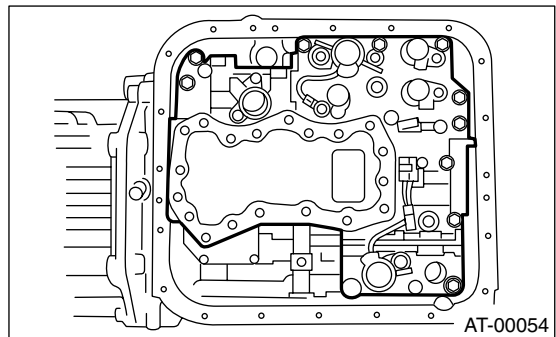


- (A) Lock-up duty solenoid (Blue)
- (B) Low clutch timing solenoid (Gray)
- (C) Line pressure duty solenoid (Red)
- (D) Shift solenoid 2 (Yellow)
- (E) Shift solenoid 1 (Green)
- (F) 2-4 brake timing solenoid (Black)
- (G) 2-4 brake duty solenoid (Red)
- (H) ATF temperature sensor
- (I) Transfer duty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

- 8) Remove the control valve.

**NOTE:**

When removing the control valve body, be careful not to interfere with transfer duty solenoid wiring.



# CONTROL VALVE BODY

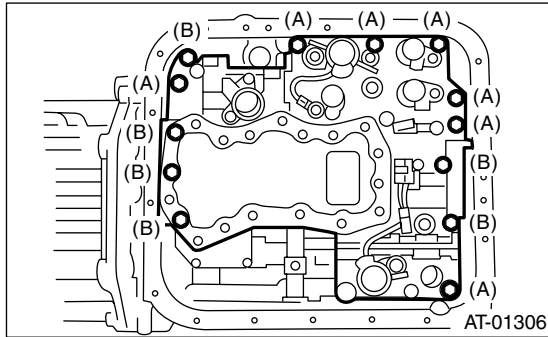
## AUTOMATIC TRANSMISSION

### B: INSTALLATION

- 1) Set the range select lever in "N" range.
- 2) Install the control valve, ATF temperature sensor and ground connectors.

#### Tightening torque:

**8 N·m (0.8 kgf-m, 5.8 ft-lb)**

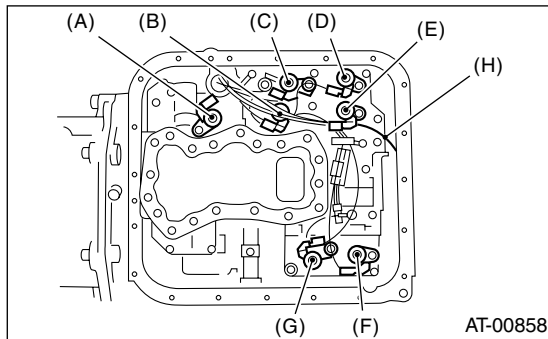


Bolt length mm (in)

(A) 30 (1.18)

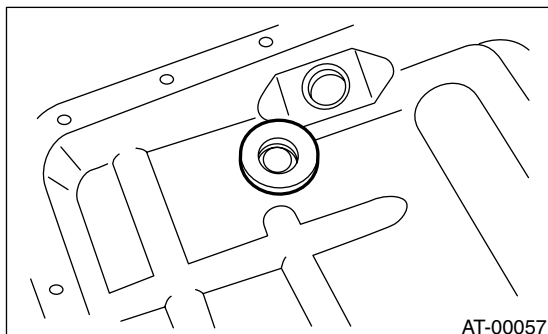
(B) 55 (2.17)

- 3) 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) Transfer duty solenoid (Brown)

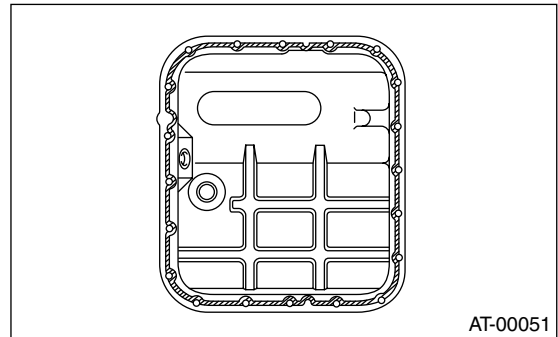
- 4) Attach the magnet at specified position.



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

#### Liquid gasket:

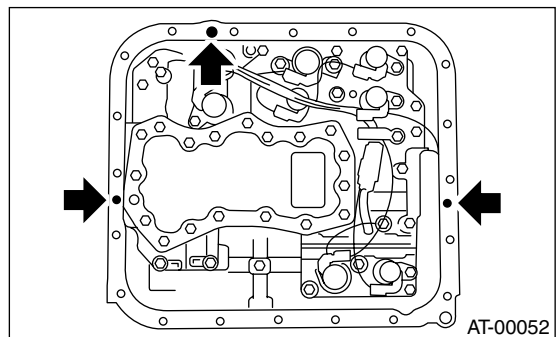
**THREE BOND 1217B (Part No. K0877YA020)**



- 6) Apply liquid gasket fully to three holes other than screw holes on transmission case.

#### Liquid gasket:

**THREE BOND 1217B (Part No. K0877YA020)**



- 7) Install the oil pan by equally tightening the bolts.

#### Tightening torque:

**5 N·m (0.5 kgf-m, 3.6 ft-lb)**

- 8) Pour ATF from the oil charge pipe.

#### Recommended fluid:

**Dexron III**

#### Fluid capacity:

**Fill the same amount of fluid drained from drain plug hole.**

- 9) Check the level of ATF.

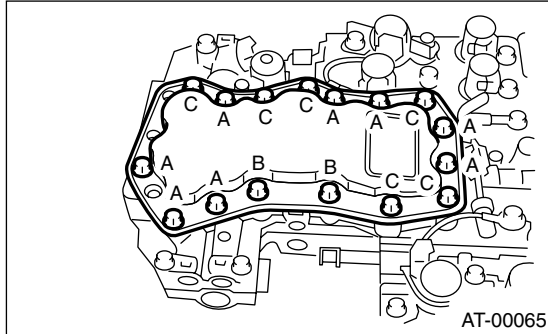
<Ref. to 4AT-29, Automatic Transmission Fluid.>

### C: DISASSEMBLY

1) Remove oil strainer from lower control valve body.

**NOTE:**

Arrange the removed bolts in good order to assemble in the same place as disassembly, because the bolt lengths are different.

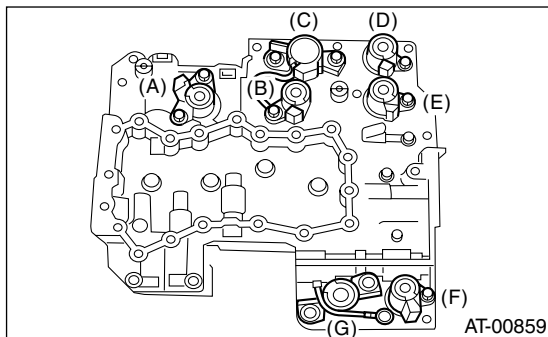


- (A) Short bolt
- (B) Middle bolt
- (C) Long bolt

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

**NOTE:**

Arrange the removed bolts in good order to assemble in the same place as disassembly, because the bolt lengths are different.

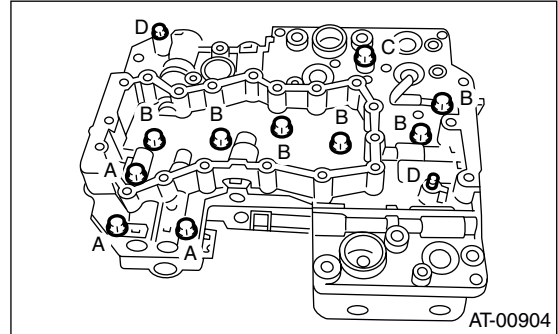


- (A) Lock-up duty solenoid (Blue)
- (B) Low clutch timing solenoid (Gray)
- (C) Line pressure duty solenoid (Red)
- (D) Shift solenoid 1 (Yellow)
- (E) Shift solenoid 2 (Green)
- (F) 2-4 brake timing solenoid (Black)
- (G) 2-4 brake duty solenoid (Red)

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

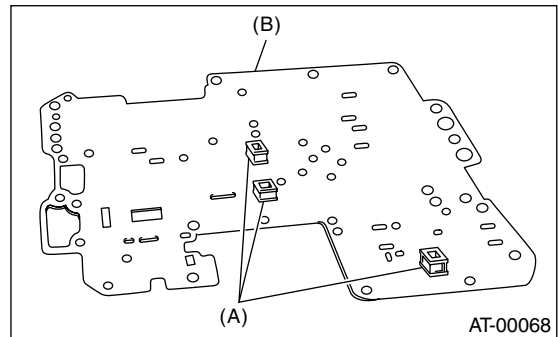
**NOTE:**

Arrange the removed bolts in good order to assemble in the same place as disassembly, because the bolt lengths are different.



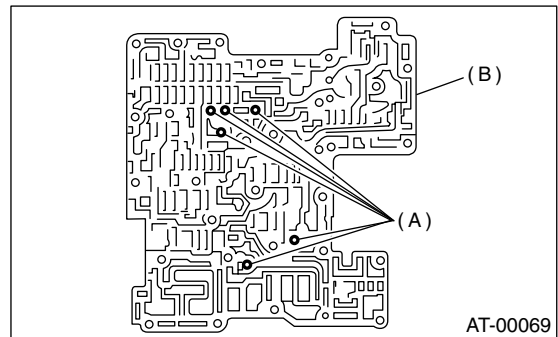
4) Remove the lower valve body.

5) Remove the oil filter and plate.



- (A) Oil filter
- (B) Plate

6) Remove six steel balls from middle valve body.



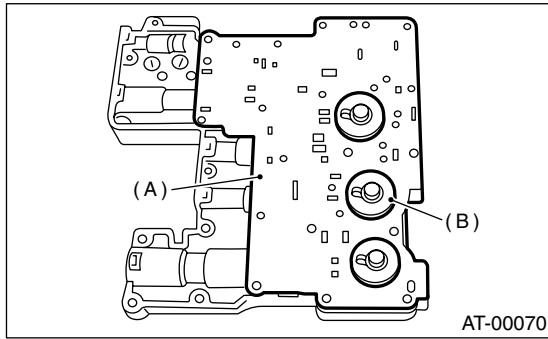
- (A) Steel ball
- (B) Middle valve body

7) Remove the middle valve body.

# CONTROL VALVE BODY

## AUTOMATIC TRANSMISSION

8) Remove upper separator plate from middle valve body.

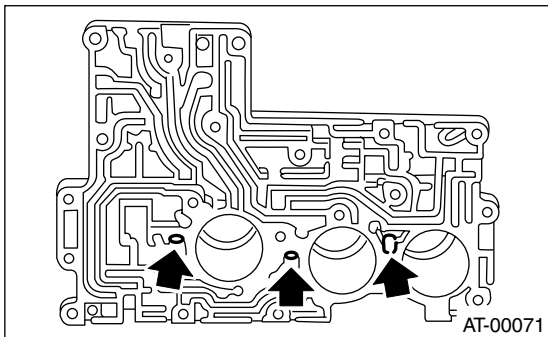


- (A) Upper separator plate
- (B) Side plate

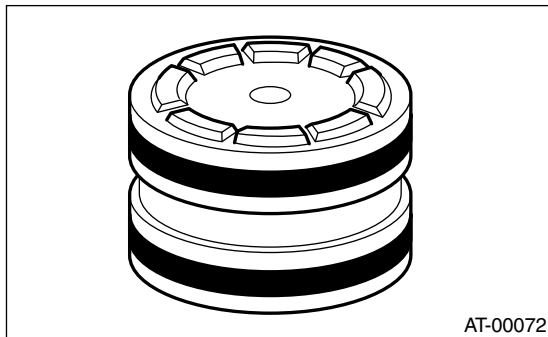
9) Remove valve springs and four steel balls from upper valve body.

10) Place a shop cloth to the piston removal hole.

11) Using an air compressor, apply air slowly to each piston hole and remove the pistons.

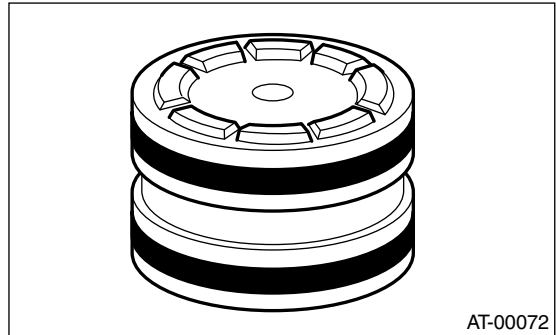


12) Remove the seal ring from piston.



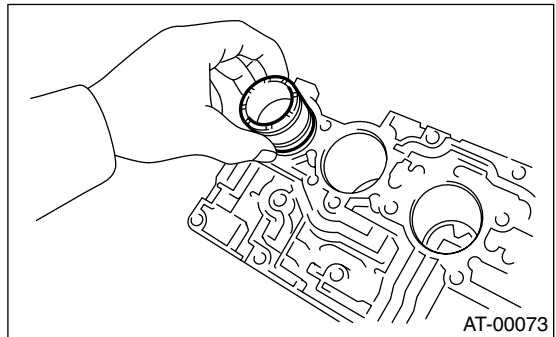
## D: ASSEMBLY

1) Install a new seal ring to piston.

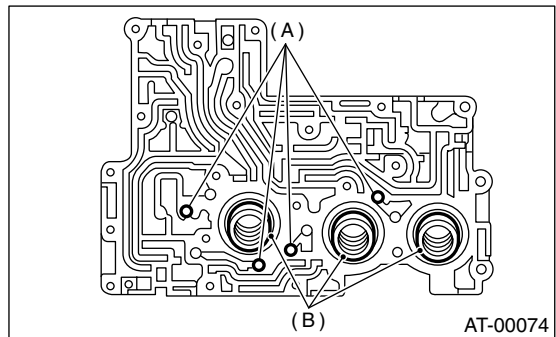


2) Apply ATF to the seal ring.

3) Insert the piston fully into upper valve body.



4) Install the spring and four steel balls to specified positions of upper valve body.



- (A) Steel ball
- (B) Spring

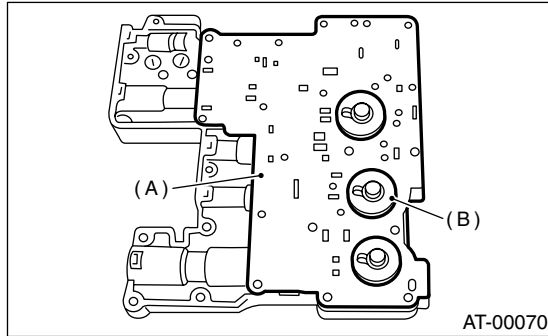
# CONTROL VALVE BODY

AUTOMATIC TRANSMISSION

5) Align the hole in side plate with the hole in separator plate, and then install support plate and upper separator plate to middle valve body.

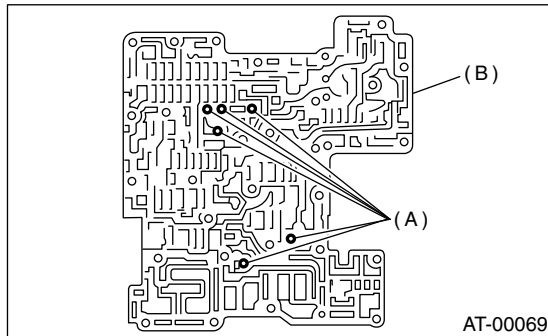
**Tightening torque:**

**8 N·m (0.8 kgf·m, 5.8 ft·lb)**



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

6) Insert six steel balls in their proper positions to middle valve body.

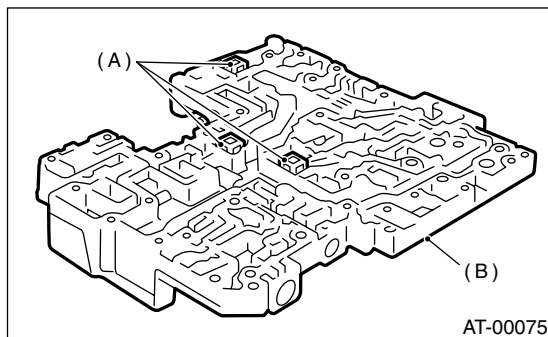


- (A) Steel ball
- (B) Middle valve body

7) Install three filters to lower valve body.

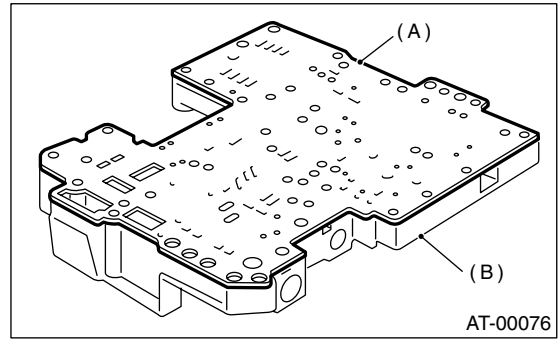
**NOTE:**

Pay attention to the location of filters.



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

8) Install the lower separator plate to lower valve body.

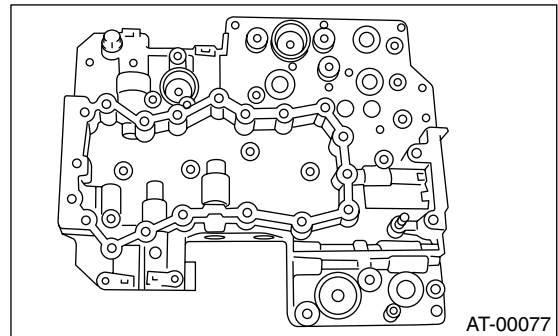


- (A) Lower separator plate
- (B) Lower valve body

9) Temporarily assemble the valve body.

**NOTE:**

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



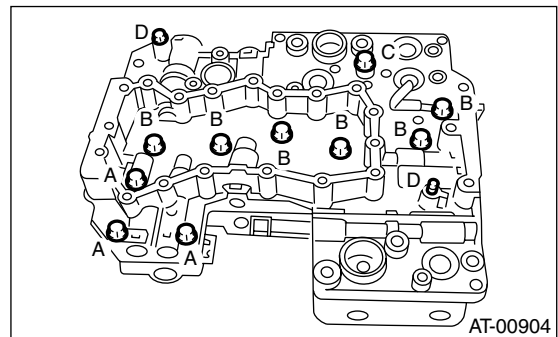
10) Tighten the bolts and nuts.

**NOTE:**

Install the bolts (D) from upper valve body side.

**Tightening torque:**

**8 N·m (0.8 kgf·m, 5.8 ft·lb)**



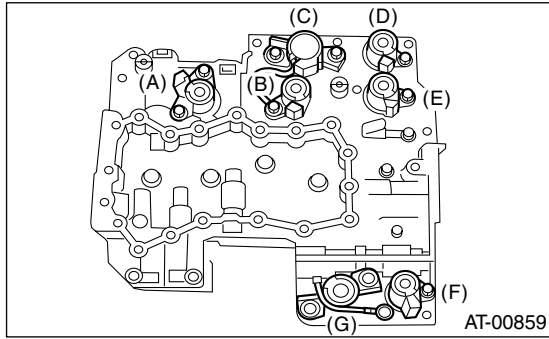
Bolt length mm (in)

- (A) 40 (1.57)
- (B) 62 (2.44)
- (C) 73 (2.87)
- (D) 79 (3.11)

# CONTROL VALVE BODY

## AUTOMATIC TRANSMISSION

11) Install the sensor, solenoids and duty solenoids to specified positions.

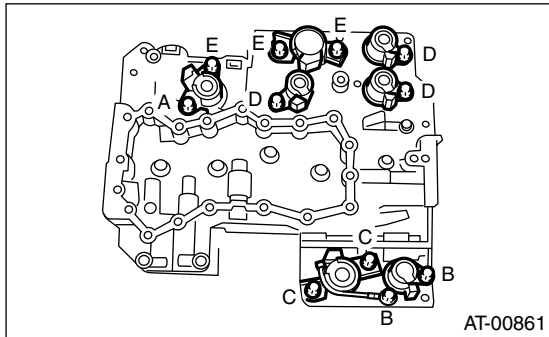


- (A) Lock-up duty solenoid (Blue)
- (B) Low clutch timing solenoid (Gray)
- (C) Line pressure duty solenoid (Red)
- (D) Shift solenoid 1 (Yellow)
- (E) Shift solenoid 2 (Green)
- (F) 2-4 brake timing solenoid (Black)
- (G) 2-4 brake duty solenoid (Red)

12) Tighten the bolts.

**Tightening torque:**

**8 N·m (0.8 kgf·m, 5.8 ft·lb)**



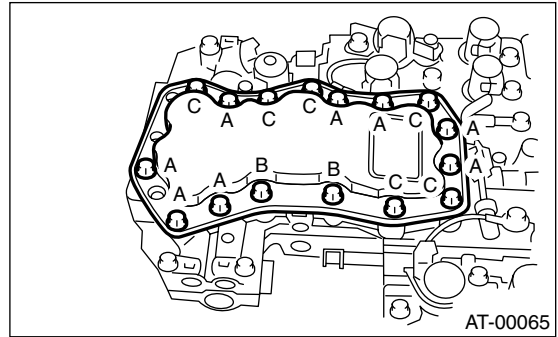
Bolt length mm (in)

- (A) 12 (0.47)
- (B) 40 (1.57)
- (C) 45 (1.77)
- (D) 62 (2.44)
- (E) 73 (2.87)

13) Install oil strainer to lower valve body.

**Tightening torque:**

**8 N·m (0.8 kgf·m, 5.8 ft·lb)**



Bolt length mm (in)

- (A) 12 (0.47)
- (B) 62 (2.44)
- (C) 81 (3.19)

## E: INSPECTION

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