

# **INTAKE (INDUCTION)**

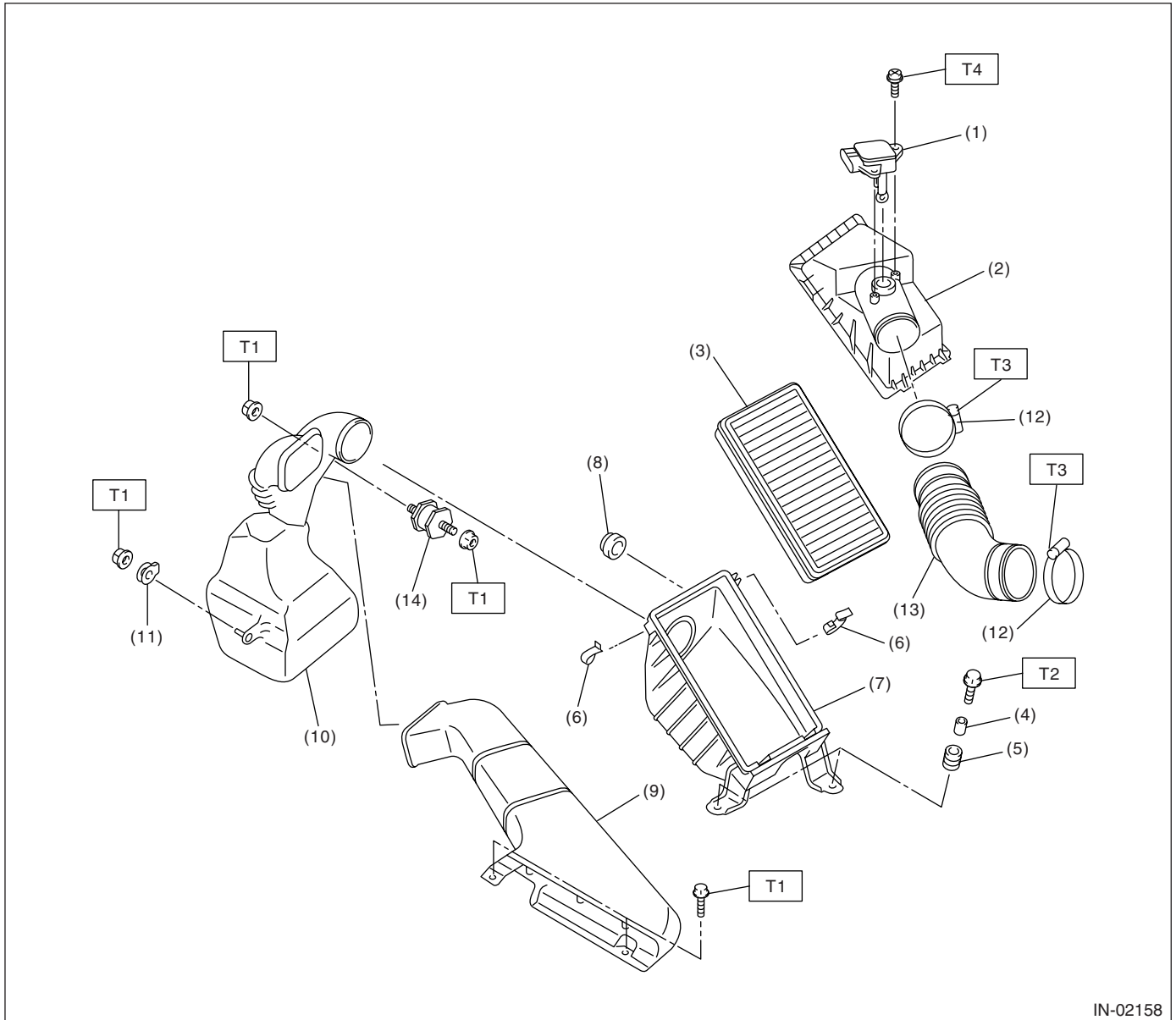
# General Description

INTAKE (INDUCTION)

## 1. General Description

### A: COMPONENT

#### 1. AIR CLEANER



IN-02158

- |                                                     |                             |              |
|-----------------------------------------------------|-----------------------------|--------------|
| (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)**

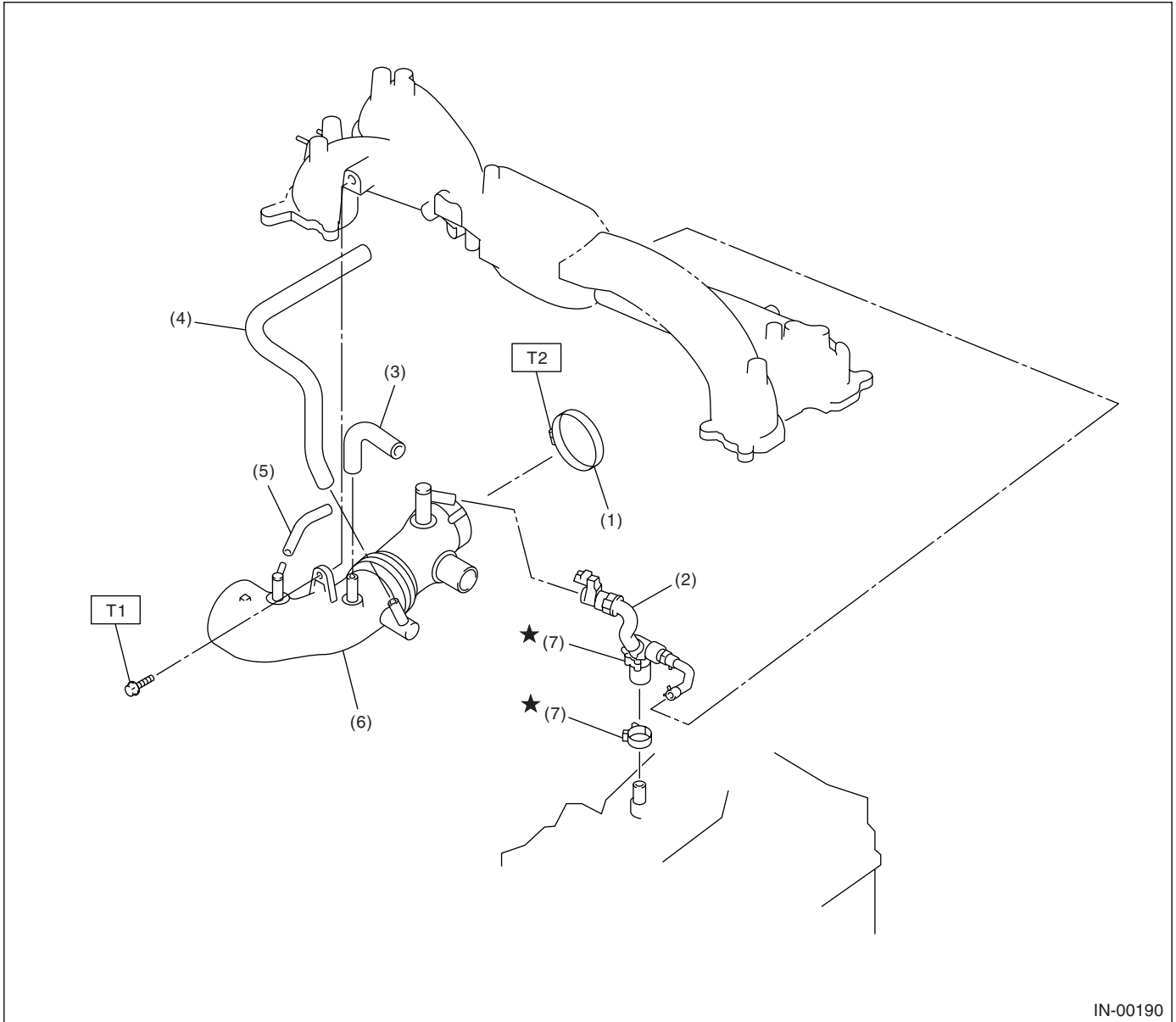
**T1: 7.5 (0.76, 5.5)**

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

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

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

## 2. INTAKE DUCT



IN-00190

- |                        |                        |
|------------------------|------------------------|
| (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)**

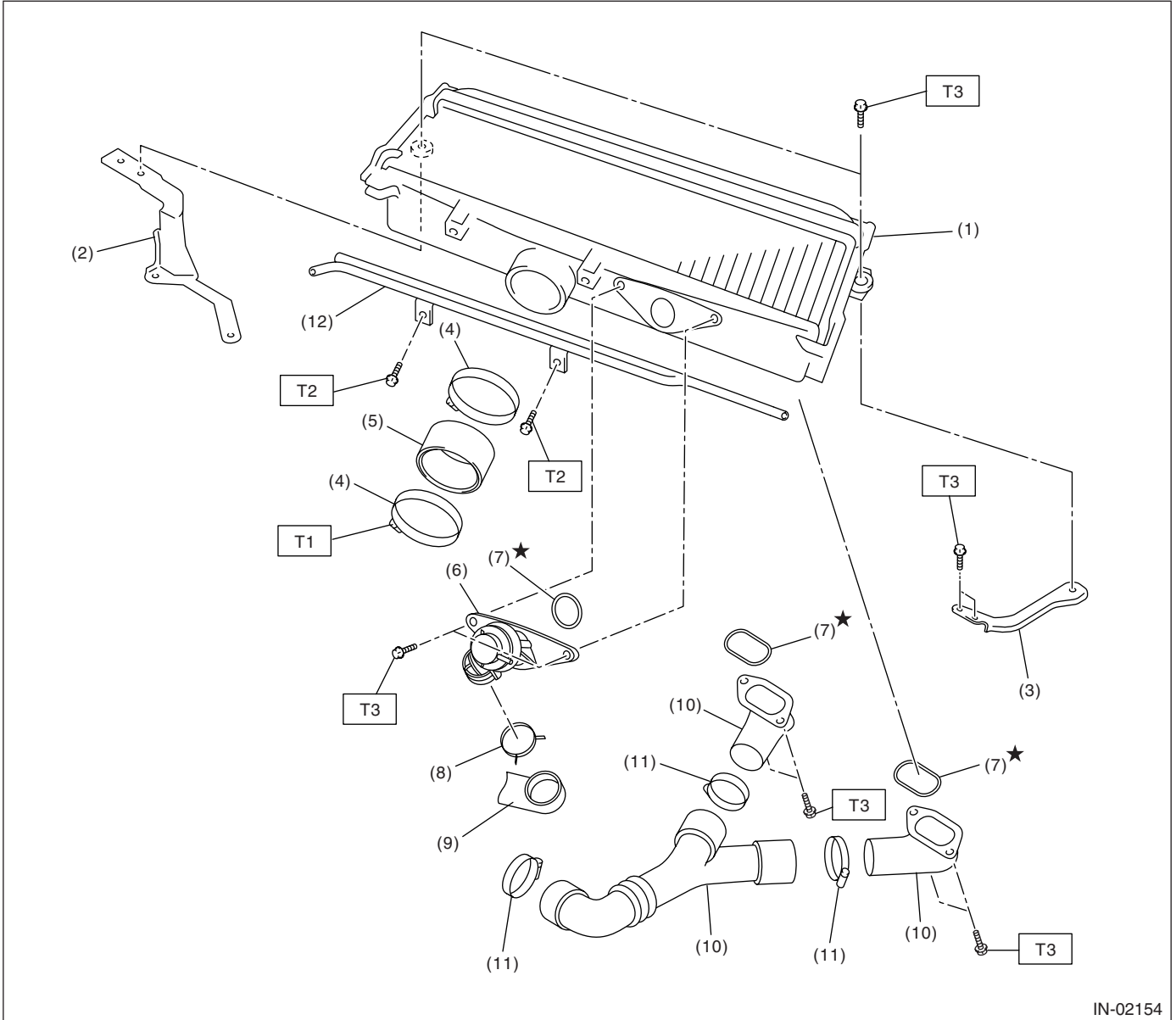
**T1: 19 (1.9, 13.7)**

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

# General Description

INTAKE (INDUCTION)

## 3. INTERCOOLER



IN-02154

- |                            |                        |
|----------------------------|------------------------|
| (1) Intercooler            | (7) O-ring             |
| (2) Intercooler bracket RH | (8) Clamp              |
| (3) Intercooler bracket LH | (9) Air by-pass hose A |
| (4) Clamp                  | (10) Intercooler duct  |
| (5) Air intake duct        | (11) Clamp             |
| (6) Air by-pass valve      | (12) PCV pipe          |

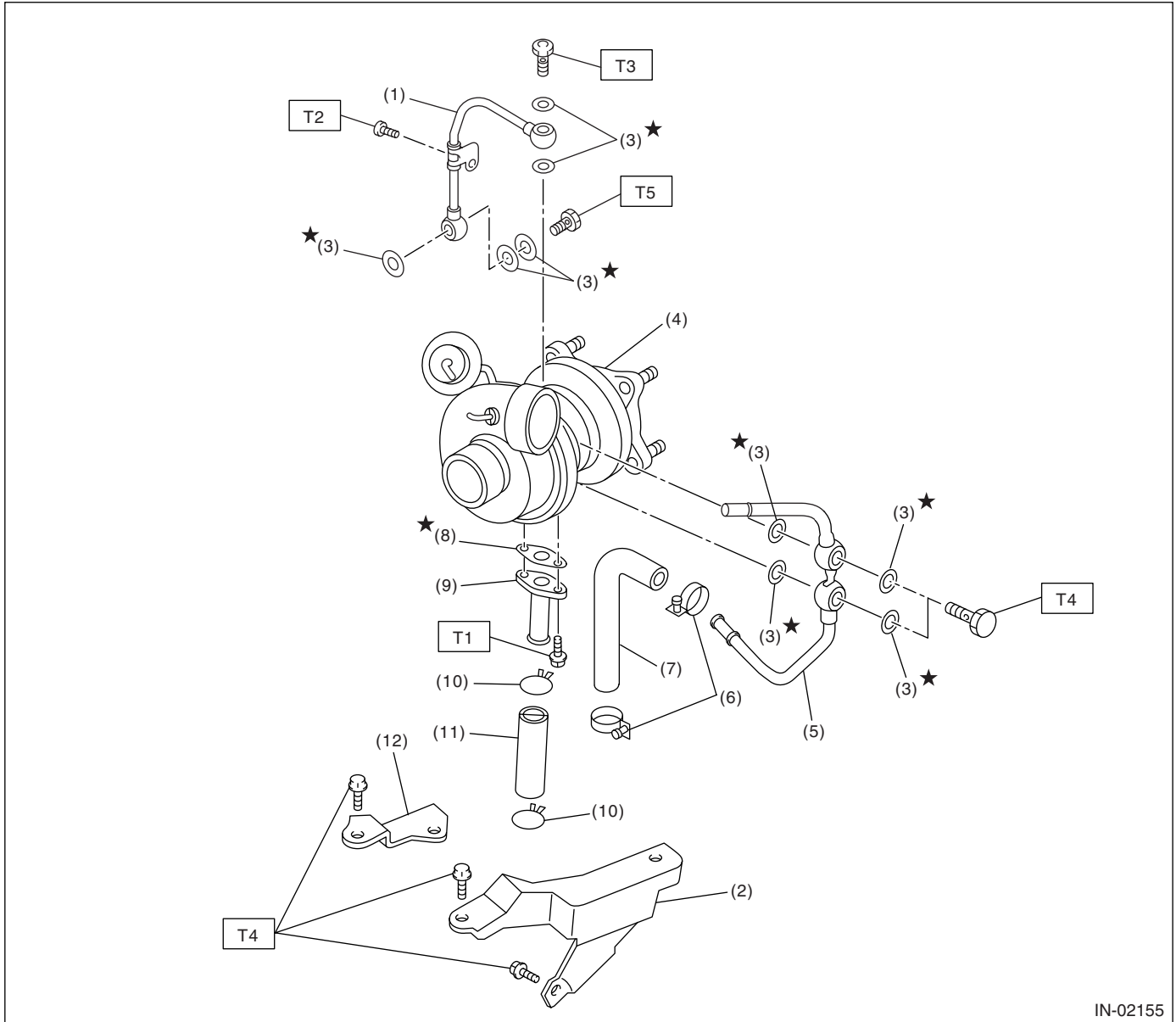
**Tightening torque: N·m (kgf·m, ft·lb)**

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

**T2: 6.3 (0.64, 4.6)**

**T3: 16 (1.6, 11.6)**

## 4. TURBOCHARGER



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

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

**T1: 4.4 (0.45, 3.3)**

**T2: 4.9 (0.50, 3.6)**

**T3: 16 (1.6, 11.6)**

**T4: 33 (3.4, 24.6)**

**T5: 29 (3.0, 21.7)**

## General Description

### INTAKE (INDUCTION)

---

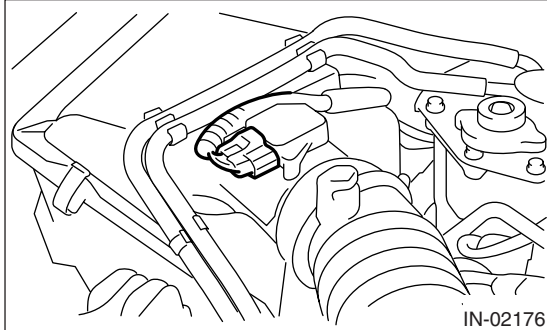
#### **B: CAUTION**

- 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 yourself, 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.

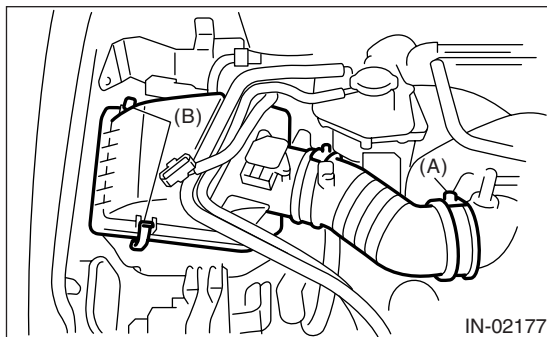
## 2. Air Cleaner Element

### 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.



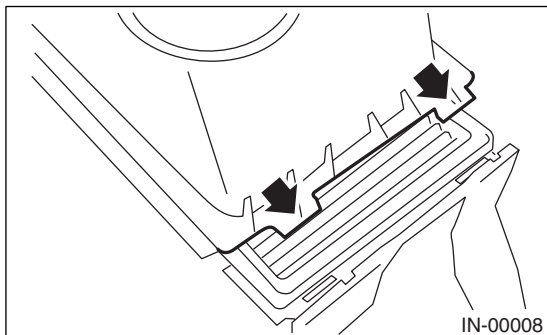
- 5) Remove the air cleaner upper cover.
- 6) Remove the air cleaner element.

### 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.

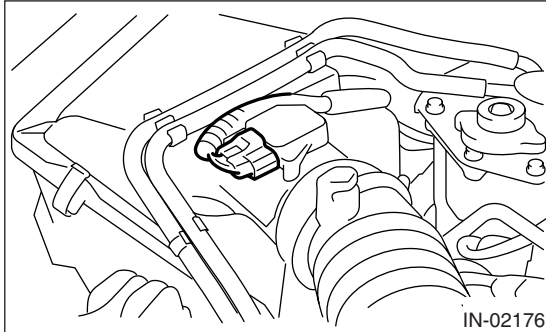
## Air Cleaner Case

INTAKE (INDUCTION)

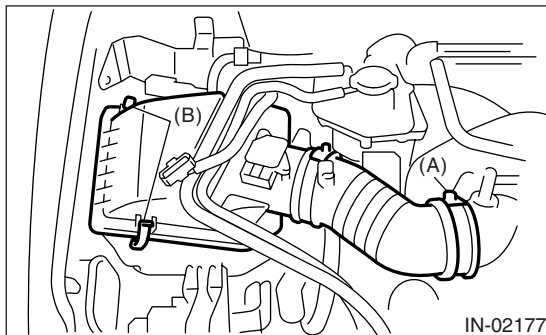
### 3. Air Cleaner Case

#### A: REMOVAL

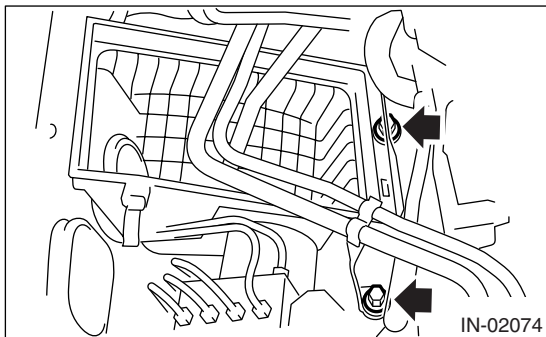
- 1) Disconnect the ground cable from battery.
- 2) Disconnect the connector from mass air flow and intake air temperature sensor.



- 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.

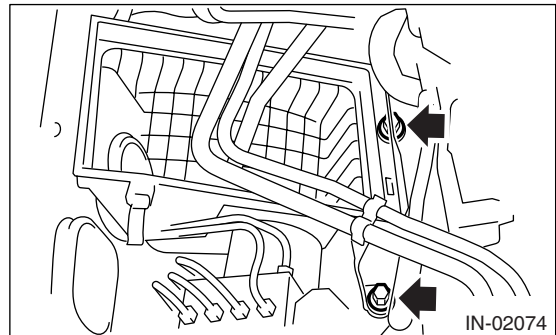


#### B: INSTALLATION

Install in the reverse order of removal.

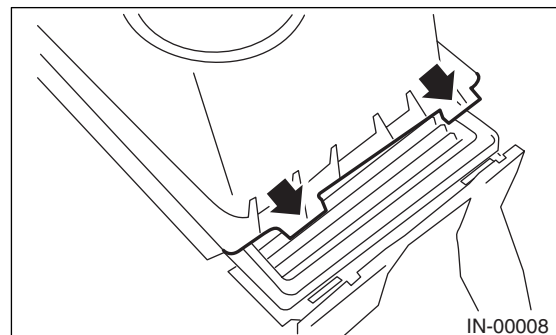
#### Tightening torque:

**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

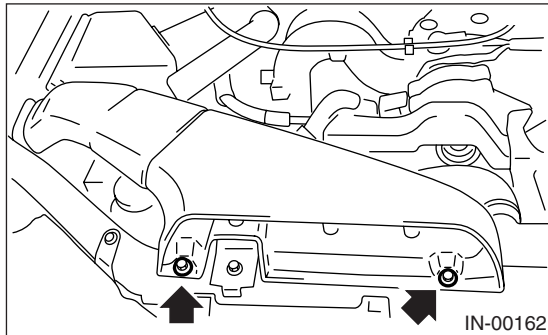
Inspect for cracks and loose connections.



## 4. Air Intake Duct

### A: REMOVAL

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

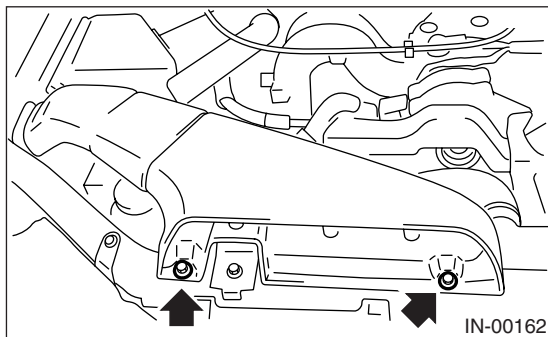


### B: INSTALLATION

Install in the reverse order of removal.

#### *Tightening torque:*

**7.5 N·m (0.76 kgf-m, 55 ft-lb)**



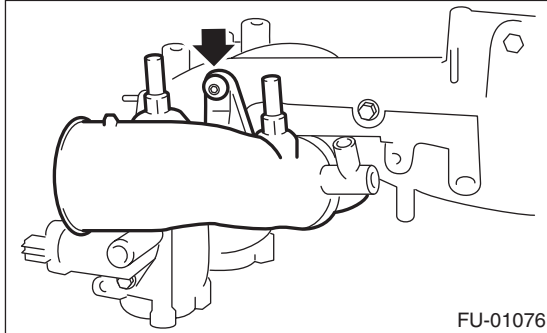
### C: INSPECTION

- 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(H4DOTC)-14, REMOVAL, Intake Manifold.>
- 3) Remove the sensor, engine harness and fuel pipe attached to intake manifold. <Ref. to FU(H4DOTC)-19, DISASSEMBLY, Intake Manifold.>
- 4) Remove the intake duct from intake manifold.

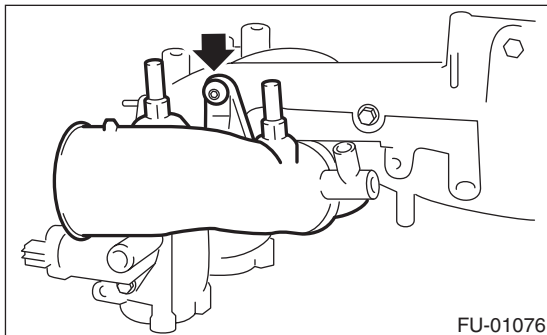


### B: INSTALLATION

Install in the reverse order of removal.

#### *Tightening torque:*

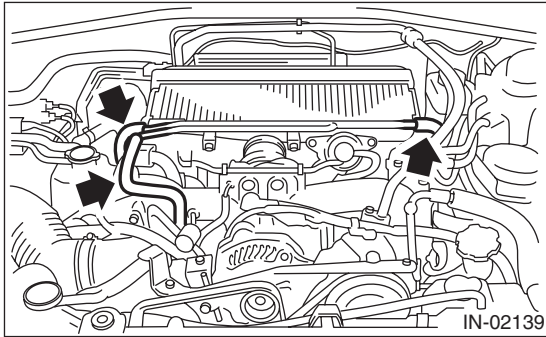
**19 N·m (1.9 kgf·m, 13.7 ft·lb)**



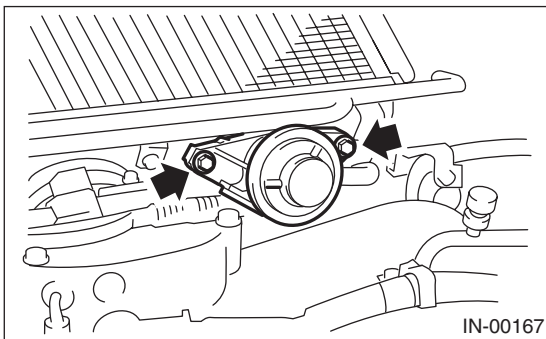
## 6. Intercooler

### A: REMOVAL

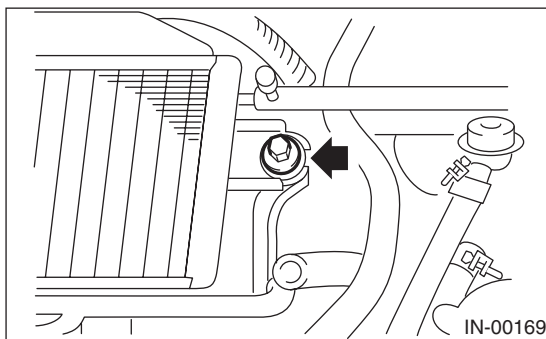
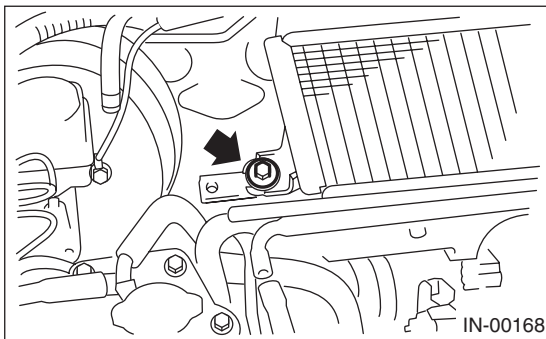
1) Disconnect the PCV hoses from PCV pipe.



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

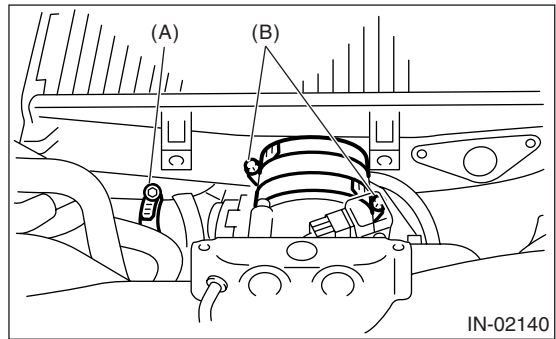


3) Remove the bolts which secure the intercooler to bracket.



4) Loosen the clamp (A) which connects the turbocharger to intercooler ducts.

5) Loosen the clamp (B) which connects the throttle body to intercooler.



6) Remove the intercooler air duct from turbocharger.

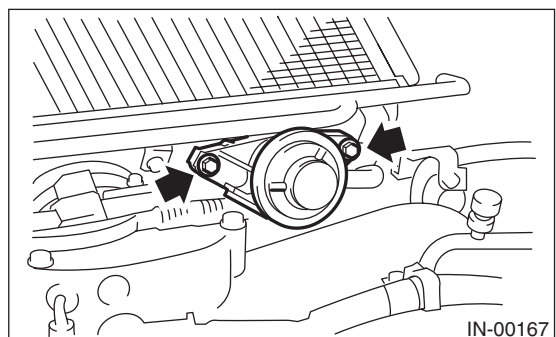
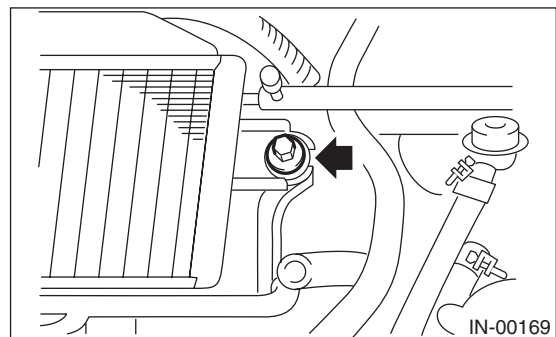
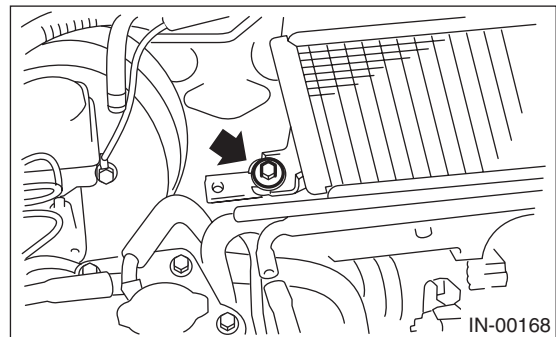
7) Remove the intercooler from throttle body.

### B: INSTALLATION

Install in the reverse order of removal.

**Tightening torque:**

**16 N·m (1.6 kgf-m, 11.6 ft-lb)**

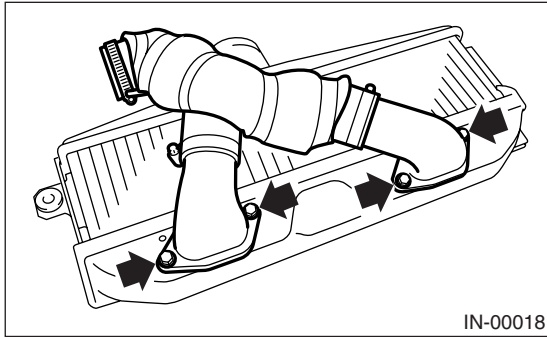


# Intercooler

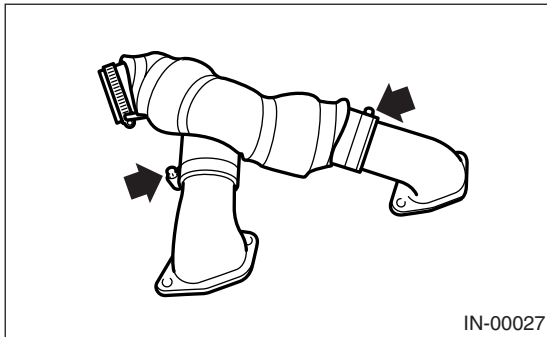
INTAKE (INDUCTION)

## C: DISASSEMBLY

1) Remove the intercooler ducts from intercooler.



2) Separate the intercooler ducts.



## D: ASSEMBLY

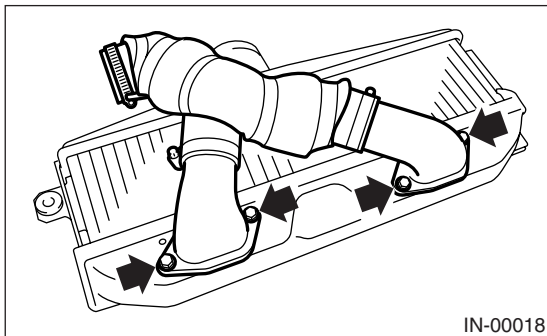
Assemble in the reverse order of disassembly.

NOTE:

Do not let the O-ring bite.

**Tightening torque:**

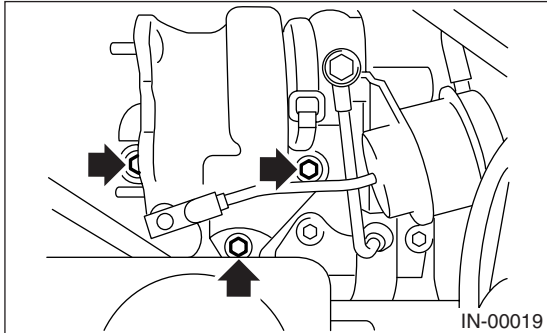
**16 N·m (1.6 kgf-m, 11.6 ft-lb)**



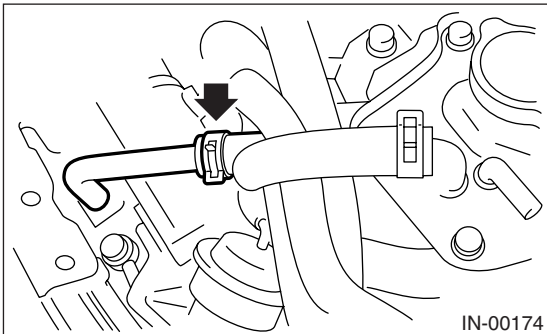
## 7. Turbocharger

### A: REMOVAL

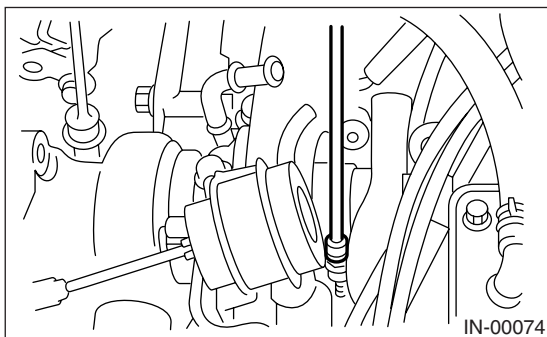
- 1) Set the vehicle on a lift.
- 2) Disconnect the ground cable from battery.
- 3) Remove the center exhaust pipe. <Ref. to EX(H4DOTC)-10, REMOVAL, Center Exhaust Pipe.>
- 4) Lower the vehicle.
- 5) Disconnect the turbocharger joint pipe from turbo-charger.



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

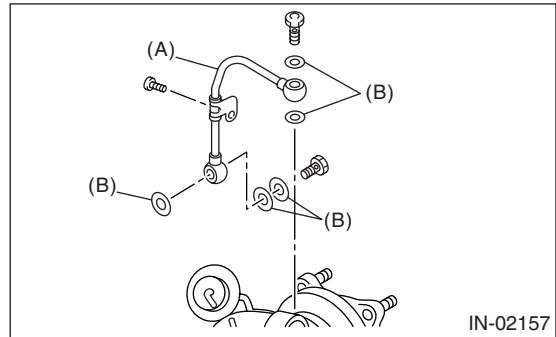


- 7) Loosen the clamp which secures the turbocharger to intake duct.

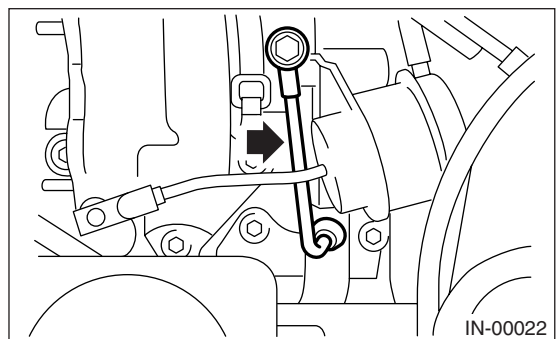


- 8) Remove the bolt which secures the bracket of oil inlet pipe to turbocharger.

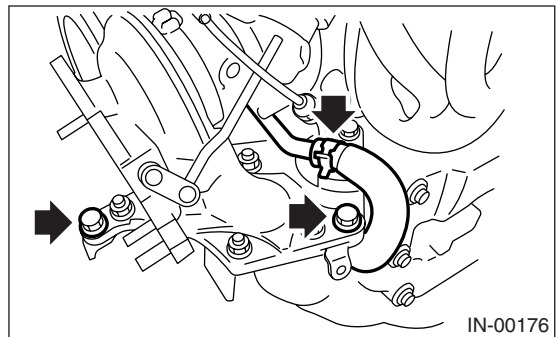
- 9) Remove the oil inlet pipe from turbocharger.



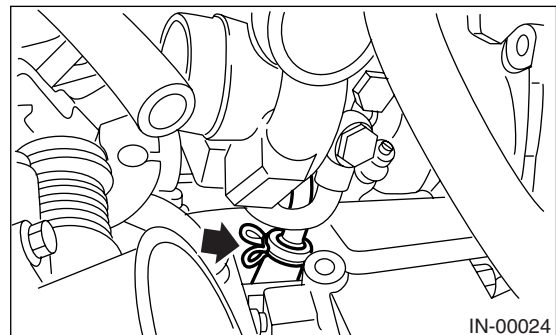
- (A) Oil inlet pipe  
(B) Metal gasket



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



- 12) Disconnect the oil outlet hose from pipe.



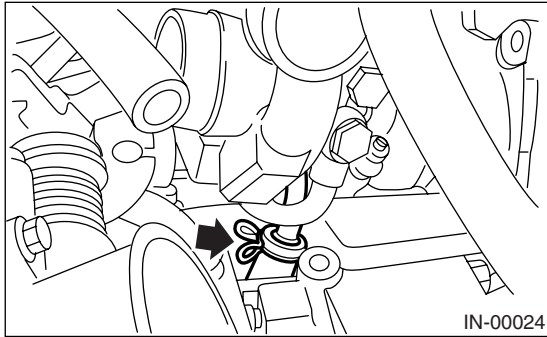
- 13) Take out the turbocharger from engine compartment.

# Turbocharger

## INTAKE (INDUCTION)

### B: INSTALLATION

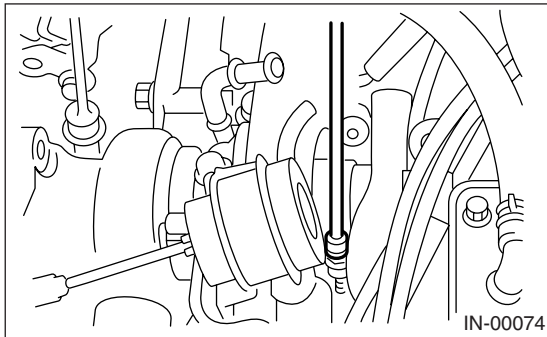
1) Connect the oil outlet hose to outlet pipe.



2) Install the turbocharger to intake duct.

**Tightening torque:**

**3 N·m (0.3 kgf·m, 2.2 ft·lb)**



3) Install the oil inlet pipe to turbocharger.

**NOTE:**

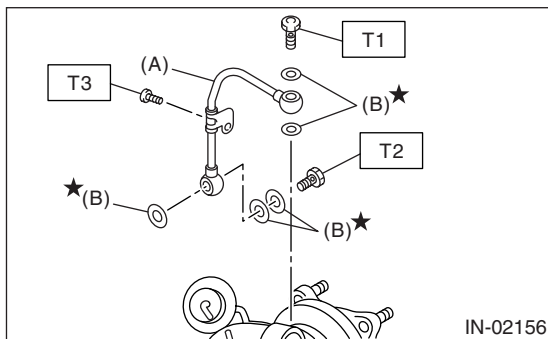
Replace the gasket with new one.

**Tightening torque:**

**T1: 16 N·m (1.6 kgf·m, 11.6 ft·lb)**

**T2: 29 N·m (3.0 kgf·m, 21.7 ft·lb)**

**T3: 4.9 N·m (0.50 kgf·m, 3.6 ft·lb)**



(A) Oil inlet pipe

(B) Metal gasket

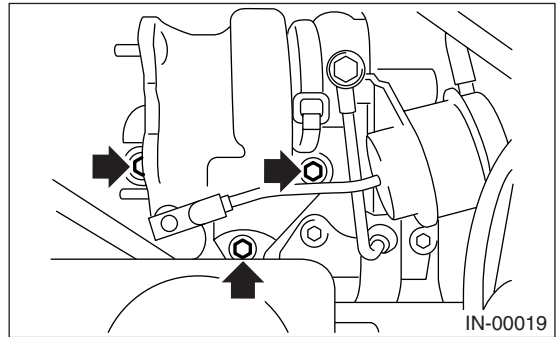
4) Install the joint pipe to turbocharger.

**NOTE:**

Replace the gasket with a new one.

**Tightening torque:**

**35 N·m (3.6 kgf·m, 25.8 ft·lb)**

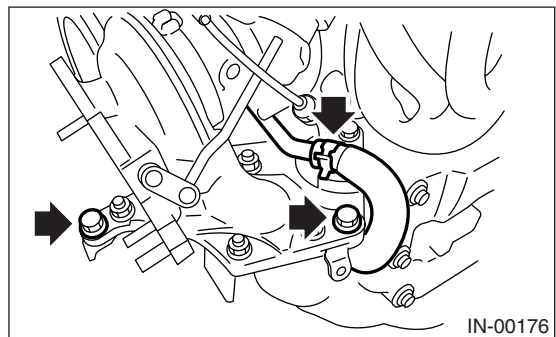


5) Connect the engine coolant hose.

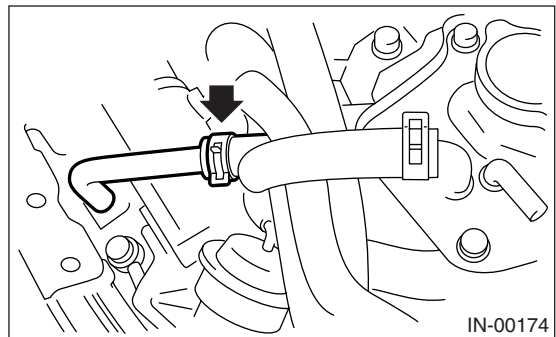
6) Install the turbocharger bracket.

**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.



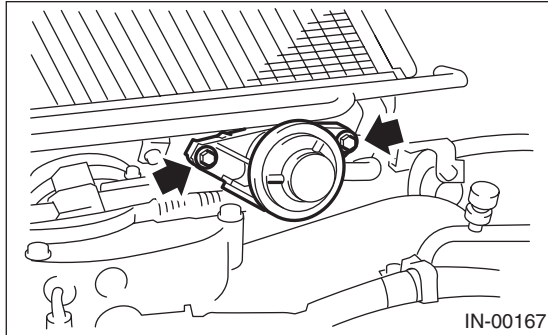
8) Lift-up the vehicle.

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

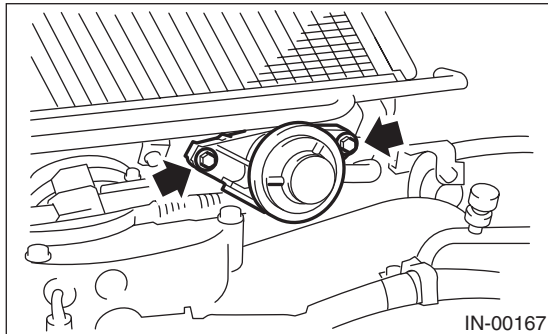
Install in the reverse order of removal.

#### NOTE:

Do not let the O-ring bite.

#### *Tightening torque:*

**16 N·m (1.6 kgf·m, 11.6 ft·lb)**



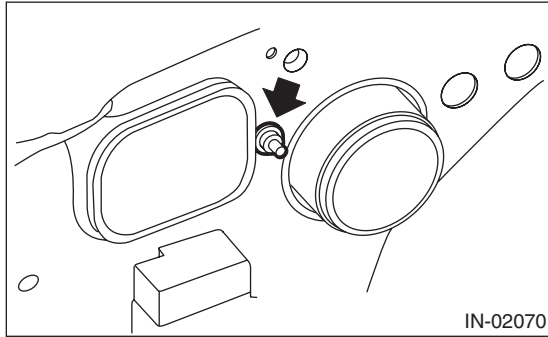
# Resonator Chamber

INTAKE (INDUCTION)

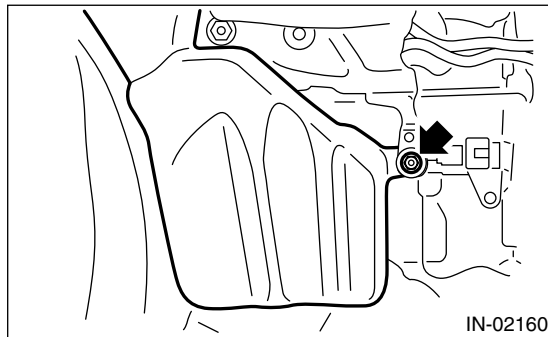
## 9. Resonator Chamber

### A: REMOVAL

- 1) Set the vehicle on a lift.
- 2) Remove the air intake duct. <Ref. to IN(H4DOTC)-9, REMOVAL, Air Intake Duct.>
- 3) Remove the air cleaner lower case. <Ref. to IN(H4DOTC)-8, REMOVAL, Air Cleaner Case.>
- 4) Remove the resonator chamber mounting nut on right side of engine compartment.



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

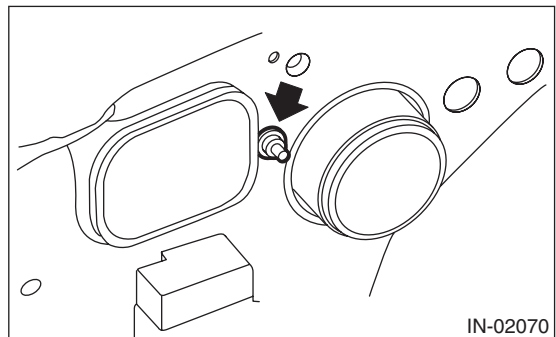
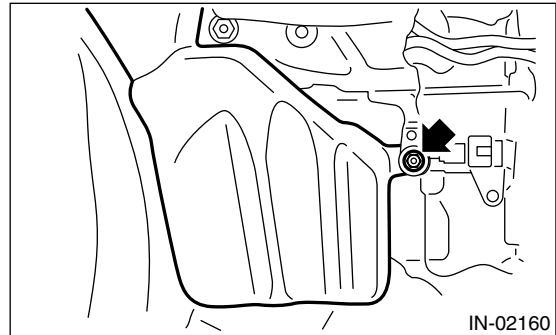


### B: INSTALLATION

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.