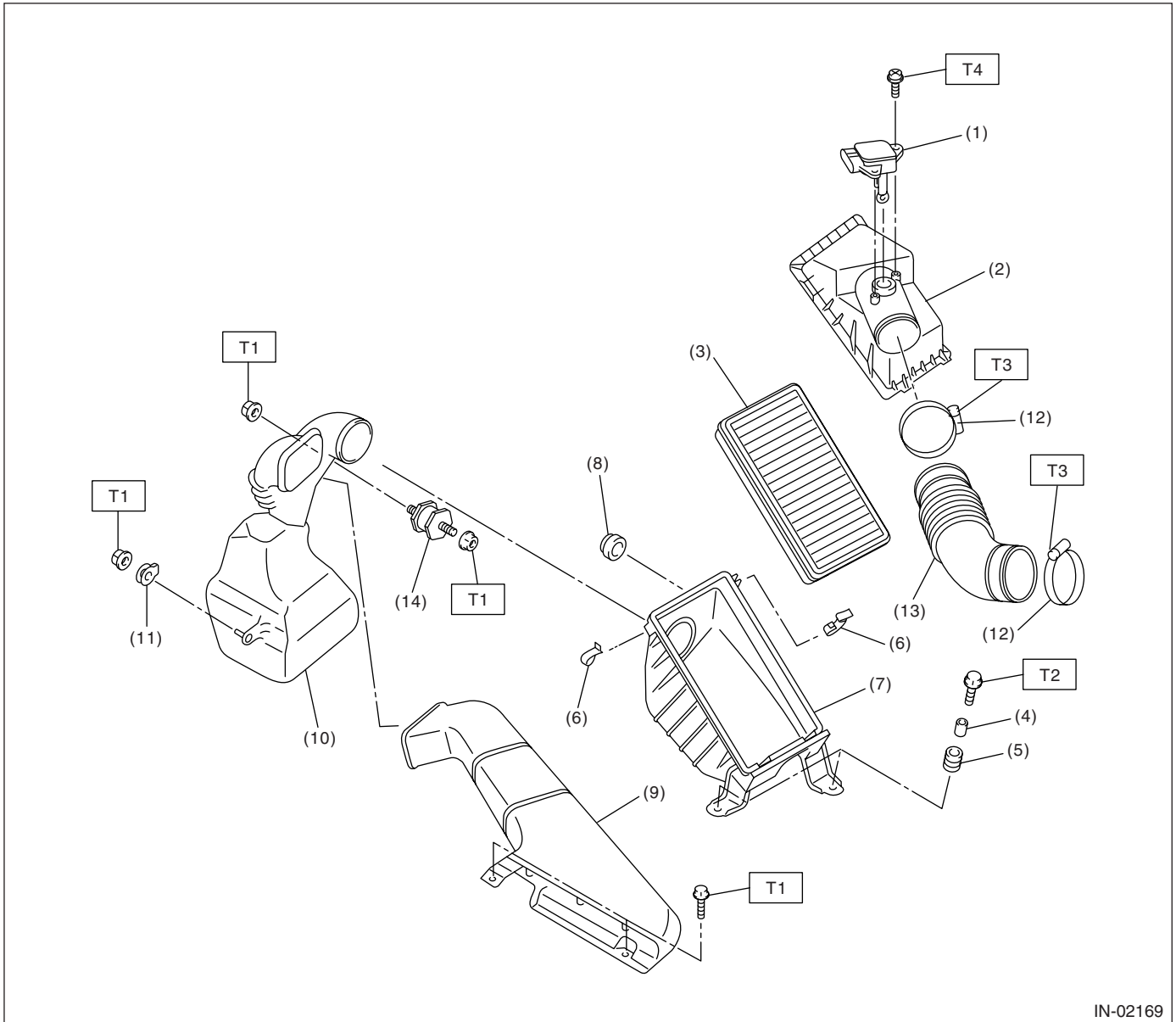


# INTAKE (INDUCTION)

# 1. General Description

## A: COMPONENT

### 1. AIR CLEANER



IN-02169

- |   |                             |              |
|---|-----------------------------|--------------|
| (1) Mass air flow and intake air temperature sensor | (7) Air cleaner lower case  | (14) Cushion |
| (2) Air cleaner upper cover                         | (8) Cushion rubber          |              |
| (3) Air cleaner element                             | (9) Air intake duct         |              |
| (4) Spacer  | (10) Resonator chamber ASSY |              |
| (5) Bushing   | (11) Cushion rubber         |              |
| (6) Clip  | (12) Clamp                  |              |
|   | (13) Air intake boot        |              |

#### **Tightening torque: N·m (kgf-m, ft-lb)**

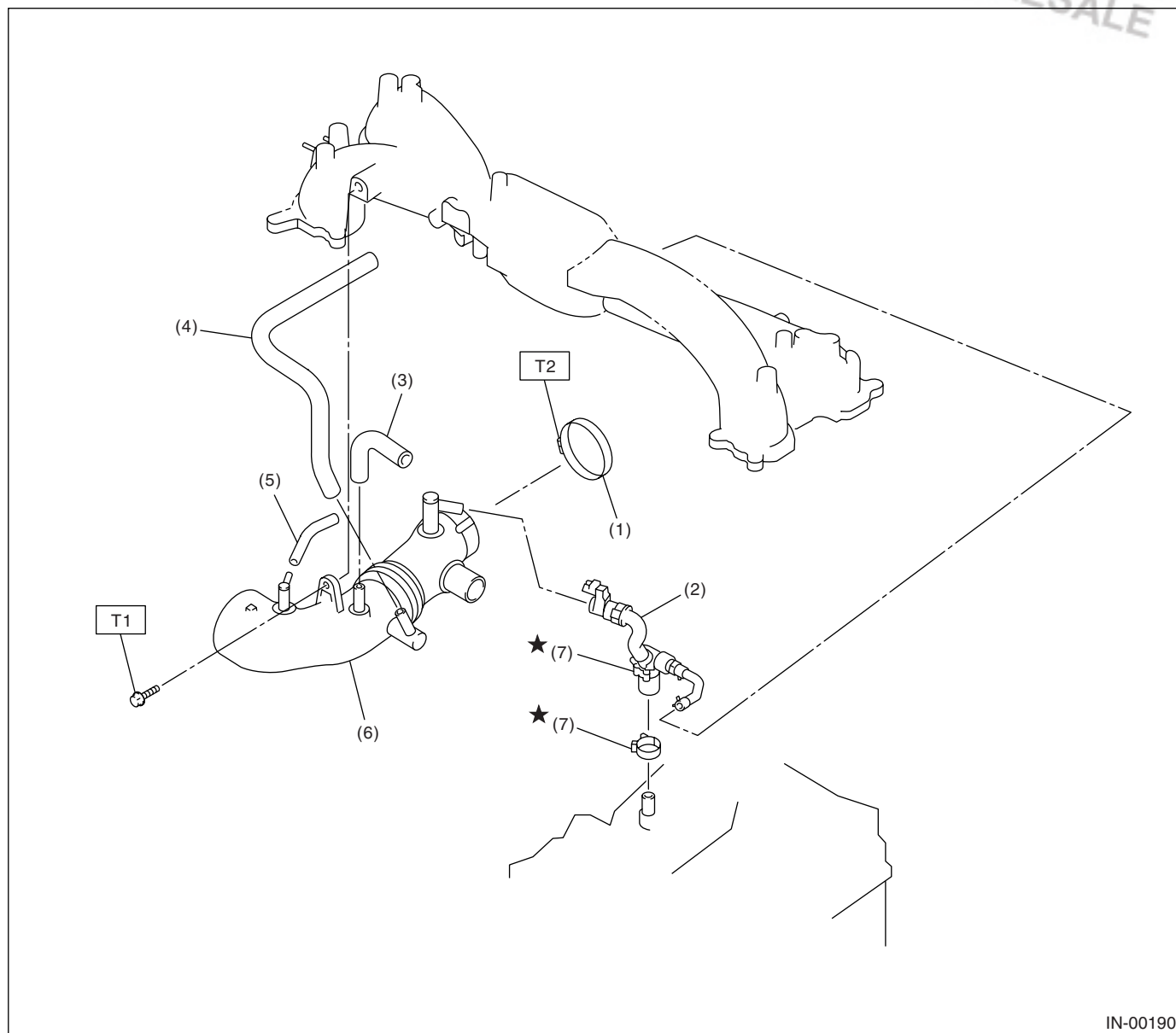
**T1: 7.5 (0.76, 5.5)**

**T2: 33 (3.4, 24.6)**

**T3: 2.5 (0.25, 1.8)**

**T4: 1.7 (0.17, 1.2)**

## 2. INTAKE DUCT



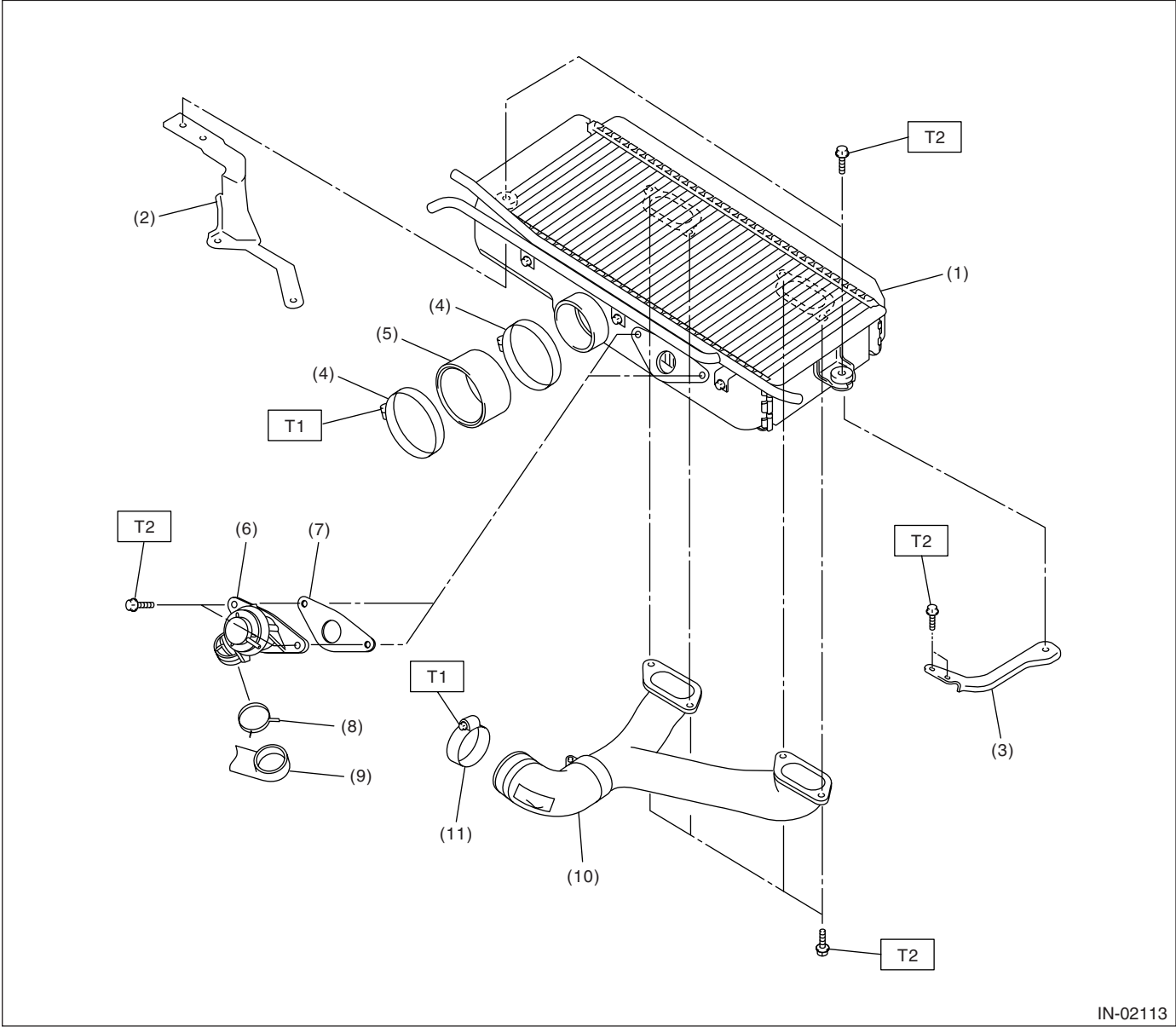
- |                        |                        |
|------------------------|------------------------|
| (1) Clamp              | (5) Air by-pass hose C |
| (2) PCV hose ASSY      | (6) Intake duct        |
| (3) Air by-pass hose A | (7) Clamp              |
| (4) Air by-pass hose B |                        |

**Tightening torque: N·m (kgf-m, ft-lb)**

**T1: 19 (1.9, 13.7)**

**T2: 3 (0.3, 2.2)**

3. INTERCOOLER



IN-02113

- |                            |                        |
|----------------------------|------------------------|
| (1) Intercooler            | (6) Air by-pass valve  |
| (2) Intercooler bracket RH | (7) Gasket             |
| (3) Intercooler bracket LH | (8) Clamp              |
| (4) Clamp                  | (9) Air by-pass hose A |
| (5) Air intake duct        | (10) Intercooler duct  |

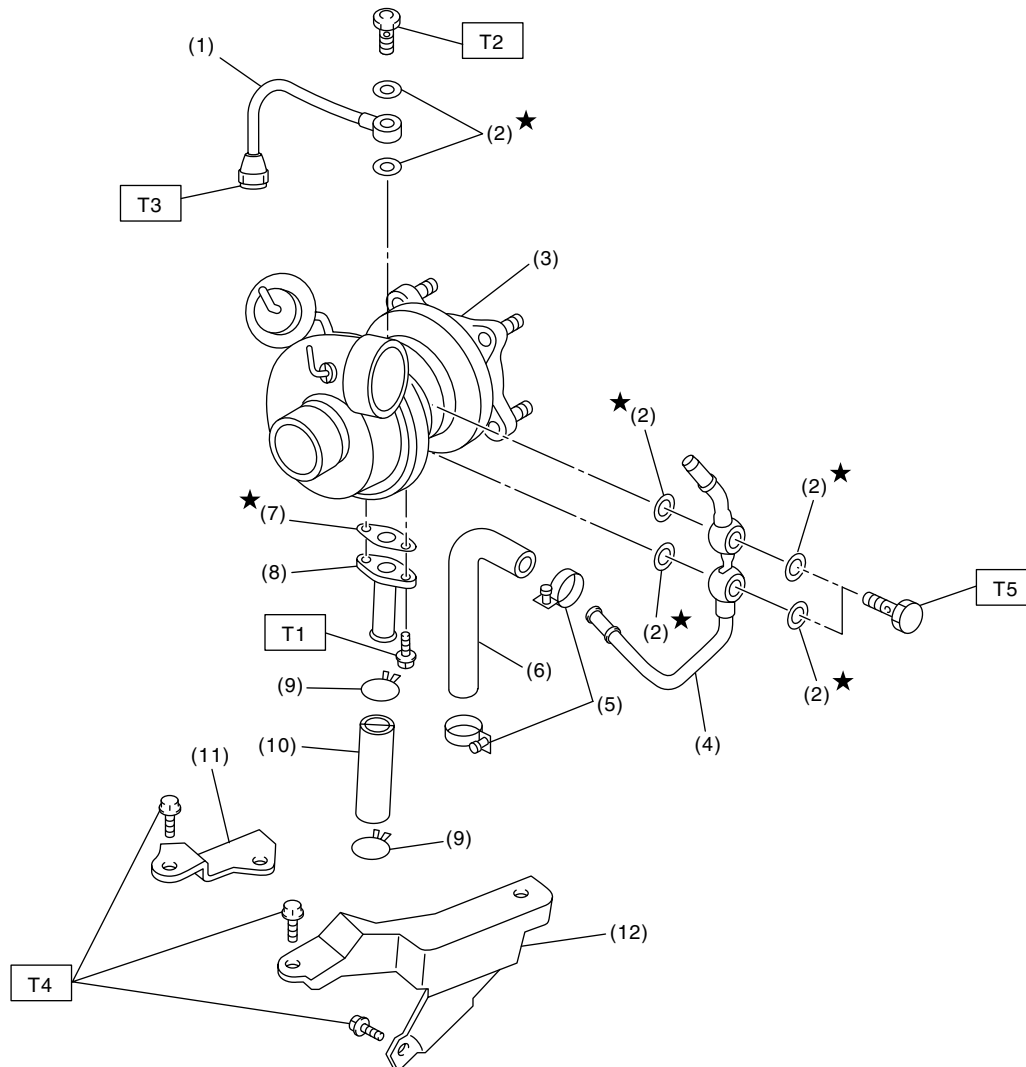
(11) Clamp

**Tightening torque: N·m (kgf·m, ft·lb)**

**T1: 3 (0.3, 2.2)**

**T2: 16 (1.6, 11.8)**

## 4. TURBOCHARGER

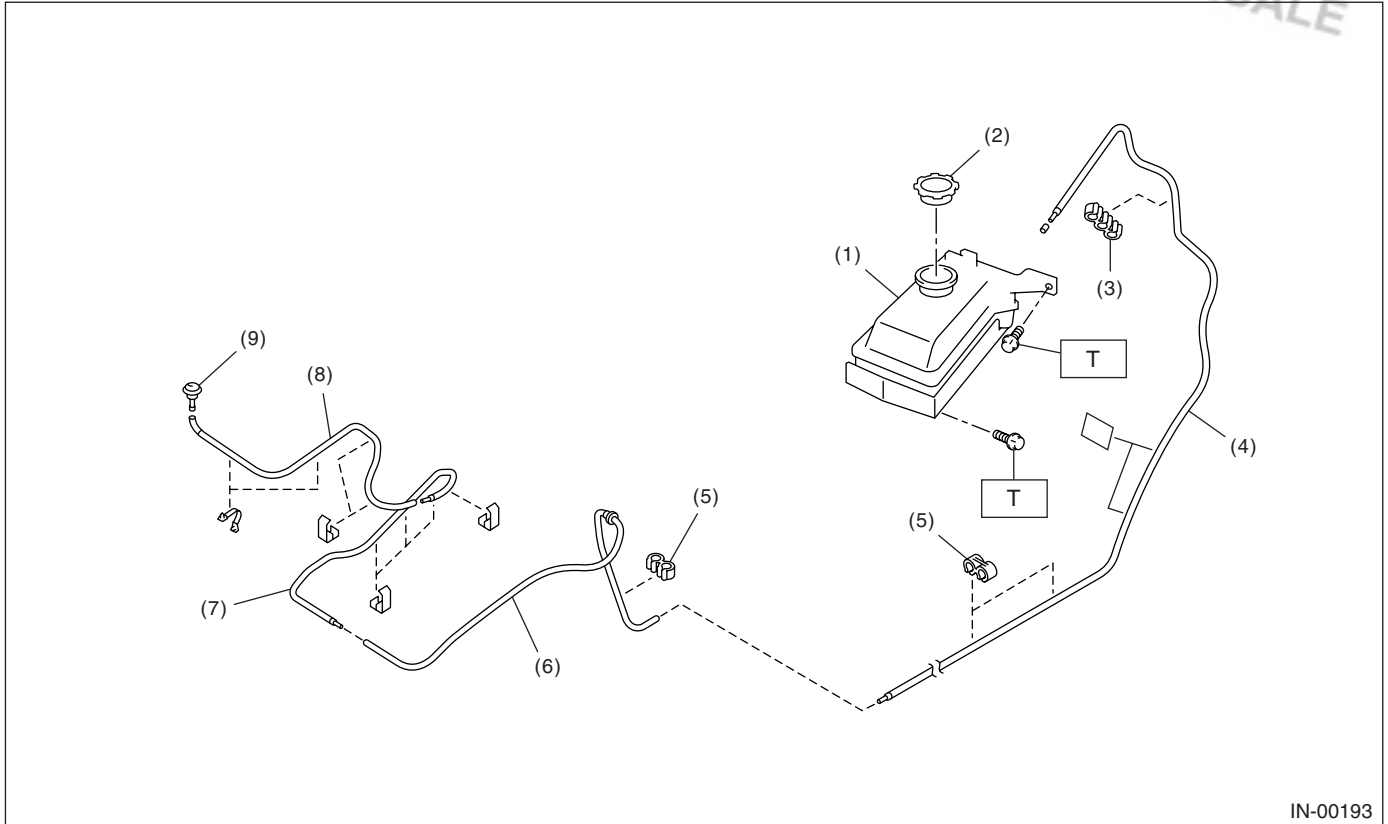


IN-02112

- |                         |                              |
|-------------------------|------------------------------|
| (1) Oil inlet pipe      | (7) Gasket                   |
| (2) Metal gasket        | (8) Oil outlet pipe          |
| (3) Turbocharger        | (9) Clip                     |
| (4) Water pipe          | (10) Oil outlet hose         |
| (5) Clamp               | (11) Turbocharger bracket RH |
| (6) Engine coolant hose | (12) Turbocharger bracket LH |

**Tightening torque: N·m (kgf·m, ft·lb)****T1: 4.4 (0.45, 3.3)****T2: 16±1.5 (1.6±0.15, 11.8±1.1)****T3: 20±2.0 (2.0±0.2, 14.8±1.5)****T4: 33 (3.4, 24.6)****T5: 35 (3.6, 25.8)**

## 5. INTERCOOLER WATER SPRAY



IN-00193

- |                     |                      |
|---------------------|----------------------|
| (1) Water tank ASSY | (5) Clamp            |
| (2) Water tank cap  | (6) Center hose      |
| (3) Clamp           | (7) Front hose       |
| (4) Rear hose       | (8) Intercooler hose |

- (9) Nozzle

---

**Tightening torque: N·m (kgf-m, ft-lb)**

**T: 6.0 (0.61, 4.4)**

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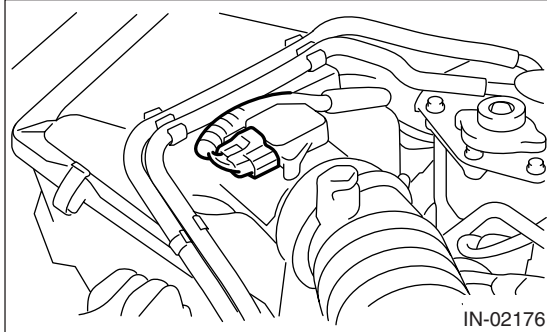
**B: CAUTION**

- Wear work clothing, including a cap, protective goggles and protective shoes during operation.
- 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.
- Be careful not to burn your hands, because each part on the vehicle is hot after running.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Place shop jacks or rigid racks at the specified points.
- Before disconnecting electrical connectors of sensor or units, be sure to disconnect the ground cable from battery.

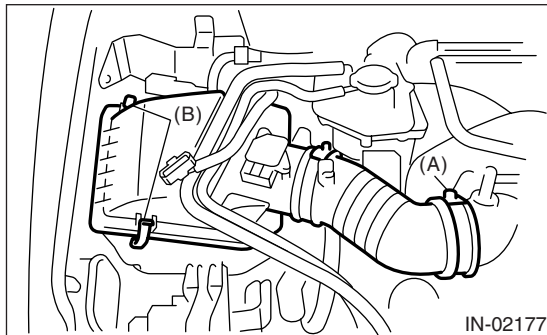
## 2. Air Cleaner Element

### A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Disconnect the connector from mass air flow and intake air temperature sensor.



- 3) Loosen the clamp (A) which connects the air intake boot and intake duct.
- 4) Remove the clip (B) from air cleaner upper cover.



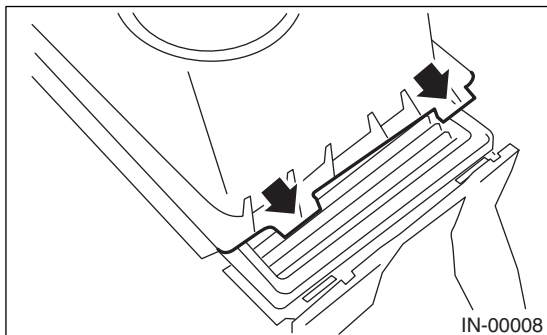
- 5) Remove the air cleaner upper cover.
- 6) Remove the air cleaner element.

### B: INSTALLATION

Install in the reverse order of removal.

#### NOTE:

Before installing the air cleaner upper cover, align the holes with protruding portions of air cleaner lower case, then secure the upper cover to the lower case.



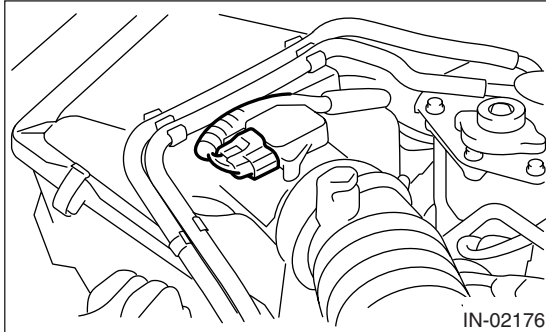
### C: INSPECTION

Replace it if excessively damaged or dirty.

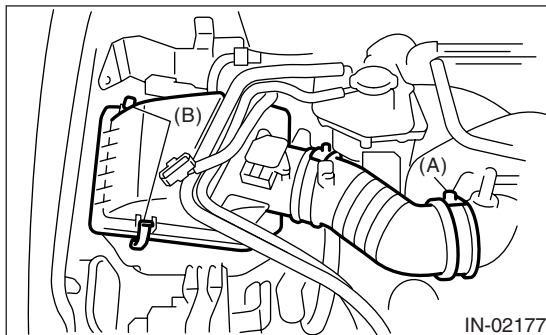
### 3. Air Cleaner Case

#### A: REMOVAL

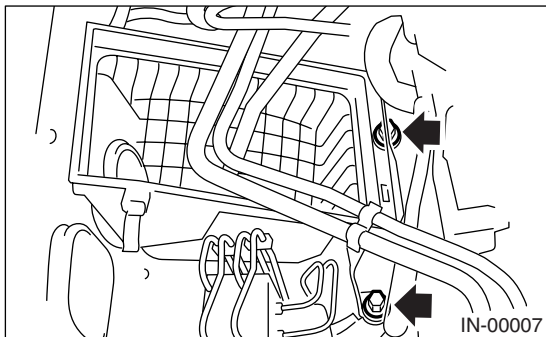
- 1) Disconnect the ground cable from battery.
- 2) Disconnect the connector from mass air flow and intake air temperature sensor.



- 3) Loosen the clamp (A) which connects the air intake boot and intake duct.
- 4) Remove the clip (B) from air cleaner upper cover.



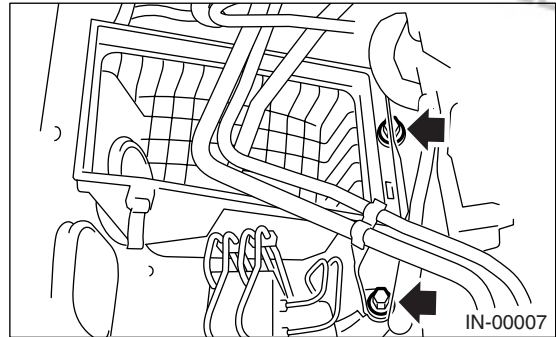
- 5) Remove the air cleaner upper cover.
- 6) Remove the air cleaner element.
- 7) Remove the air cleaner lower case.



#### B: INSTALLATION

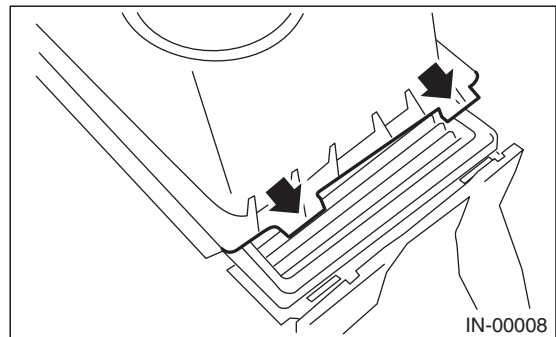
Install in the reverse order of removal.

**Tightening torque:**  
**33 N·m (3.4 kgf-m, 24.6 ft-lb)**



#### NOTE:

Before installing the air cleaner upper cover, align the holes with protruding portions of air cleaner lower case, then secure the upper cover to the lower case.



#### C: INSPECTION

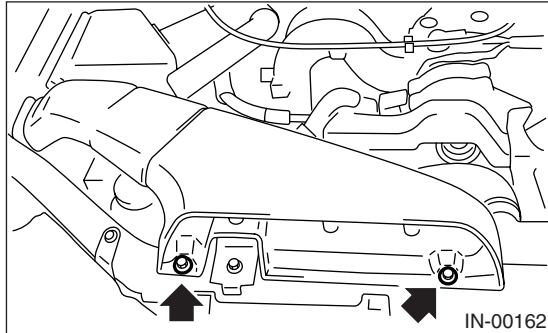
Inspect for cracks and loose connections.



## 4. Air Intake Duct

### A: REMOVAL

Remove the bolts which install the air intake duct on front side of body.

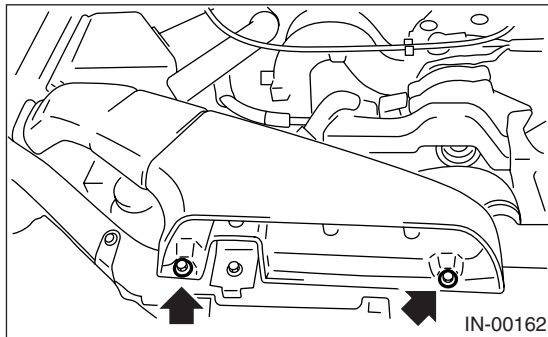


### B: INSTALLATION

Install in the reverse order of removal.

#### *Tightening torque:*

**7.5 N·m (0.76 kgf-m, 5.5 ft-lb)**



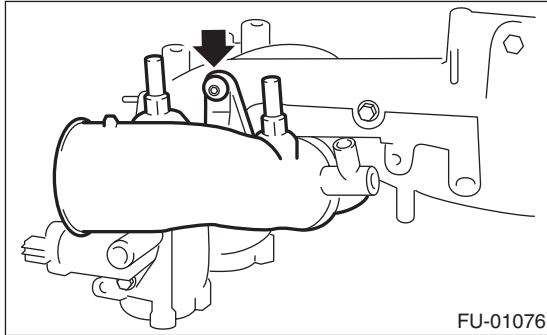
### C: INSPECTION

- 1) Inspect for cracks and loose connections.
- 2) Inspect that no foreign objects are mixed in air intake duct.

## 5. Intake Duct

### A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the intake manifold. <Ref. to FU(STI)-13, REMOVAL, Intake Manifold.>
- 3) Remove the sensor, engine harness and fuel pipe attached to intake manifold. <Ref. to FU(STI)-18, DISASSEMBLY, Intake Manifold.>
- 4) Remove the intake duct from intake manifold.

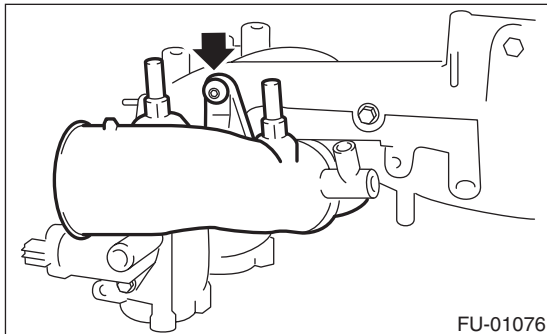


### B: INSTALLATION

Install in the reverse order of removal.

#### ***Tightening torque:***

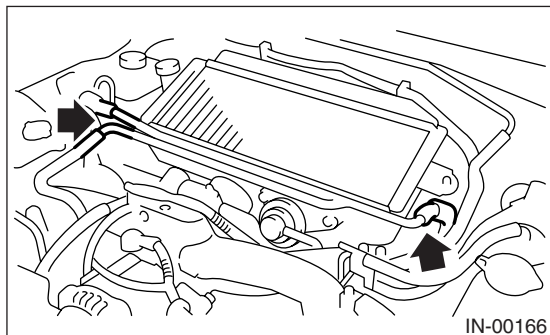
***19 N·m (1.9 kgf-m, 13.7 ft-lb)***



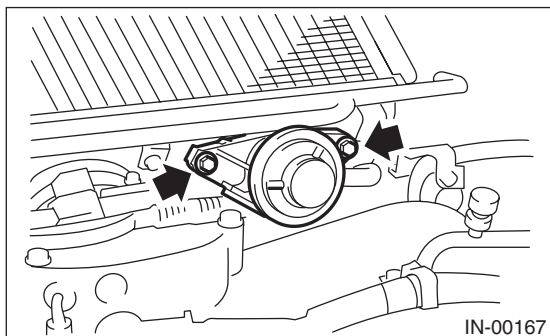
## 6. Intercooler

### A: REMOVAL

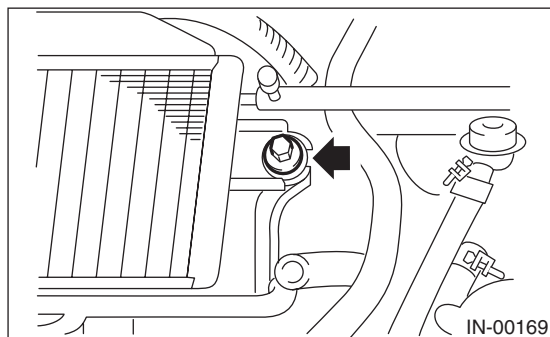
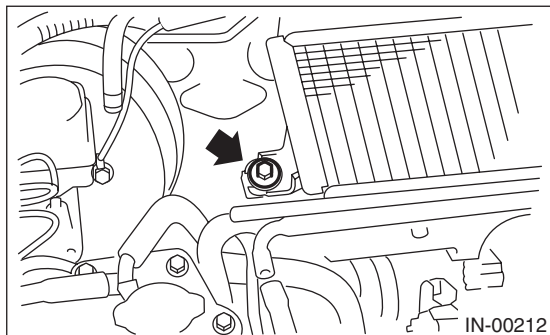
1) Disconnect the air by-pass hoses from intercooler.



2) Remove the air by-pass valve from intercooler.

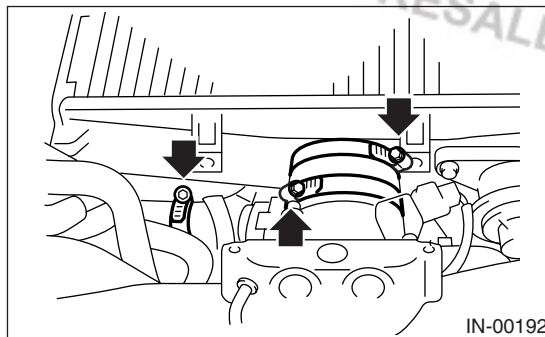


3) Remove the bolts which secure the intercooler to bracket.



4) Remove the intercooler air duct from turbocharg-

5) Remove the intercooler from throttle body.

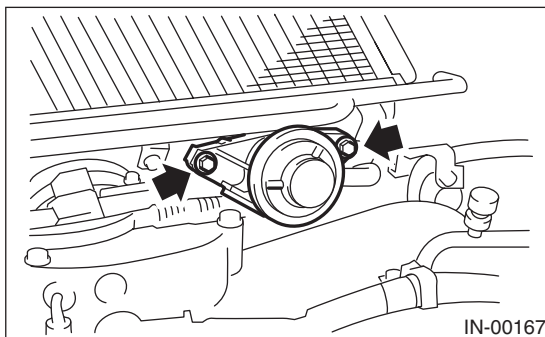
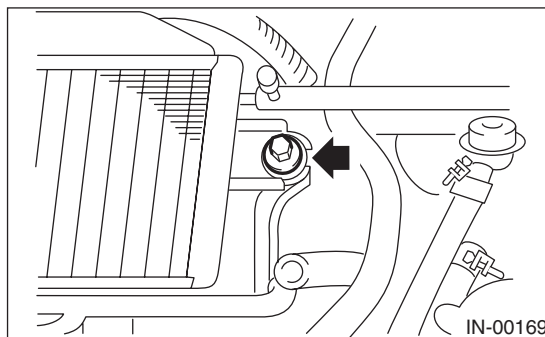
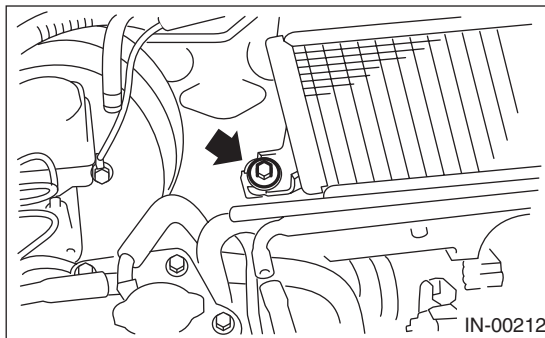


### B: INSTALLATION

Install in the reverse order of removal.

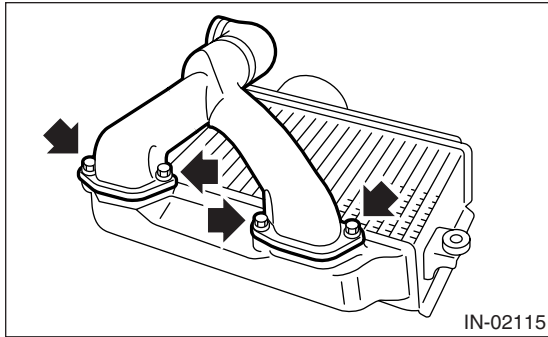
**Tightening torque:**

**16 N·m (1.6 kgf-m, 11.8 ft-lb)**



### C: DISASSEMBLY

Remove the intercooler ducts from intercooler.

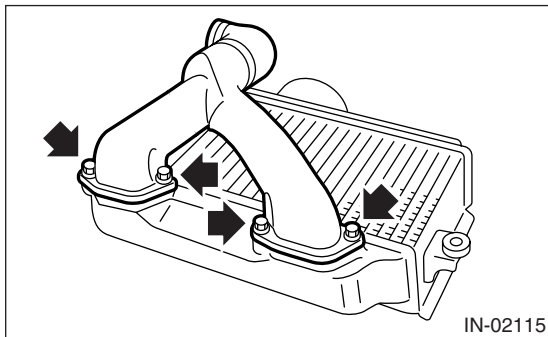


### D: ASSEMBLY

Assemble in the reverse order of disassembly.

**Tightening torque:**

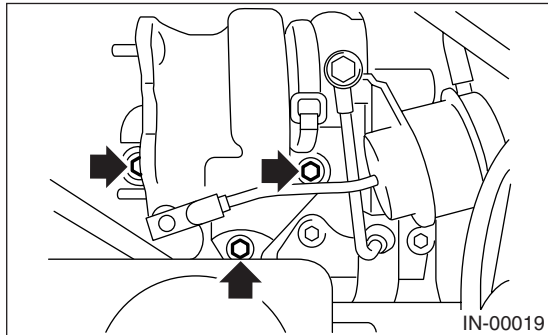
**16 N·m (1.6 kgf-m, 11.8 ft-lb)**



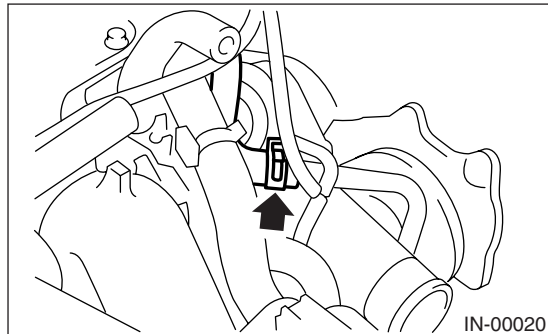
## 7. Turbocharger

### A: REMOVAL

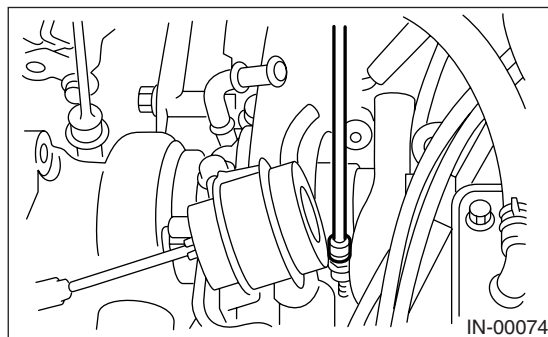
- 1) Set the vehicle on a lift.
- 2) Disconnect the ground cable from battery.
- 3) Remove the center exhaust pipe. <Ref. to EX(H4DOTC)-10, REMOVAL, Center Exhaust Pipe.>
- 4) Lower the vehicle.
- 5) Disconnect the turbocharger joint pipe from turbo-charger.



- 6) Disconnect the engine coolant hose which is connected to coolant filler tank.

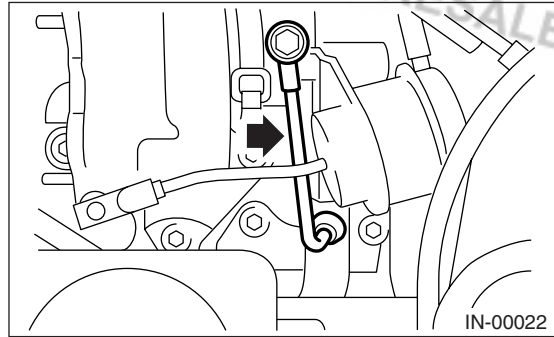


- 7) Loosen the clamp which secures the turbocharger to intake duct.

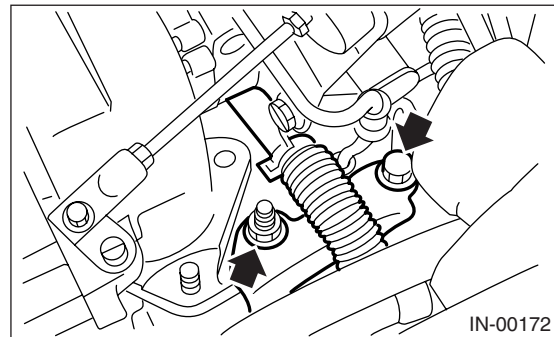


- 8) Loosen the flare joint of oil inlet pipe, and disconnect the flare joint.

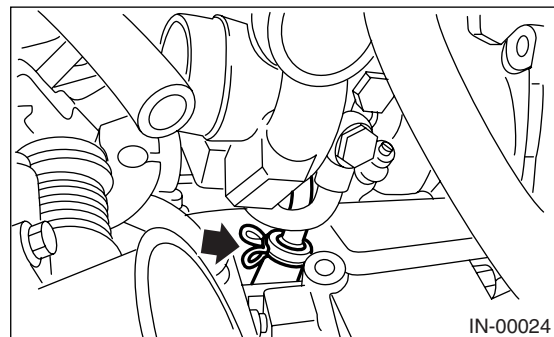
- 9) Remove the oil inlet pipe from turbocharger.



- 10) Disconnect the engine coolant hose.
- 11) Remove the turbocharger bracket.



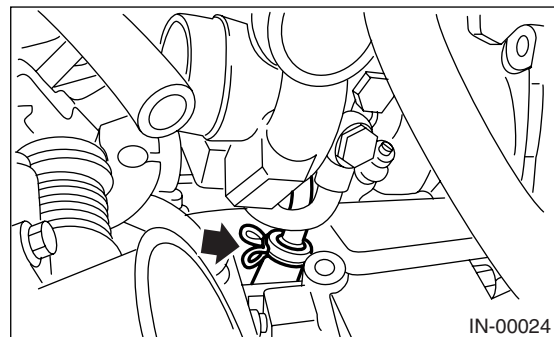
- 12) Disconnect the oil outlet hose from pipe.



- 13) Take out the turbocharger from engine compartment.

### B: INSTALLATION

- 1) Connect the oil outlet hose to outlet pipe.



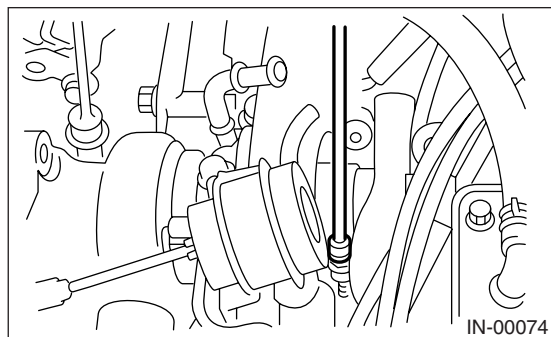
- 2) Install the turbocharger to intake duct.

## Turbocharger

### INTAKE (INDUCTION)

#### **Tightening torque:**

**3 N·m (0.3 kgf-m, 2.2 ft-lb)**



3) Install the oil inlet pipe to turbocharger, and connect the flare joint.

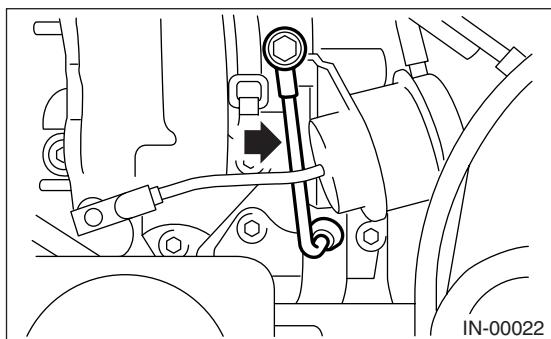
#### **Tightening torque:**

##### **Union bolt**

**$16 \pm 1.5$  N·m ( $1.6 \pm 0.15$  kgf-m,  $11.8 \pm 1.1$  ft-lb)**

##### **Flare joint**

**$20 \pm 2.0$  N·m ( $2.0 \pm 0.2$  kgf-m,  $14.8 \pm 1.5$  ft-lb)**



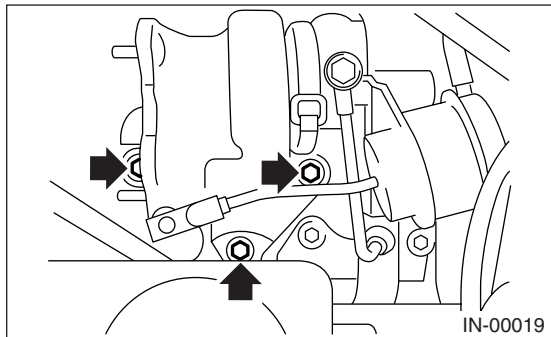
4) Install the turbocharger joint pipe to turbocharger.

#### **NOTE:**

Replace the gasket with a new one.

#### **Tightening torque:**

**35 N·m (3.6 kgf-m, 25.8 ft-lb)**

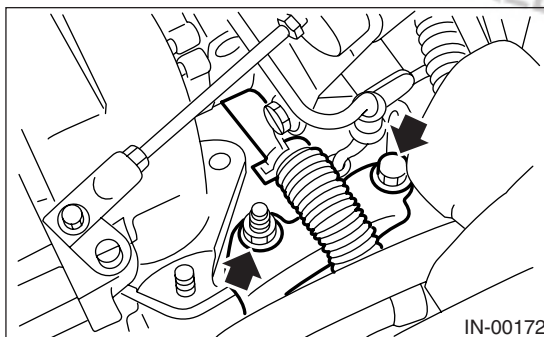


5) Connect the engine coolant hose.

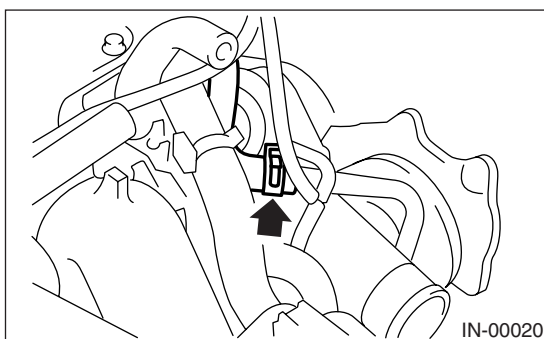
6) Install the turbocharger bracket.

#### **Tightening torque:**

**33 N·m (3.4 kgf-m, 24.6 ft-lb)**



7) Connect the engine coolant hose which is connected to coolant filler tank.



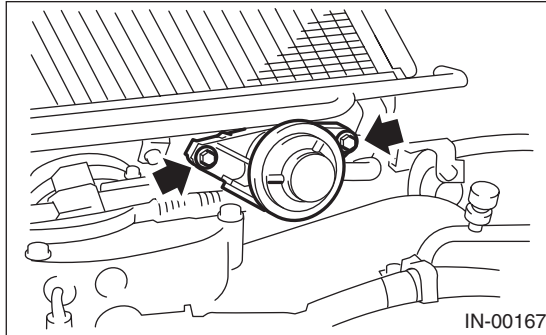
8) Lift-up the vehicle.

9) Install the center exhaust pipe. <Ref. to EX(H4DOTC)-11, INSTALLATION, Center Exhaust Pipe.>

## 8. Air By-pass Valve

### A: REMOVAL

1) Remove the air by-pass valve from intercooler.



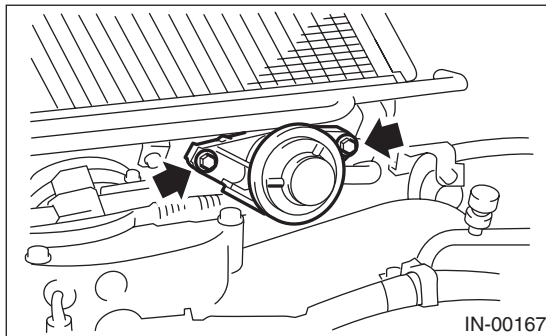
2) Disconnect the air by-pass hoses from air by-pass valve.

### B: INSTALLATION

Install in the reverse order of removal.

**Tightening torque:**

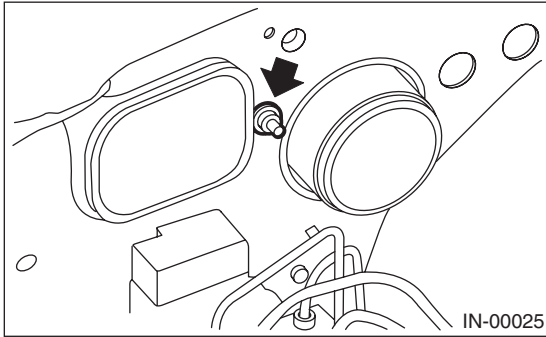
**16 N·m (1.6 kgf-m, 11.8 ft-lb)**



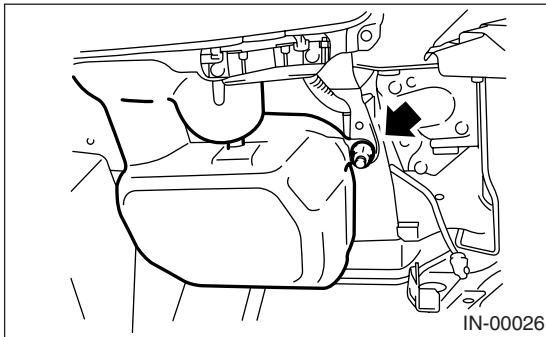
### 9. Resonator Chamber

#### A: REMOVAL

- 1) Set the vehicle on a lift.
- 2) Remove the air intake duct. <Ref. to IN(STI)-9, REMOVAL, Air Intake Duct.>
- 3) Remove the air cleaner lower case. <Ref. to IN(STI)-8, REMOVAL, Air Cleaner Case.>
- 4) Remove the resonator chamber mounting nut on right side of engine compartment.



- 5) Lift-up the vehicle, and then remove the front wheel RH.
- 6) Remove the front mud guard RH.
- 7) Remove the resonator chamber from the inside front fender.

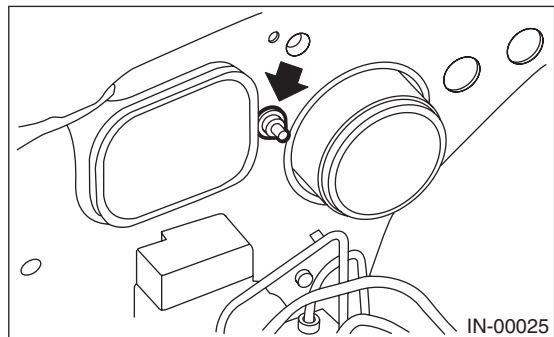
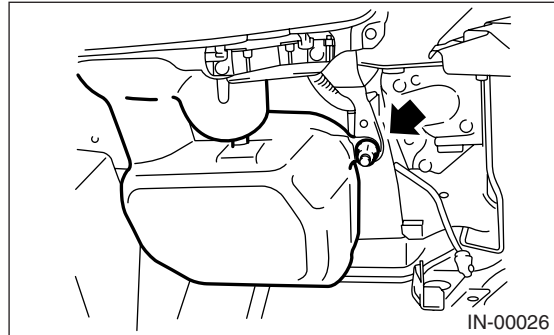


#### B: INSTALLATION

Install in the reverse order of removal.

#### Tightening torque:

**7.5 N·m (0.76 kgf-m, 5.5 ft-lb)**



#### C: INSPECTION

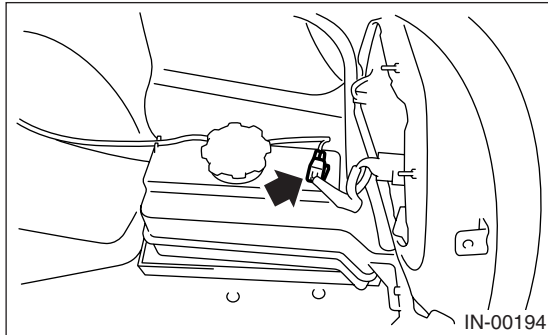
- 1) Inspect for cracks and loose connections.
- 2) Inspect that no foreign objects are mixed in resonator chamber.



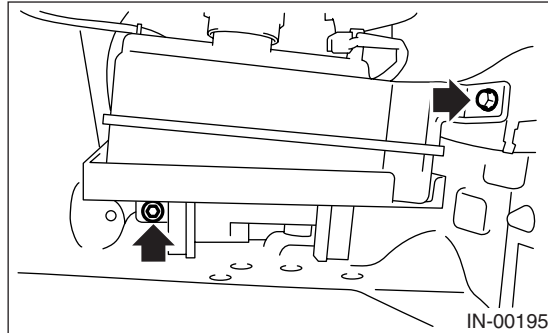
## 10. Intercooler Water Spray Tank

### A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the trunk room trim. <Ref. to EI-59, REMOVAL, Trunk Room Trim.>
- 3) Disconnect the water tank connector.



- 4) Remove the two water tank installation bolts.



- 5) Remove the hose between body and water tank, then remove the water tank.

### B: INSTALLATION

Install in the reverse order of removal.

#### **Tightening torque:**

**6.0 N·m (0.61 kgf-m, 4.4 ft-lb)**

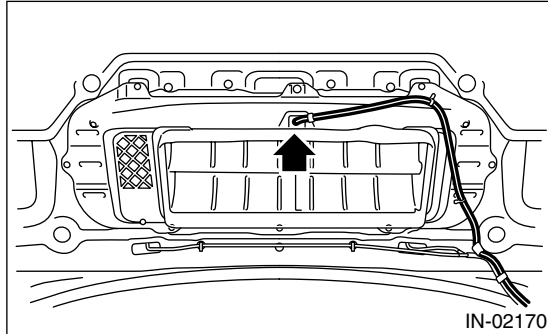
### C: INSPECTION

- 1) Make sure the hose is not deformed, damaged, cracked or clogged.
- 2) Make sure the water tank is not damaged or cracked.

### 11. Intercooler Water Spray Nozzle

#### A: REMOVAL

- 1) Open the front hood.
- 2) Disconnect the connecting part of hose.
- 3) Push the clip of nozzle upward with the clip pressed by fingers from inside of front hood.



#### B: INSTALLATION

Install in the reverse order of removal.

#### C: INSPECTION

Make sure the hose and nozzle are not deformed, damaged, cracked or clogged.