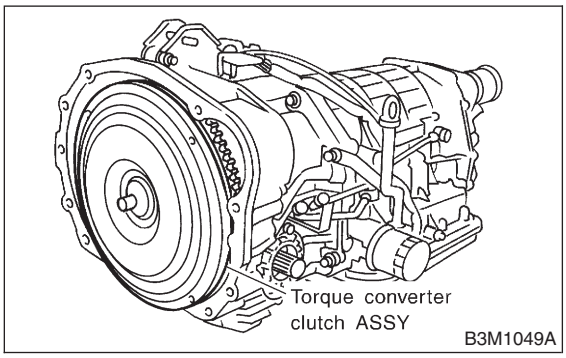
18. Control Valve Body Assembly S510593

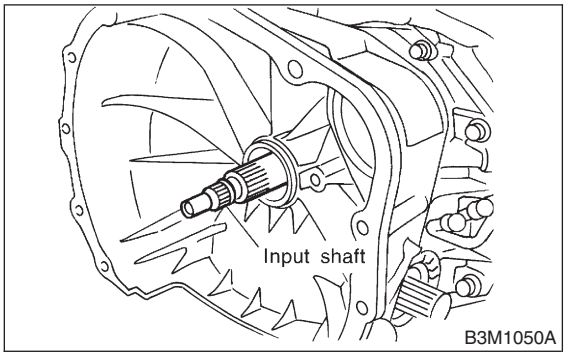
A: REMOVAL S510593A18

1) Extract the 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.

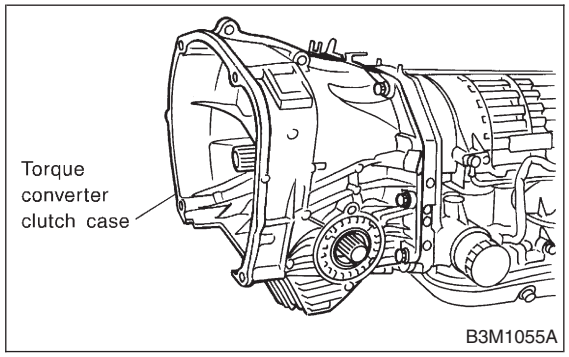
NOTE:
Lift-up lever behind the connector and disconnect it from stay.

4) Disconnect inhibitor switch from stay.
5) Disconnect the air breather hose. <Ref. to AT-23 REMOVAL, Air Breather Hose.>
6) Remove the oil charger pipe, and remove the O-ring from the flange face. Attach the O-ring to the pipe. <Ref. to AT-24 REMOVAL, Oil Charger Pipe.>
7) Remove the oil cooler inlet and outlet pipes. <Ref. to AT-25 REMOVAL, Oil Cooler Pipes.>

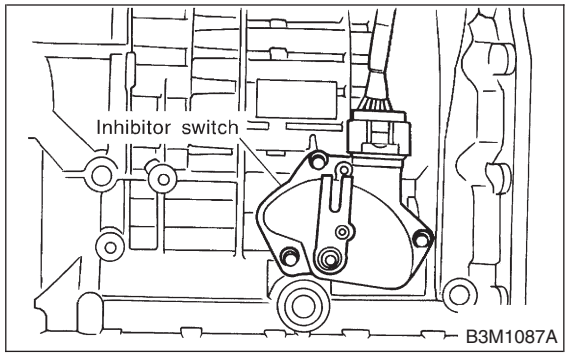
8) Separation of torque converter clutch case and transmission case sections

CAUTION:
● Be careful not to damage the oil seal and bushing inside the torque converter clutch case by the oil pump cover.
● Be careful not to lose the rubber seal.

NOTE:
Separate these cases while tapping lightly on the housing.



9) Remove the inhibitor switch.

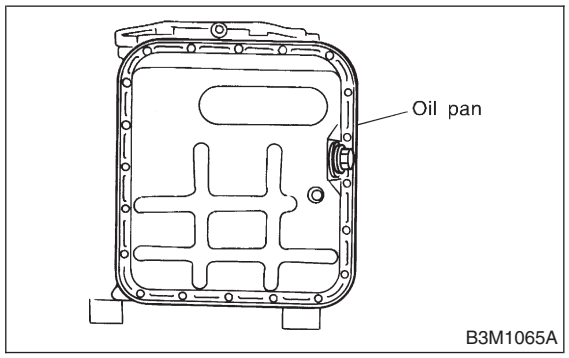


10) Prepare a block of wood. Turn the transmission case over, and support it with the block of wood.

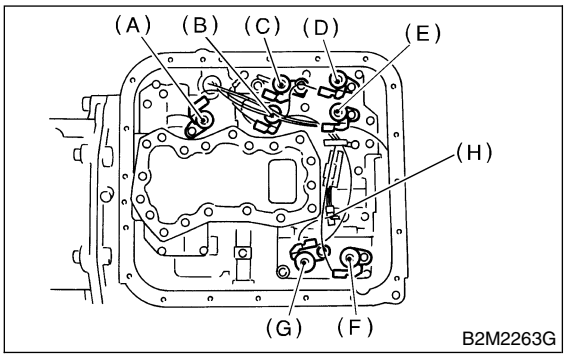
NOTE:
Turn the transmission case in the direction the inhibitor switch was installed.

11) Remove the oil pan.

NOTE:
Use a scraper to remove oil pan.



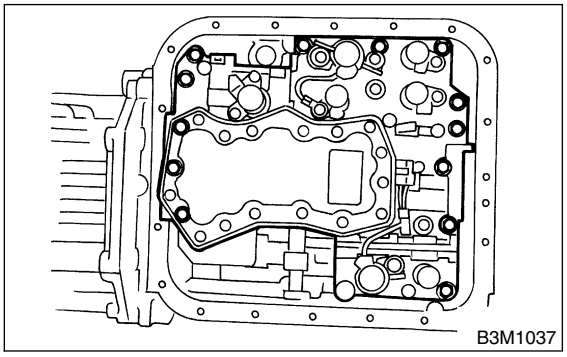
12) Disconnect the harness connectors for the solenoids, duty solenoids, ATF temperature sensor and the ground cord.



(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

13) Remove the control valve body.

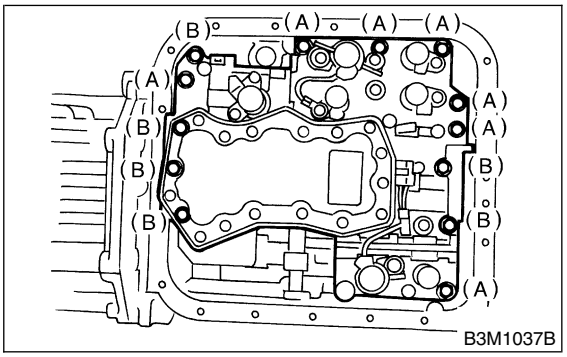
CAUTION:
When removing control valve body, be careful not to interfere with transfer duty solenoid wiring.



B: INSTALLATION S510593A11

1) Set the select lever in range “N”.
2) Install the control valve by engaging the manual valve and manual lever, then tighten the 17 bolts.

Tightening torque:
8 N·m (0.8 kgf-m, 5.8 ft-lb)



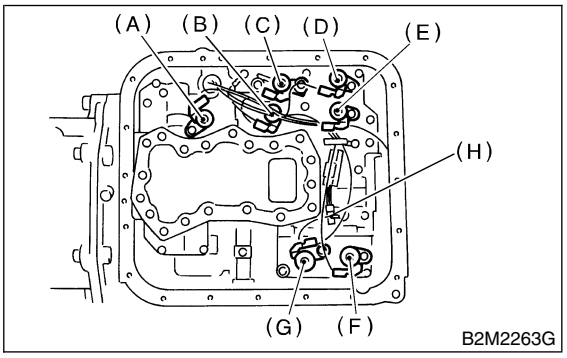
(A) Short bolts
(B) Long bolts

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)

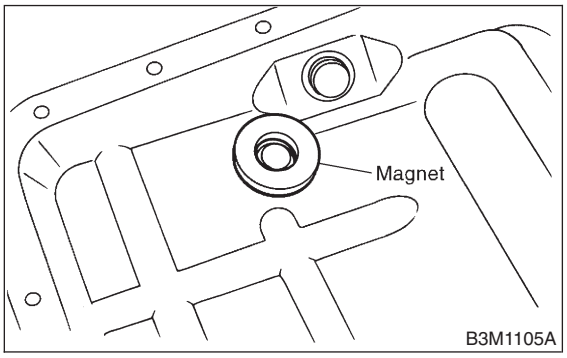
4) Connect all connectors.



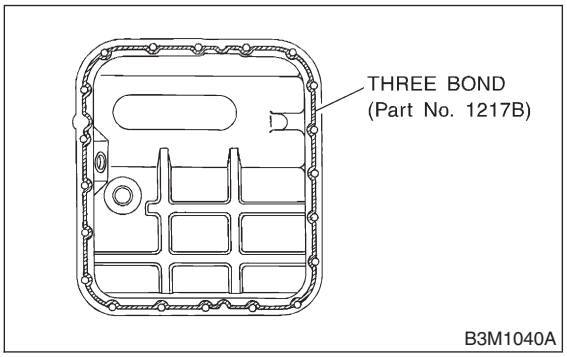
(A) Lock-up duty solenoid (Blue)
(B) Low clutch timing solenoid (Gray)
(C) Line pressure duty solenoid (Red)
(D) Shift solenoid 2 (Yellow)
(E) Shift solenoid 1 (Green)
(F) 2-4 brake timing solenoid (Black)
(G) 2-4 brake duty solenoid (Red)
(H) ATF temperature sensor

5) Install the oil pan.

6) Attach the magnet at the specified position.



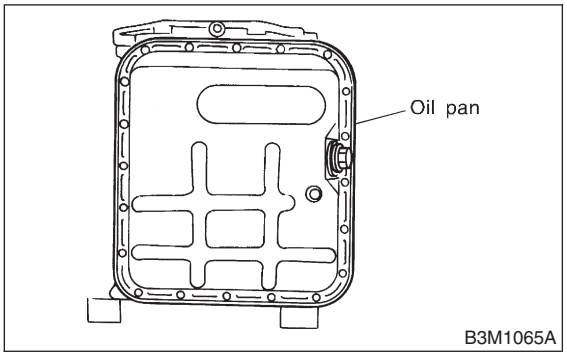
7) Apply proper amount of liquid gasket (THREE BOND Part No. 1217B) to the entire oil pan mating surface.



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

NOTE:
Tighten the bolts evenly.

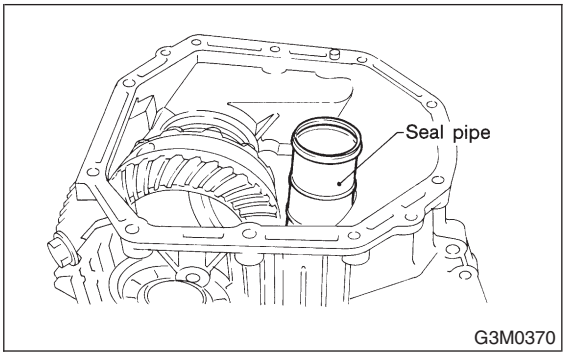
Tightening torque:
4.9 N·m (0.50 kgf-m, 3.6 ft-lb)



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

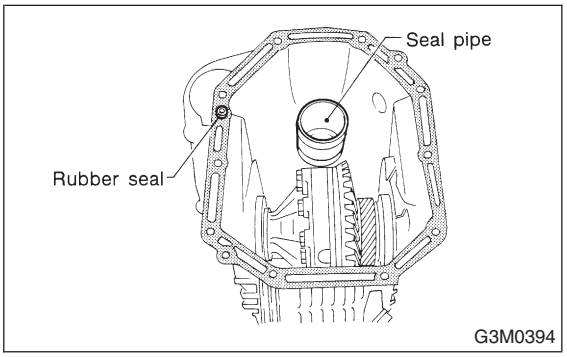
10) Install the seal pipe to the torque converter clutch case.

CAUTION:
Be sure to use a new seal pipe.



11) Apply proper amount of liquid gasket (THREE BOND Part No. 1215) to the entire torque converter clutch case mating surface.

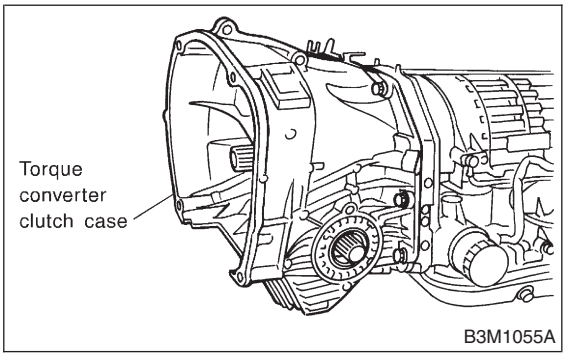
NOTE:
Make sure that the rubber seal and seal pipe are fitted in position.



12) Install the torque converter clutch case assembly to the transmission case assembly, and secure with six bolts and four nuts.

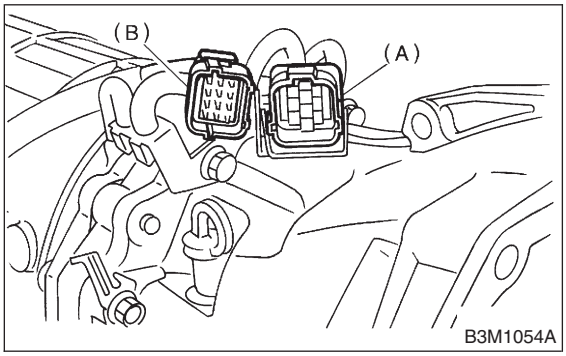
CAUTION:
When installing, be careful not to damage the torque converter clutch case bushing and oil seal.

Tightening torque:
41 N·m (4.2 kgf-m, 30.4 ft-lb)



13) Install air breather hose.

14) Insert inhibitor switch and transmission connector into stay.

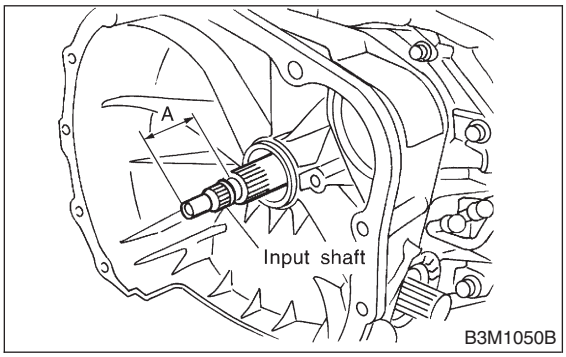


(A) Transmission harness
(B) Inhibitor switch harness

15) Install the oil cooler pipes. <Ref. to AT-25 INSTALLATION, Oil Cooler Pipes.>
16) Install the oil charge pipe with O-ring.
17) Insert the input shaft while turning lightly by hand.

CAUTION:
Be careful not to damage the bushing.

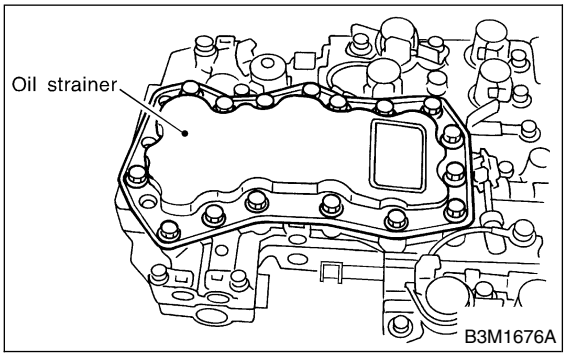
Normal protrusion A:
50 — 55 mm (1.97 — 2.17 in)



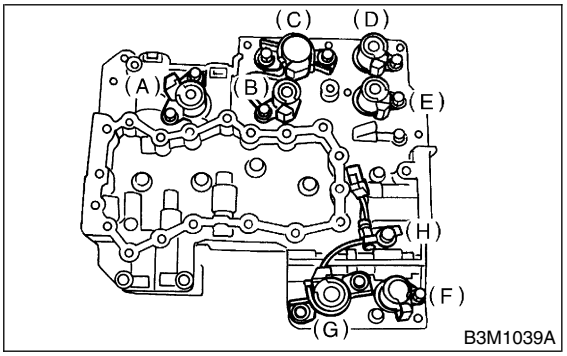
18) Install the torque converter clutch assembly. <Ref. to AT-30 INSTALLATION, Torque Converter Clutch Assembly.>

C: DISASSEMBLY S510593A06

1) Remove oil strainer from lower control valve body.

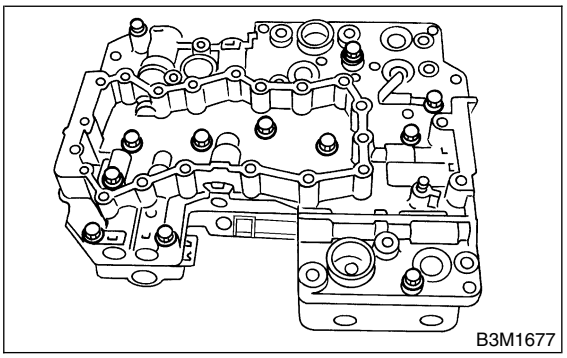


2) Remove the duty solenoids, solenoids and sensor from the lower valve body.



(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.

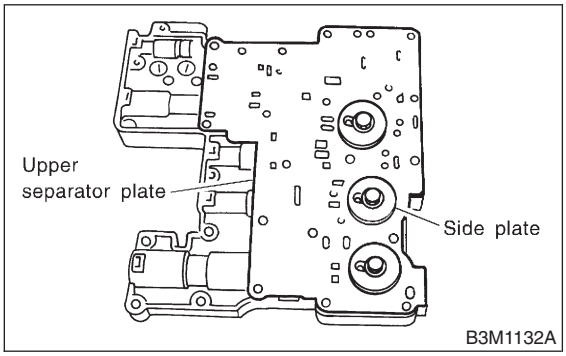


4) Separate the control valve body.

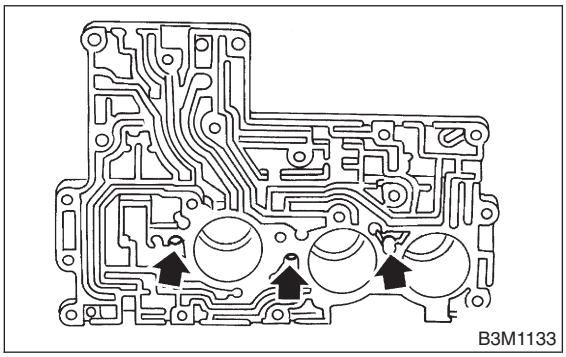
CAUTION:
• Do not lose the ten (10) steel balls contained in the upper valve body and middle valve body.
• Do not lose strainers contained in the lower valve body.

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.



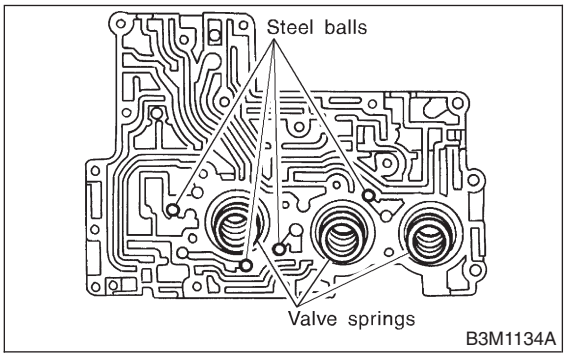
6) Remove valve springs from upper valve body.
7) Using air compressor, remove accumulator piston from upper valve body.



D: ASSEMBLY S510593A02

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

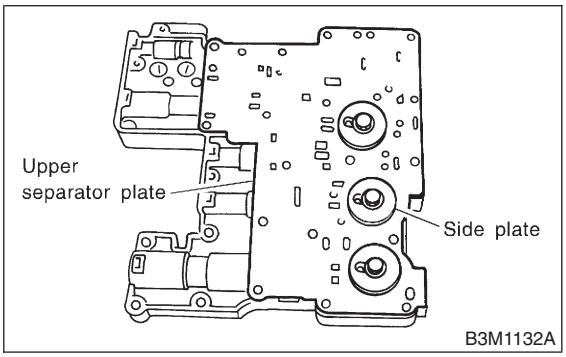
NOTE:
Insert steel balls in their proper positions.



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

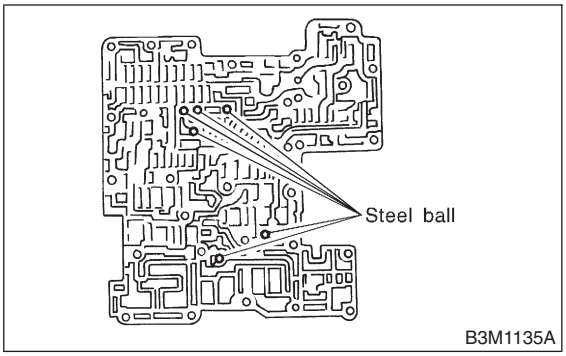
NOTE:
Align the hole in side plate with the hole in separator plate.

Tightening torque:
8 N·m (0.8 kgf-m, 5.8 ft-lb)



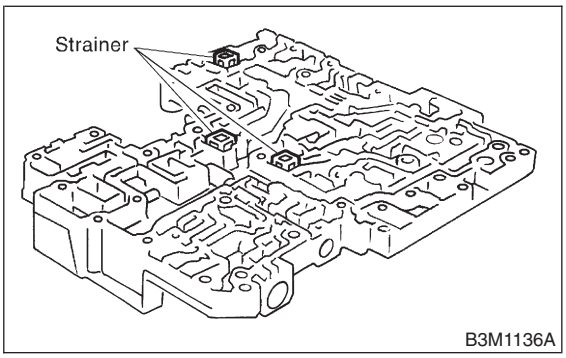
3) Install steel balls to middle valve body.

NOTE:
Insert steel balls in their proper positions.

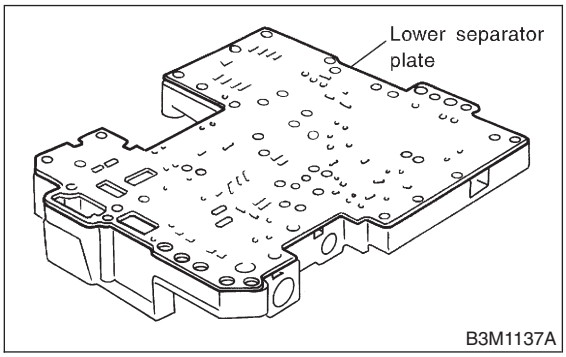


4) Install three filters to lower valve body.

CAUTION:
Pay attention to the location of filters.

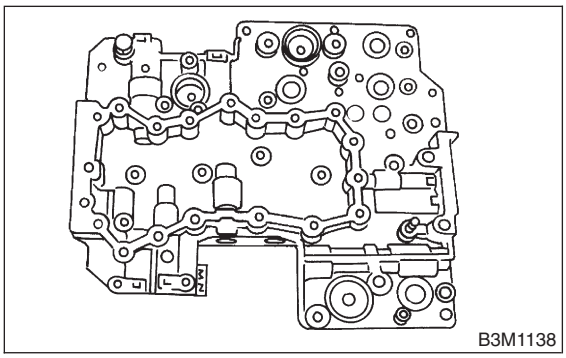


5) Install lower separate plate to lower valve body.



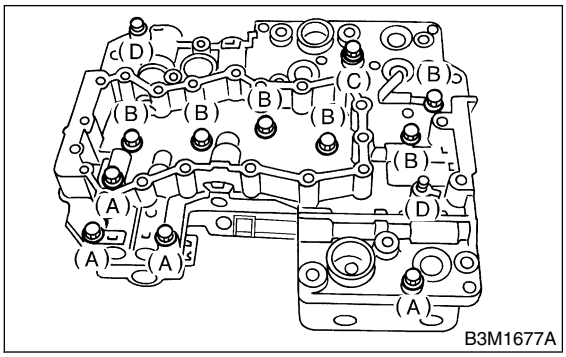
6) Temporarily assemble valve body.

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



7) Tighten bolts.

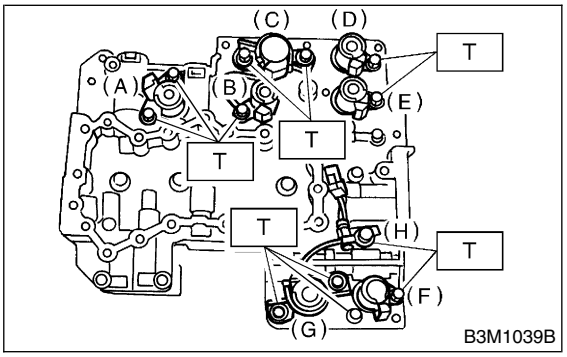
Tightening torque:
8 N·m (0.8 kgf-m, 5.8 ft-lb)



(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 *S510593A10*

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