

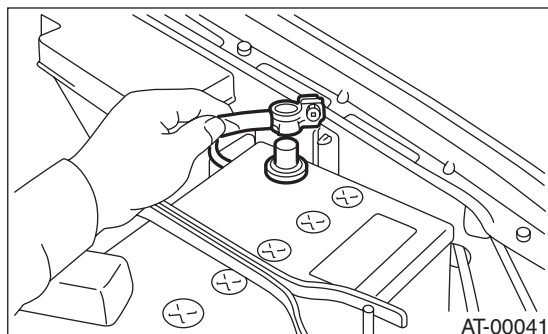
# FRONT VEHICLE SPEED SENSOR

AUTOMATIC TRANSMISSION

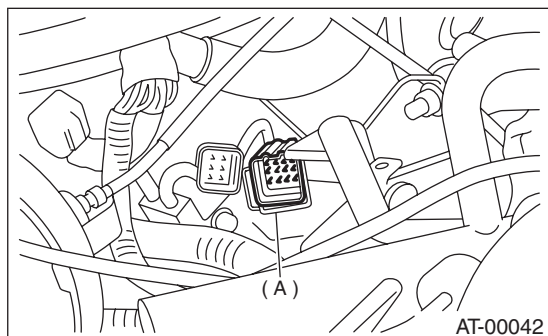
## 14. Front Vehicle Speed Sensor

### A: REMOVAL

- 1) Set up the vehicle on a lift.
- 2) Disconnect the ground cable from battery.



- 3) Remove the air cleaner case or air intake chamber. (Non-TURBO model)  
<Ref. to IN(H4SO)-6, REMOVAL, Air Cleaner Case.>
- 4) Remove the intercooler. (TURBO model)  
<Ref. to IN(H4DOTC)-10, REMOVAL, Intercooler.>
- 5) Disconnect the transmission connector.



(A) Transmission connector

- 6) Remove the pitching stopper. <Ref. to 4AT-46, REMOVAL.>
- 7) Remove the transmission connector from stay.
- 8) Lift-up the vehicle.
- 9) Clean the transmission exterior.

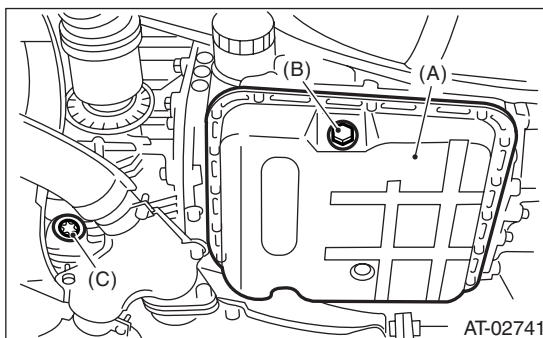
- 10) Drain the ATF completely.

#### NOTE:

Tighten the ATF drain plug after draining the ATF.

#### Tightening torque:

**25 N·m (2.5 kgf-m, 18.1 ft-lb)**



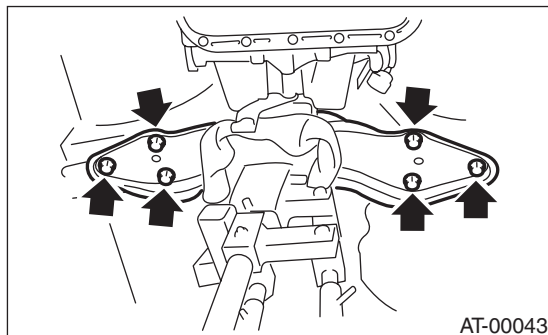
- (A) Oil pan
- (B) Drain plug
- (C) Differential oil drain plug

- 11) Remove the front, center, exhaust pipes and muffler. (Non-TURBO model)  
<Ref. to EX(H4SO)-5, REMOVAL, Front Exhaust Pipe.>, <Ref. to EX(H4SO)-9, REMOVAL, Rear Exhaust Pipe.> and <Ref. to EX(H4SO)-10, REMOVAL, Muffler.>
- 12) Remove the center, rear exhaust pipe and muffler. (TURBO model)  
<Ref. to EX(H4DOTC)-9, REMOVAL, Center Exhaust Pipe.>, <Ref. to EX(H4DOTC)-14, REMOVAL, Rear Exhaust Pipe.> and <Ref. to EX(H4DOTC)-15, REMOVAL, Muffler.>
- 13) Remove the shield cover. (If equipped)
- 14) Remove the propeller shaft. <Ref. to DS-15, REMOVAL, Propeller Shaft.>
- 15) Place the transmission jack under transmission.

#### NOTE:

Make sure that the support plates of transmission jack don't touch the crossmember.

- 16) Remove the transmission rear crossmember bolts.



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17) Lower the AT jack.

**NOTE:**

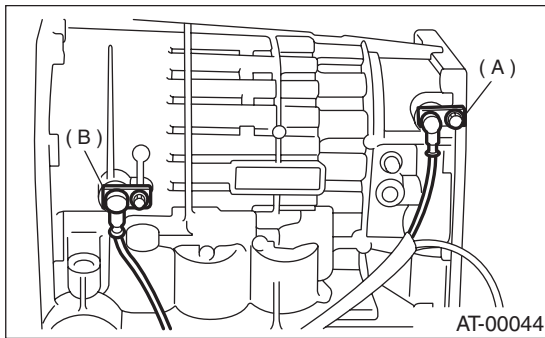
Do not separate the AT jack and transmission.

18) Remove the oil cooler inlet and outlet pipe.

**NOTE:**

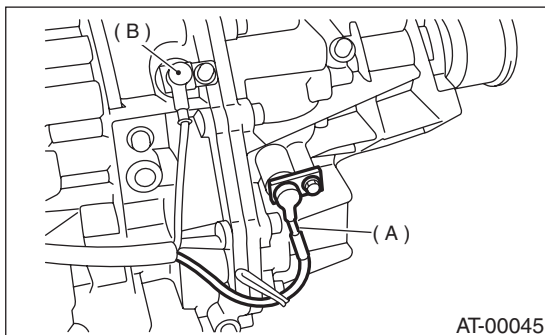
When removing the outlet pipe, be careful not to lose balls and springs used with retaining screws.

19) Remove the front vehicle speed sensor and torque converter turbine speed sensor.



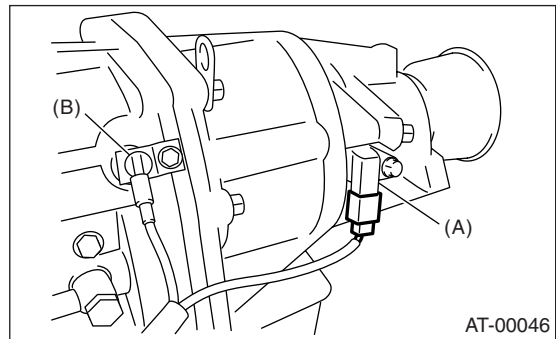
- (A) Front vehicle speed sensor
- (B) Torque converter turbine speed sensor

20) Remove the rear vehicle speed sensor. (Non-TURBO model)



- (A) Rear vehicle speed sensor
- (B) Front vehicle speed sensor

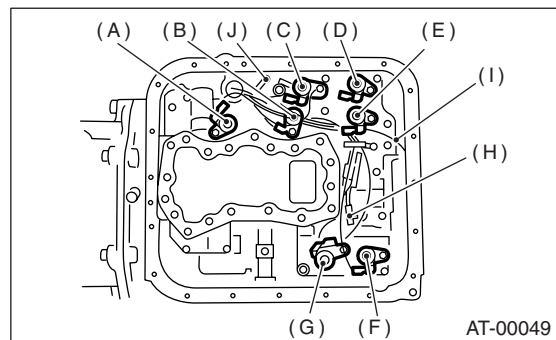
21) Disconnect rear vehicle speed sensor connector. (TURBO model)



- (A) Rear vehicle speed sensor
- (B) Front vehicle speed sensor

22) Remove the oil pan.

23) Disconnect the duty solenoid connectors, and then disconnect the ATF temperature sensor from control valve body. (Non-TURBO model)

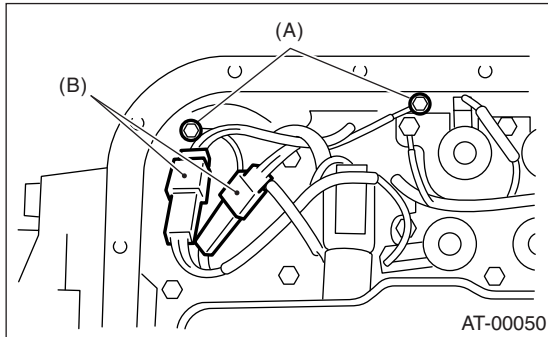


- (A) Lock-up duty solenoid (Blue)
- (B) Low clutch timing solenoid (Gray)
- (C) Line pressure duty solenoid (Red)
- (D) Shift solenoid 2 (Yellow)
- (E) Shift solenoid 1 (Green)
- (F) 2-4 brake timing solenoid (Black)
- (G) 2-4 brake duty solenoid (Red)
- (H) ATF temperature sensor
- (I) Transfer duty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

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24) Disconnect control valve connector and transmission ground. (TURBO model)

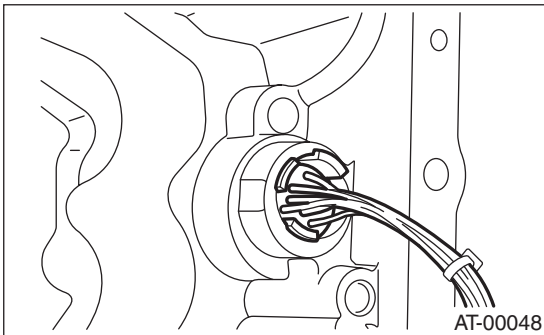


- (A) Transmission ground cable
- (B) Connector

25) Remove the harness assembly.

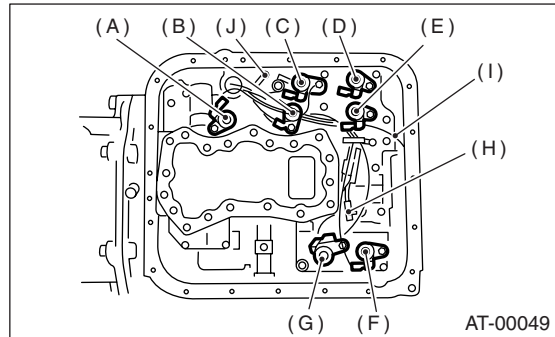
### B: INSTALLATION

1) Pass the harness assembly through the hole in the transmission case.



2) Connect the harness connectors and ATF temperature sensor. (Non-TURBO model)  
Connect the connectors of same color, and secure the harness to valve body using clips.

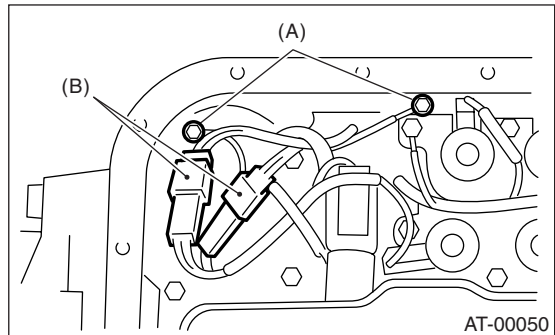
**Tightening torque (Transmission ground cable  
ATF temperature sensor)**  
**8 N·m (0.8 kgf·m, 5.8 ft·lb)**



- (A) Lock-up duty solenoid (Blue)
- (B) Low clutch timing solenoid (Gray)
- (C) Line pressure duty solenoid (Red)
- (D) Shift solenoid 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

3) Connect control valve connector, and install transmission ground. (TURBO model)

**Tightening torque Transmission ground cable:**  
**8 N·m (0.8 kgf·m, 5.8 ft·lb)**



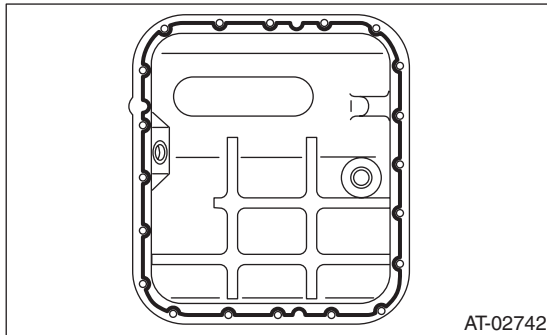
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4) Apply proper amount of liquid gasket to the entire oil pan mating surface.

**Fluid packing:**

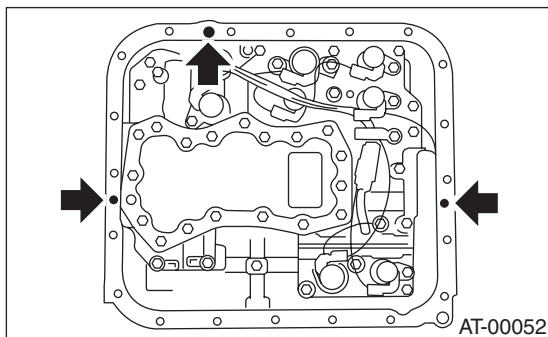
**THREE BOND 1217B (Part No. K0877YA020)**



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

**Fluid packing:**

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



6) Install the oil pan.

**Tightening torque:**

**5 N·m (0.5 kgf-m, 3.6 ft-lb)**

7) Install the front and rear vehicle speed sensor, and also the torque converter turbine speed sensor, and then fasten the harness.

**Tightening torque:**

**7 N·m (0.7 kgf-m, 5.1 ft-lb)**

8) Install the oil cooler pipes.

**NOTE:**

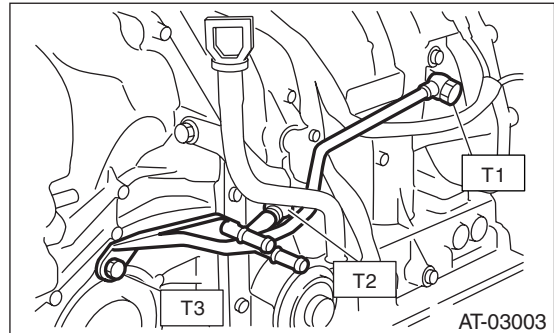
Be sure to use a new copper washer.

**Tightening torque:**

**T1: 40 N·m (4.1 kgf-m, 30 ft-lb)**

**T2: 44 N·m (4.5 kgf-m, 32.5 ft-lb)**

**T3: 25 N·m (2.5 kgf-m, 18.1 ft-lb)**



9) Install the transmission rear crossmember bolts.

**Tightening torque:**

**70 N·m (7.1 kgf-m, 51 ft-lb)**

10) Install the propeller shaft. <Ref. to DS-16, INSTALLATION, Propeller Shaft.>

11) Install the shield cover. (If equipped)

12) Install the front, center, rear exhaust pipes and muffler. (Non-TURBO model)

<Ref. to EX(H4SO)-6, INSTALLATION, Front Exhaust Pipe.>, <Ref. to EX(H4SO)-9, INSTALLATION, Rear Exhaust Pipe.> and <Ref. to EX(H4SO)-10, INSTALLATION, Muffler.>

13) Install the center, rear exhaust pipes and muffler. (TURBO model)

<Ref. to EX(H4DOTC)-10, INSTALLATION, Center Exhaust Pipe.>, <Ref. to EX(H4DOTC)-14, INSTALLATION, Rear Exhaust Pipe.> and <Ref. to EX(H4DOTC)-15, INSTALLATION, Muffler.>

14) Lower the vehicle.

15) Install the transmission connector to the stay.

16) Install the pitching stopper. <Ref. to 4AT-46, INSTALLATION.>

17) Install the air cleaner case. (Non-TURBO model)

<Ref. to IN(H4SO)-6, INSTALLATION, Air Cleaner Case.>

18) Install the intercooler. (TURBO model)

<Ref. to IN(H4DOTC)-11, INSTALLATION, Intercooler.>

19) Bleeding air from control valve body. (TURBO model) <Ref. to 4AT-70, Air Bleeding of Control Valve.>

20) Perform the advance operation of learning control. (TURBO model)

(1) Set select lever to "P" range and apply parking brake, then lift up the vehicle.

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(2) Connect Subaru Select Monitor to vehicle and turn on the switch.

(3) Select "Clear Memory — 2" on the SUBARU Select Monitor. <Ref. to 4AT(D)-16, CLEAR MEMORY MODE, OPERATION, Subaru Select Monitor.>

(4) Using Subaru Select Monitor, check that the DTC is not output. <Ref. to 4AT(D)-14, READ DIAGNOSTIC TROUBLE CODE, OPERATION, Subaru Select Monitor.>

(5) Using Subaru Select Monitor, warm up the engine until the ATF temperature becomes within 60 to 90°C (140 to 194°F). <Ref. to 4AT(D)-15, READ CURRENT DATA, OPERATION, Subaru Select Monitor.>

(6) Shift the select lever to the "R" range.

(7) Set the switches for headlights, air conditioner, rear defogger, etc. to OFF.

(8) Turn the ignition switch OFF and then wait for more than 30 seconds.

(9) If the message "communication impossible" is displayed on SUBARU Select Monitor, depress the brake pedal deeply with left foot until the learning promotion task is completed, and then turn the ignition switch to ON.

(10) Check that Subaru Select Monitor is operating properly now.

(11) Set the select lever to "P" range, and then wait for more than three seconds.

(12) Set the select lever to "R" range, and then wait for more than three seconds.

(13) Set the select lever to "N" range, and then wait for more than three seconds.

(14) Set the select lever to "D" range, and then wait for more than three seconds.

(15) Set the select lever to "N" range, and then wait for more than three seconds.

(16) Slowly depress the accelerator pedal to the fully open position.

(17) Slowly release the accelerator pedal to the fully closed position.

(18) Start and idle the engine.

(19) Set the select lever to "D" range.

(20) Learning promotion task starts. ATF temperature warning light in the combination meter blinks at 2 Hz. If ATF temperature does not blink, turn the ignition switch OFF and repeat the procedure from step (4).

Learning promotion task is completed when blinking of ATF temperature warning light in the combination meter changes from 2 to 0.5 Hz.

(21) Set the select lever to "N" range, and turn the ignition switch to OFF.

#### NOTE:

Repeat the procedure from step (4) if blinking of ATF temperature warning light changes from 2 to 4 Hz.