

INTAKE (INDUCTION)

IN(H4DOTC)

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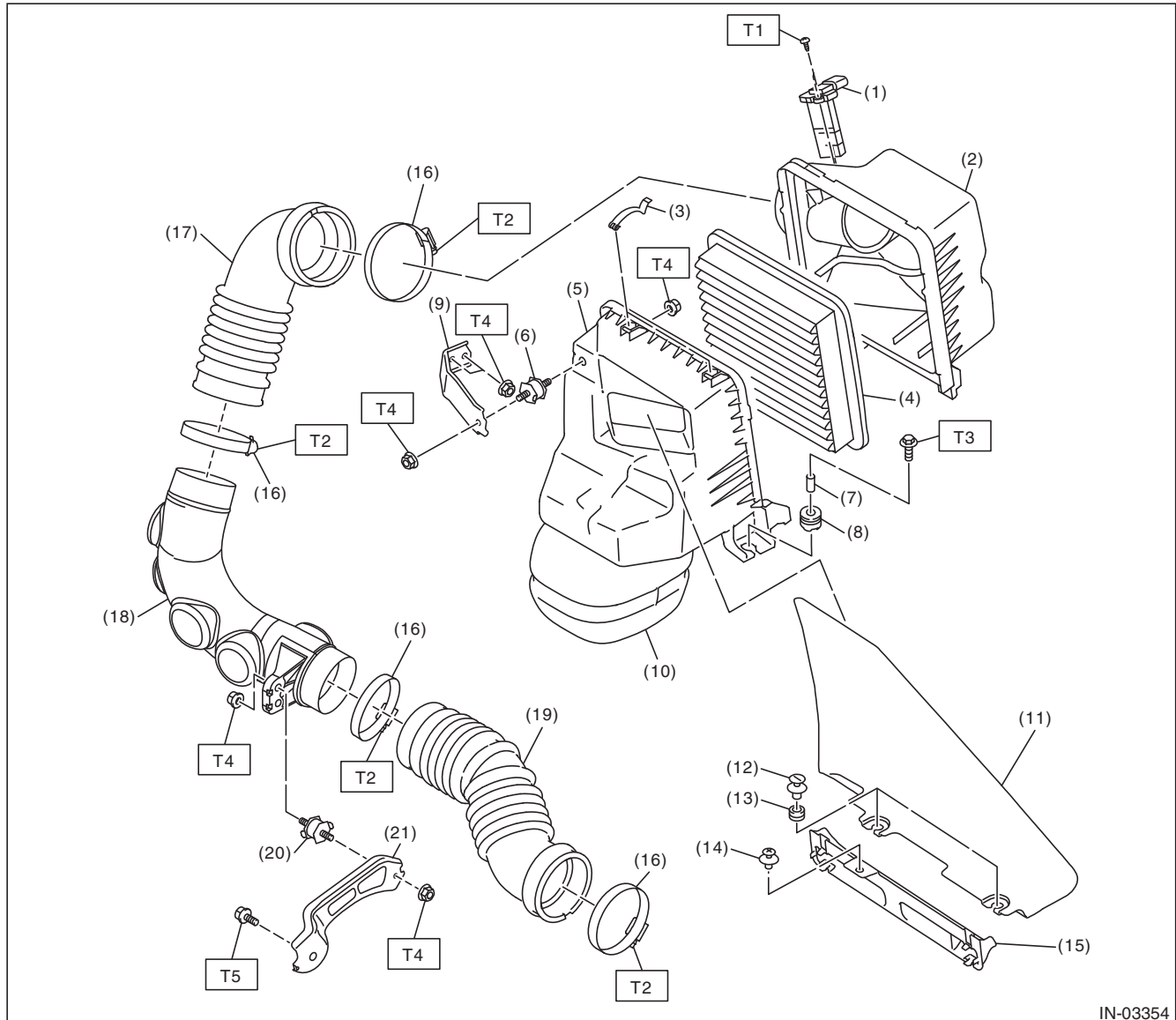
General Description

INTAKE (INDUCTION)

1. General Description

A: COMPONENT

1. AIR CLEANER



IN-03354

- | | | |
|---|------------------------------|-------------------|
| (1) Mass air flow and intake air temperature sensor | (11) Air intake duct (rear) | (21) Duct bracket |
| (2) Air cleaner case (rear) | (12) Clip | |
| (3) Clip | (13) Cushion | |
| (4) Air cleaner element | (14) Clip | |
| (5) Air cleaner case (front) | (15) Air intake duct (front) | |
| (6) Cushion | (16) Clamp | |
| (7) Spacer | (17) Air intake boot A | |
| (8) Cushion | (18) Turbo duct | |
| (9) Air cleaner case bracket | (19) Air intake boot B | |
| (10) Resonator chamber | (20) Cushion | |

Tightening torque: N·m (kgf-m, ft-lb)

T1: 1 (0.1, 0.7)

T2: 2.5 (0.3, 1.8)

T3: 6 (0.6, 4.4)

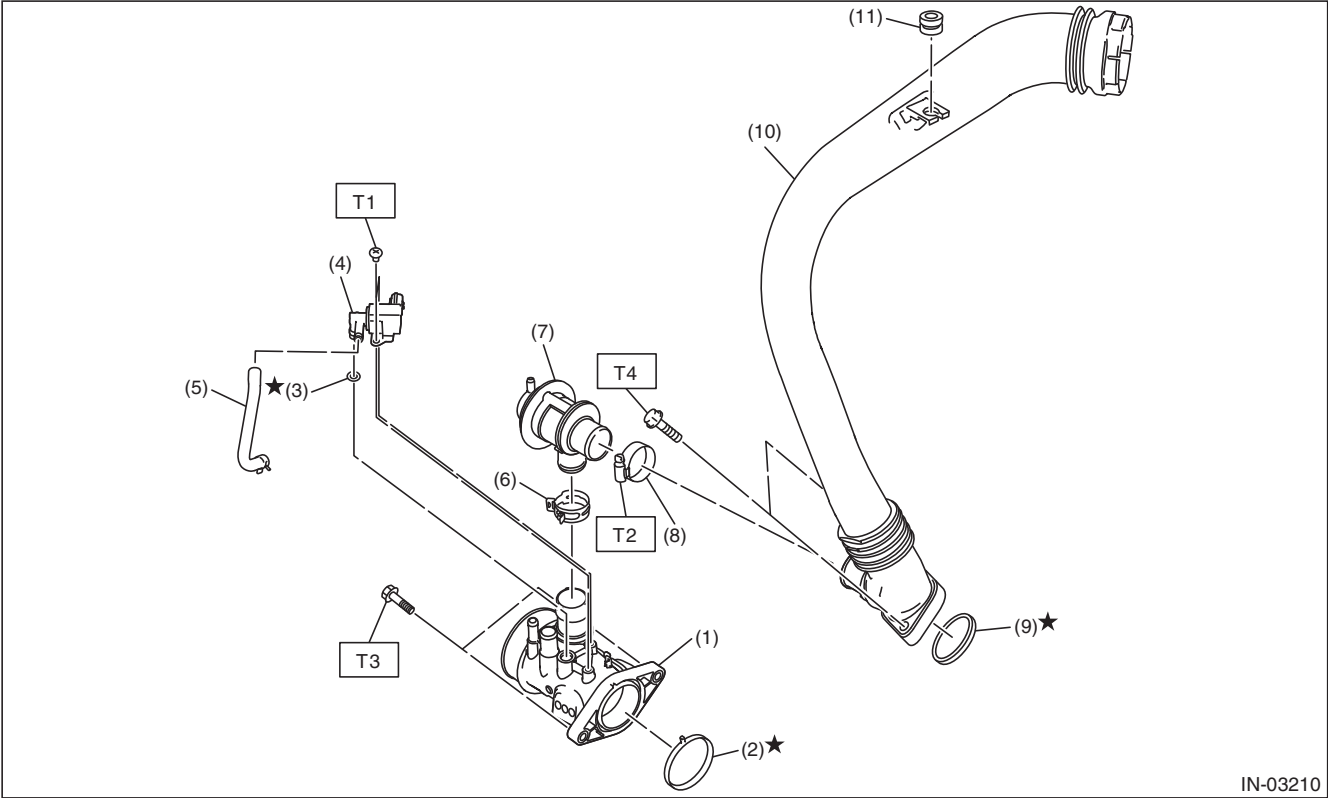
T4: 7.5 (0.8, 5.5)

T5: 18 (1.8, 13.3)

General Description

INTAKE (INDUCTION)

2. INTAKE DUCT



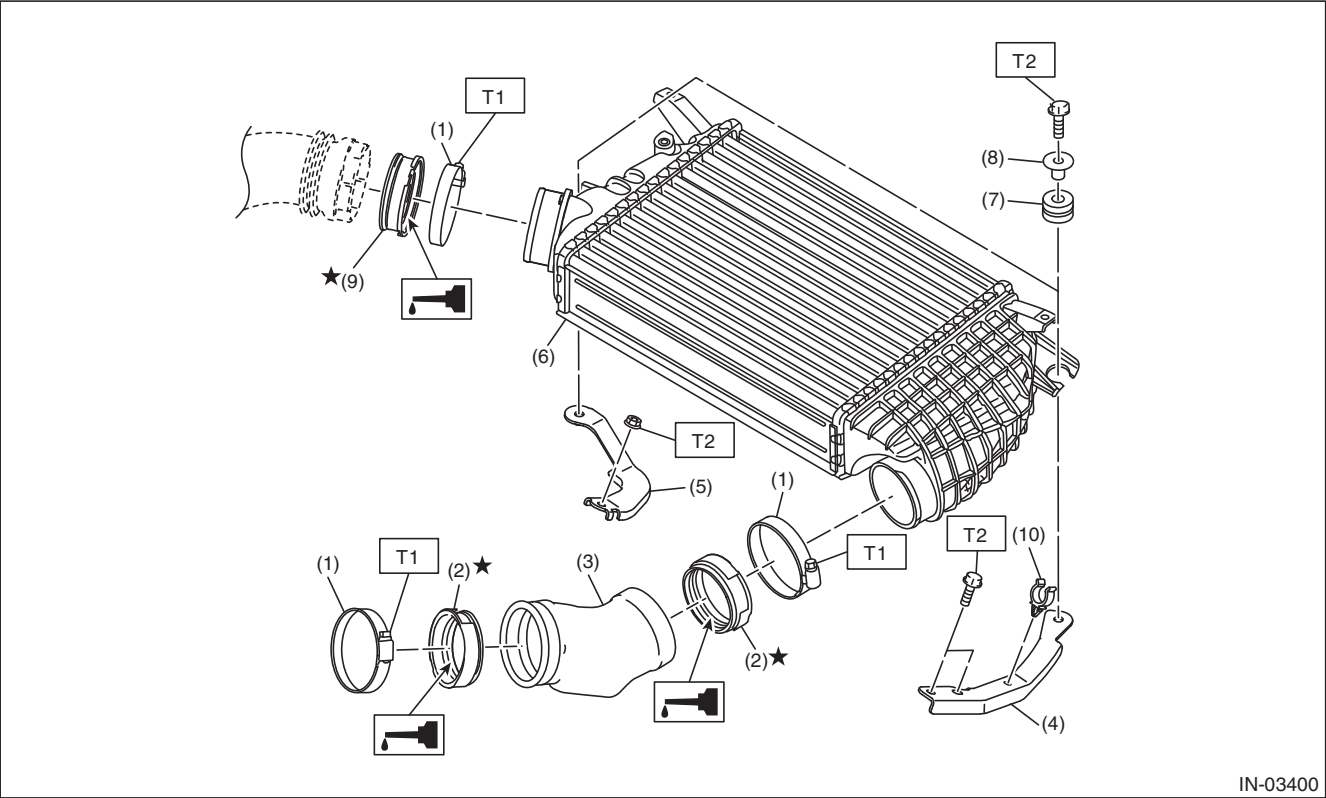
- | | |
|--------------------------------------|------------------------|
| (1) Intake duct No. 1 | (7) Air by-pass valve |
| (2) O-ring | (8) Clamp |
| (3) O-ring | (9) O-ring |
| (4) Wastegate control solenoid valve | (10) Intake duct No. 2 |
| (5) Vacuum control hose | (11) Cushion |
| (6) Clip | |

Tightening torque: N·m (kgf-m, ft-lb)	
T1:	2.8 (0.3, 2.1)
T2:	3 (0.3, 2.2)
T3:	6.4 (0.7, 4.7)
T4:	16 (1.6, 11.8)

General Description

INTAKE (INDUCTION)

3. INTAKE DUCT AND INTERCOOLER



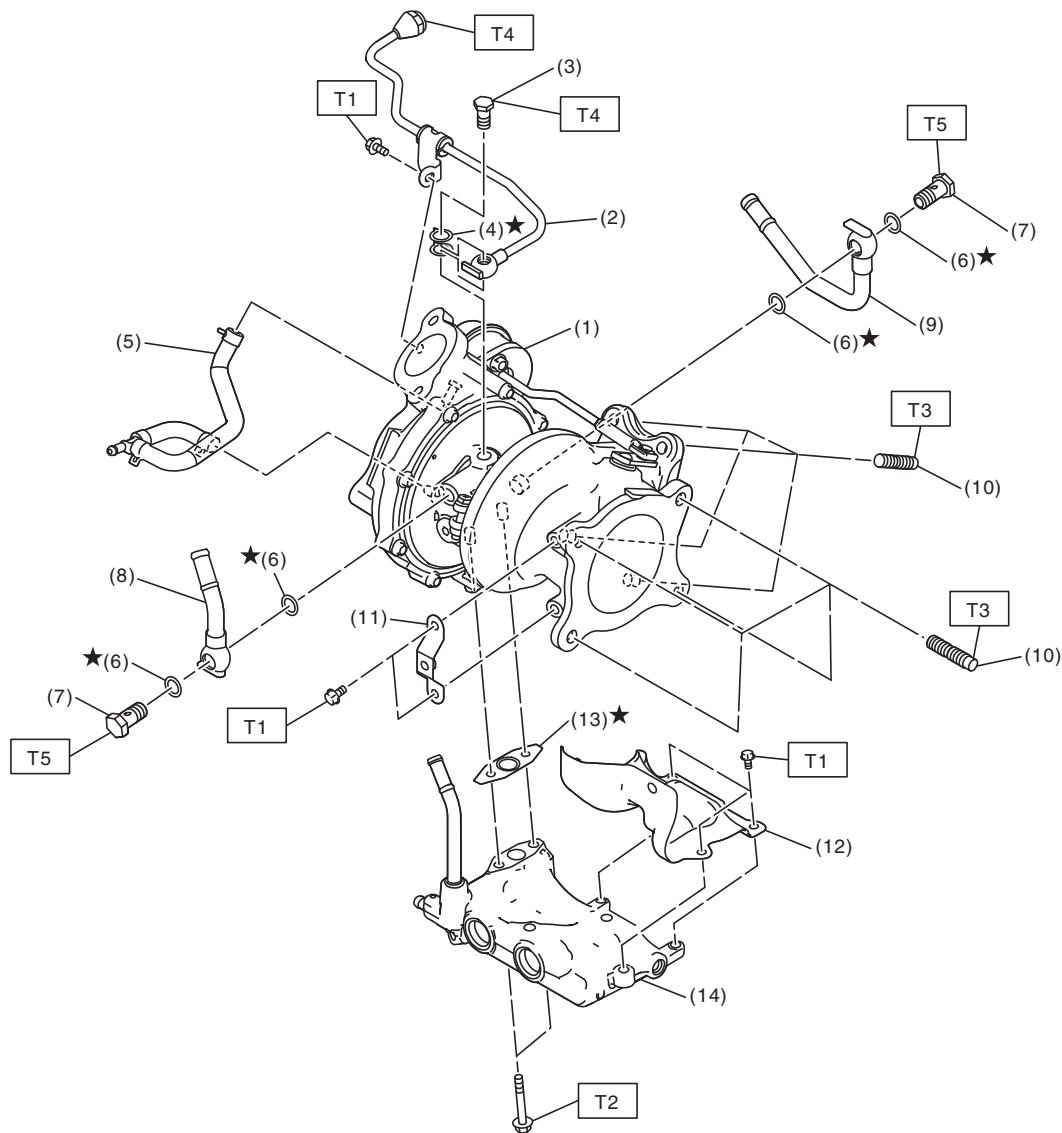
- | | |
|-------------------------|-----------------|
| (1) Clamp | (6) Intercooler |
| (2) Insulator | (7) Cushion |
| (3) Intake duct No. 3 | (8) Spacer |
| (4) Intercooler stay LH | (9) Insulator |
| (5) Intercooler stay RH | (10) Clip |

Tightening torque: N·m (kgf·m, ft·lb)
T1: 3 (0.3, 2.2)
T2: 16 (1.6, 11.8)

General Description

INTAKE (INDUCTION)

4. TURBOCHARGER



IN-03211

- | | |
|---------------------------|-------------------------|
| (1) Turbocharger | (8) Turbocharger pipe A |
| (2) Union screw pipe ASSY | (9) Turbocharger pipe B |
| (3) Union bolt | (10) Stud bolt |
| (4) Gasket | (11) Exhaust stay |
| (5) Air control hose ASSY | (12) Exhaust cover |
| (6) Gasket | (13) Gasket |
| (7) Union bolt | (14) Oil catch tank |

Tightening torque: N·m (kgf-m, ft-lb)

T1: 6.4 (0.7, 4.7)

T2: 10.5 (1.1, 7.7)

T3: 14.7 (1.5, 10.8)

T4: 16 (1.6, 11.8)

T5: 31.5 (3.2, 23.2)

IN(H4DOTC)-5



General Description

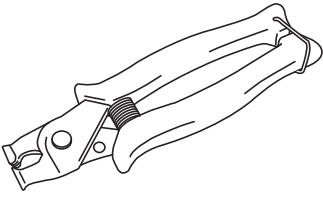
INTAKE (INDUCTION)

B: CAUTION

- Prior to starting work, pay special attention to the following:
 1. Always wear work clothes, a safety cap, protective shoes. Additionally, wear a helmet, protective goggles, etc. if necessary.
 2. Protect the vehicle using a seat cover, fender cover, etc.
 3. Prepare the service tools, clean cloth, containers to catch grease and oil, etc.
- Vehicle components are extremely hot immediately after driving. Be wary of receiving burns from heated parts.
- When performing a repair, identify the cause of trouble and avoid unnecessary removal, disassembly and replacement.
- Before disconnecting connectors of sensors or units, be sure to disconnect the ground cable from battery.
- Always use the jack-up point when the shop jacks or rigid racks are used to support the vehicle.
- Remove contamination including dirt and corrosion before removal, installation, disassembly or assembly.
- Keep the removed parts in order and protect them from dust and dirt.
- All removed parts, if to be reused, should be reinstalled in the original positions with attention to the correct directions, etc.
- Bolts, nuts and washers should be replaced with new parts as required.
- Be sure to tighten the fasteners including bolts and nuts to the specified torque.

C: PREPARATION TOOL

1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST18353AA000	18353AA000	CLAMP PLIERS	• Used for removing and installing the PCV hose assembly. • This tool is made by the French company CAILLAU. (code) 54.0.000.205 To make it easier to obtain, it has been provided with a tool number.

2. GENERAL TOOL

TOOL NAME	REMARKS
TORX® socket E10	Used for disassembling and assembling the turbocharger.
Mighty Vac	Used for checking waste gate actuator and air by-pass valve.

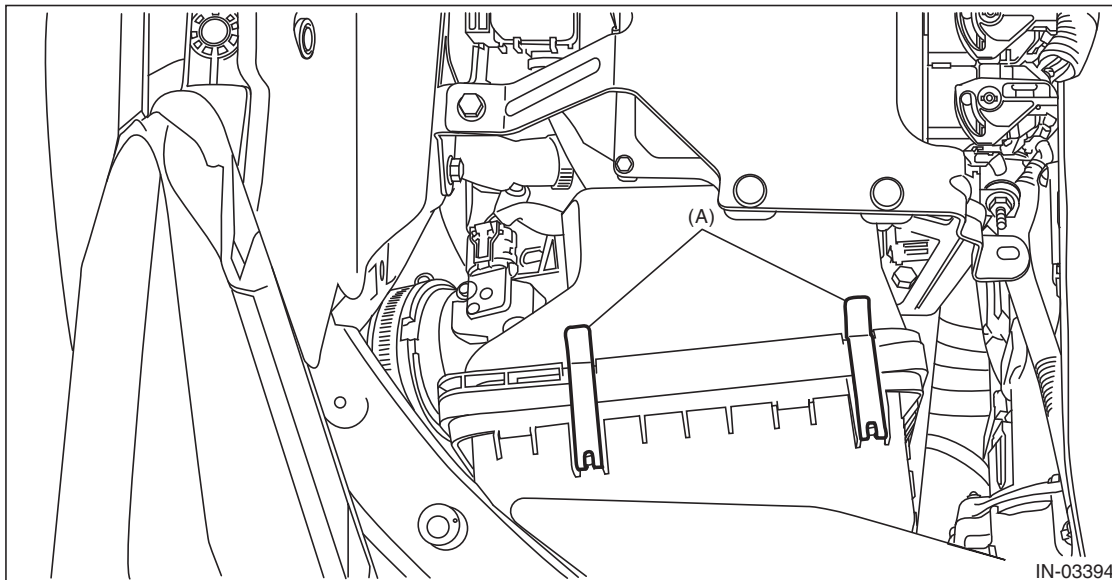
Air Cleaner Element

INTAKE (INDUCTION)

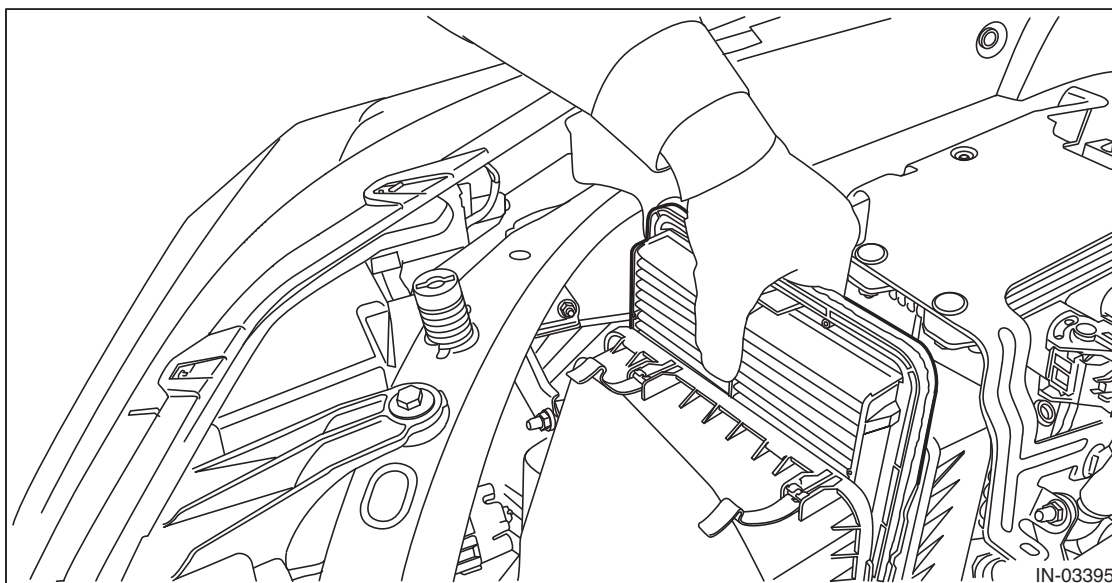
2. Air Cleaner Element

A: REMOVAL

- 1) Remove the clip (A) from the air cleaner case (rear).



- 2) Open the air cleaner case, and remove the air cleaner element.



Air Cleaner Element

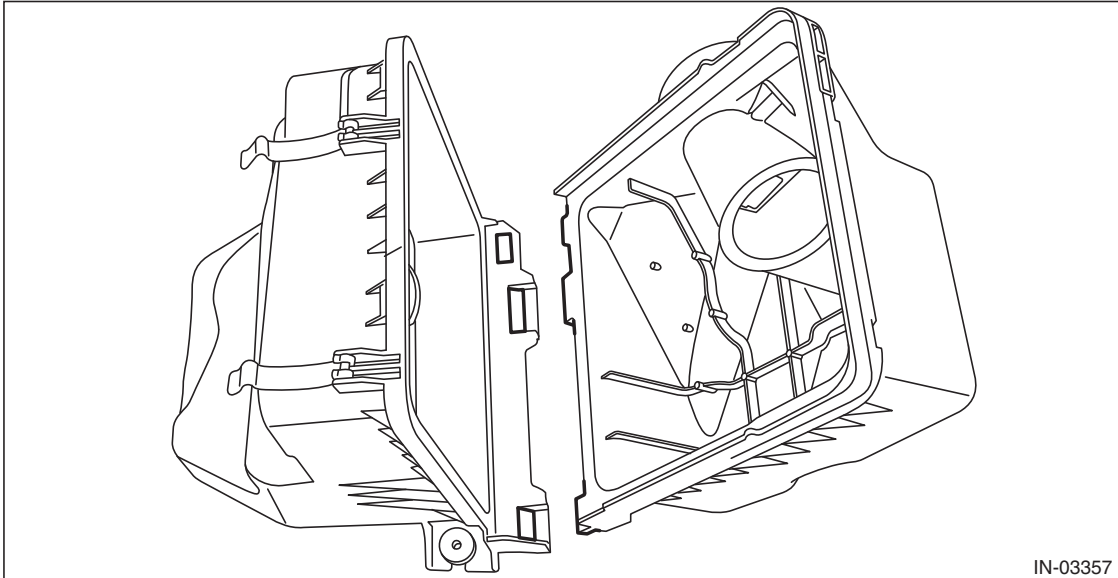
INTAKE (INDUCTION)

B: INSTALLATION

Install in the reverse order of removal.

NOTE:

- Be sure to use SUBARU genuine air cleaner element depending on the engine type when replacing the air cleaner elements. Using other air cleaner element may affect the engine performance.
- Check that there are no foreign objects in the air cleaner case.
- If the protrusion of the air cleaner case (rear) is removed when removing the air cleaner element, align the protrusion of the air cleaner case (rear) to the hole on the air cleaner case (front) to install.



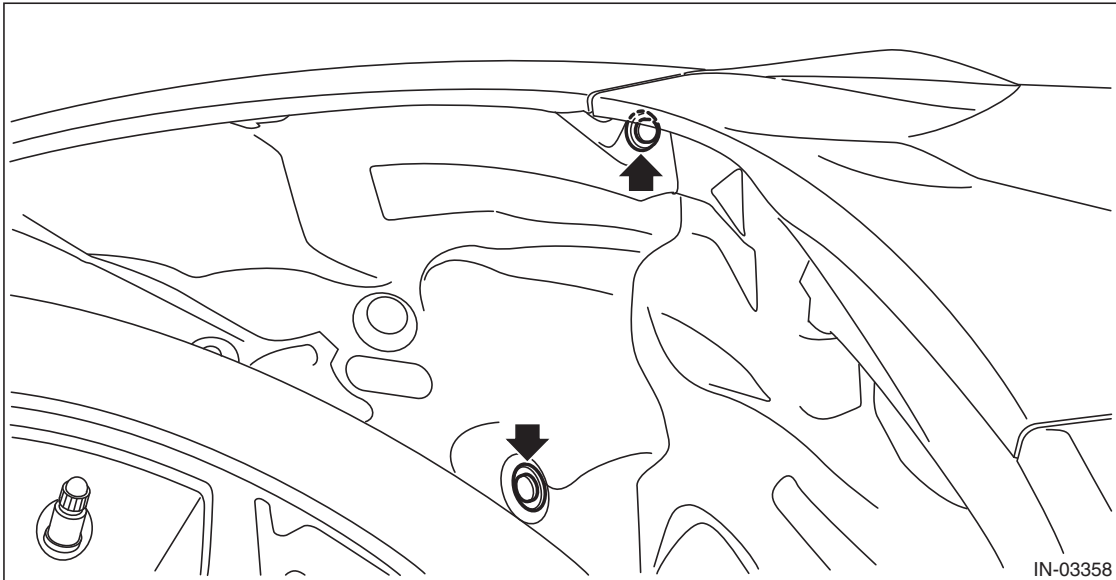
C: INSPECTION

- 1) Check that the air cleaner element has no deformation, cracks or other damages.
- 2) Check the air cleaner element for excessive dirt.

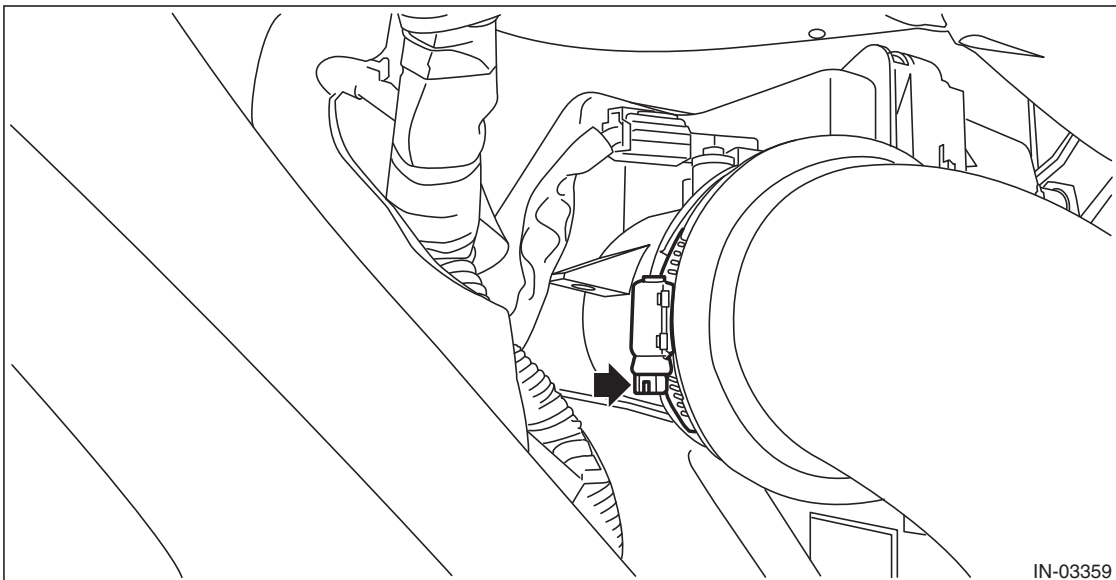
3. Air Cleaner Case

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the air intake duct (rear). <Ref. to IN(H4DOTC)-19, REMOVAL, Air Intake Duct.>
- 3) Remove the engine control module (ECM). <Ref. to FU(H4DOTC)-134, REMOVAL, Engine Control Module (ECM).>
- 4) Remove the clips (2 places) which secure the front mud guard RH to the vehicle.



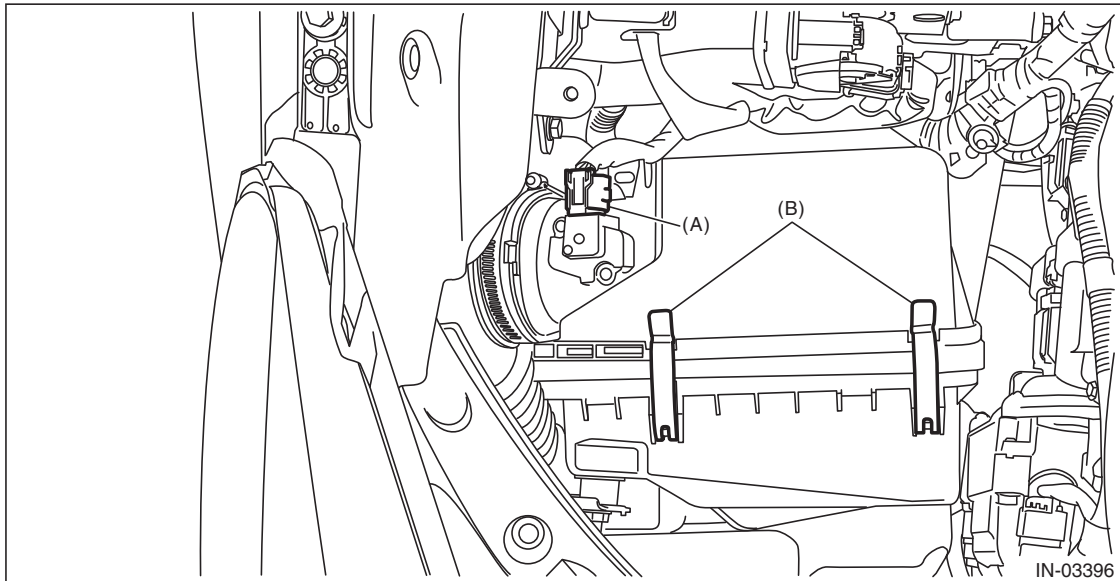
- 5) Turn over the front mud guard RH, and loosen the clamp which secures the air intake boot to the air cleaner case (rear).



Air Cleaner Case

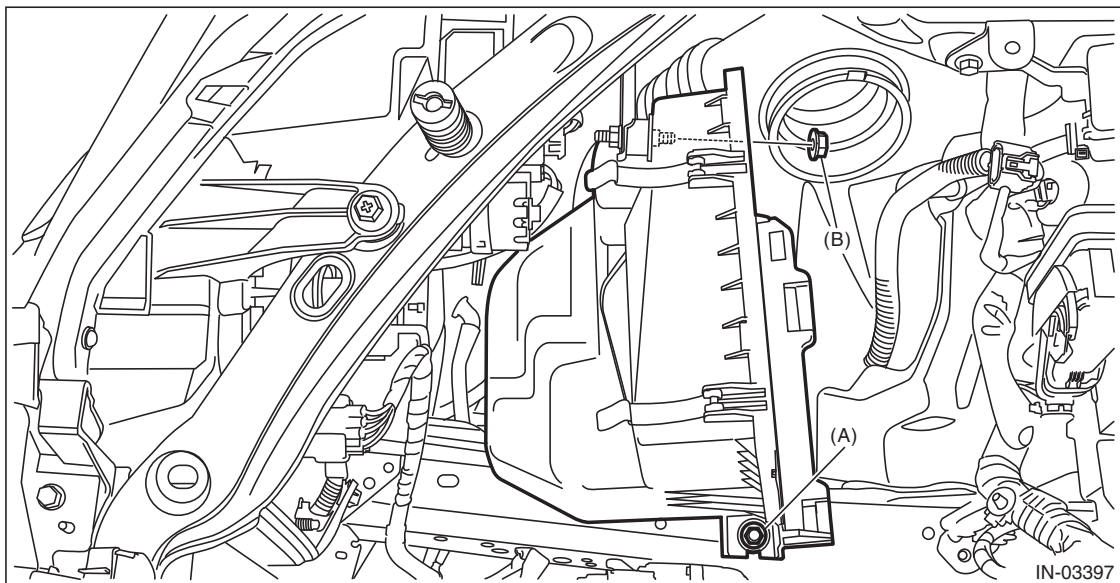
INTAKE (INDUCTION)

6) Disconnect the connector (A) from the mass air flow and intake air temperature sensor, and remove the clip (B) from the air cleaner case (rear).



7) Remove the air cleaner case (rear) and air cleaner element.

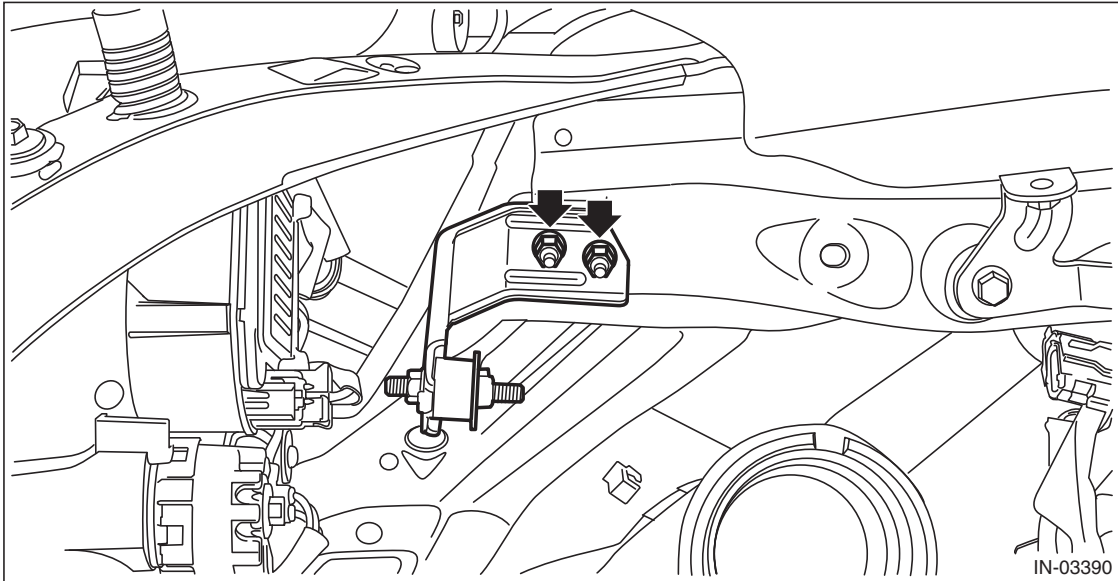
8) Remove bolts (A) and nuts (B) which secure the air cleaner case (front) to the body and air cleaner case bracket, and remove the air cleaner case (front).



Air Cleaner Case

INTAKE (INDUCTION)

- 9) Remove the air cleaner case bracket from the vehicle.

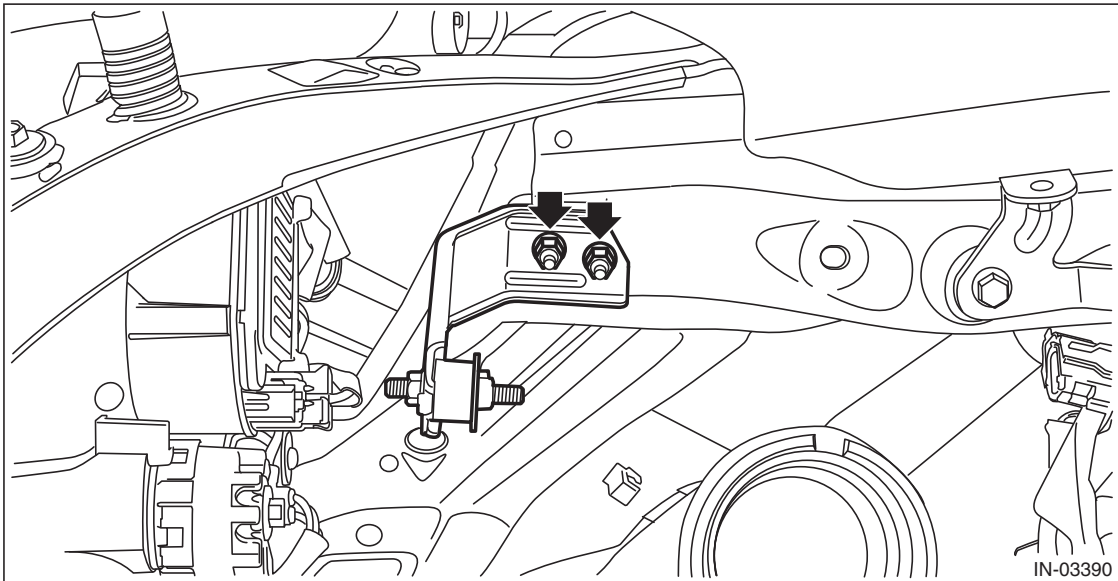


B: INSTALLATION

- 1) Install the air cleaner case bracket to the vehicle.

Tightening torque:

7.5 N·m (0.8 kgf-m, 5.5 ft-lb)



Air Cleaner Case

INTAKE (INDUCTION)

2) Install the bolt (A) and nut (B) which secure the air cleaner case (front) to the vehicle and to the air cleaner case bracket.

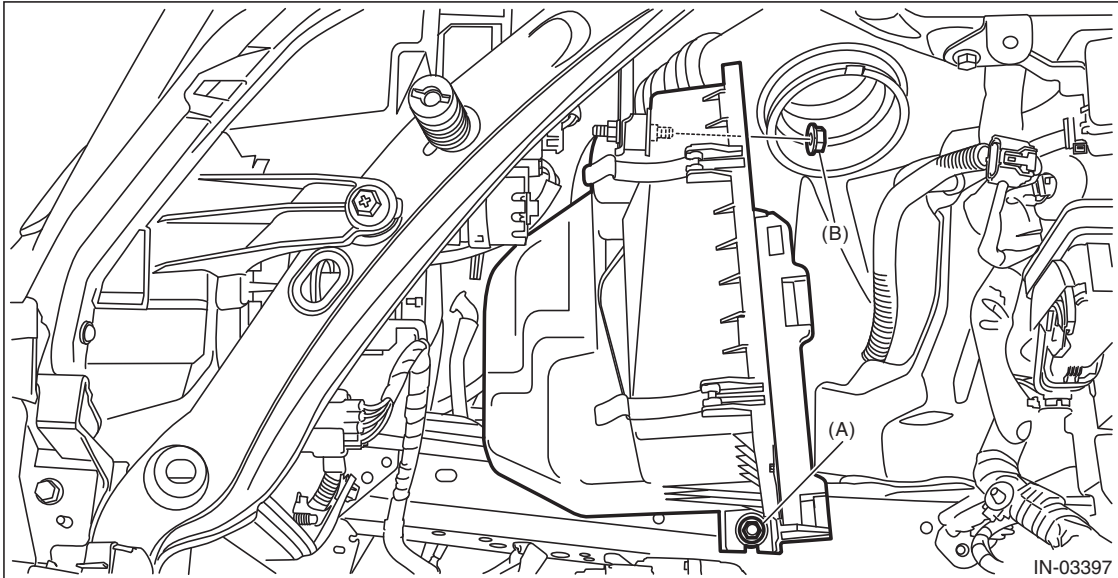
Tightening torque:

Bolt (A)

6 N·m (0.6 kgf-m, 4.4 ft-lb)

Nut (B)

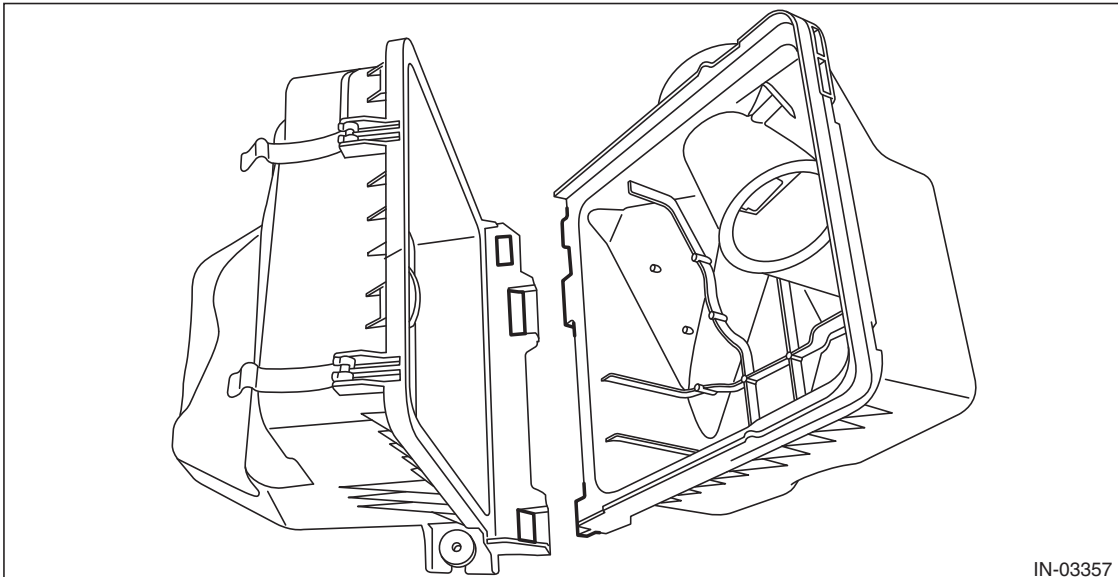
7.5 N·m (0.8 kgf-m, 5.5 ft-lb)



3) Set the air cleaner element to the air cleaner case (front), and install the air cleaner case (rear).

NOTE:

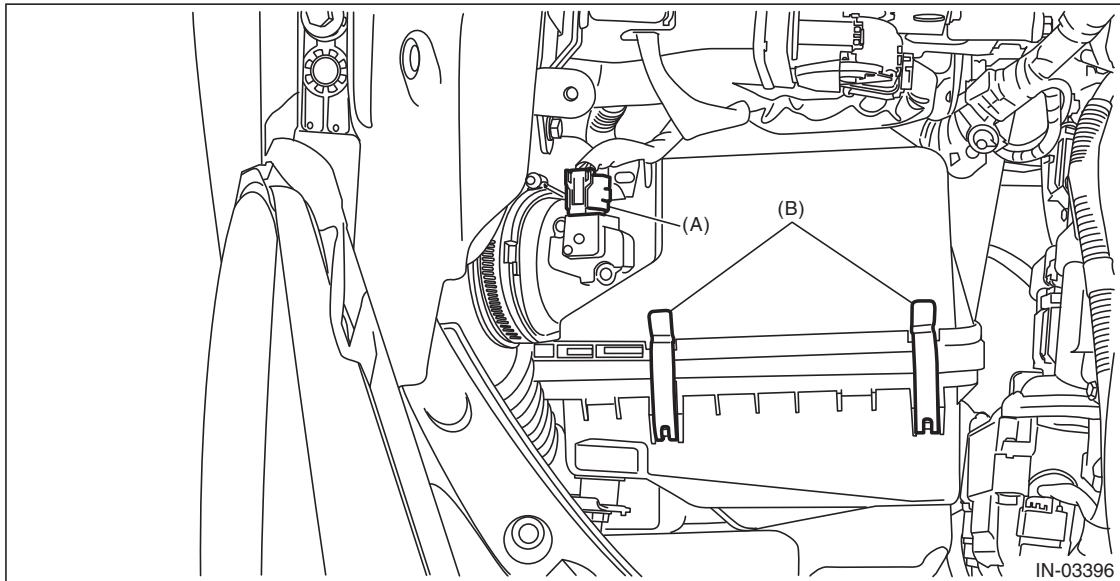
When installing the air cleaner case (rear), align the protrusion of the air cleaner case (rear) to the hole on the air cleaner case (front) to install.



Air Cleaner Case

INTAKE (INDUCTION)

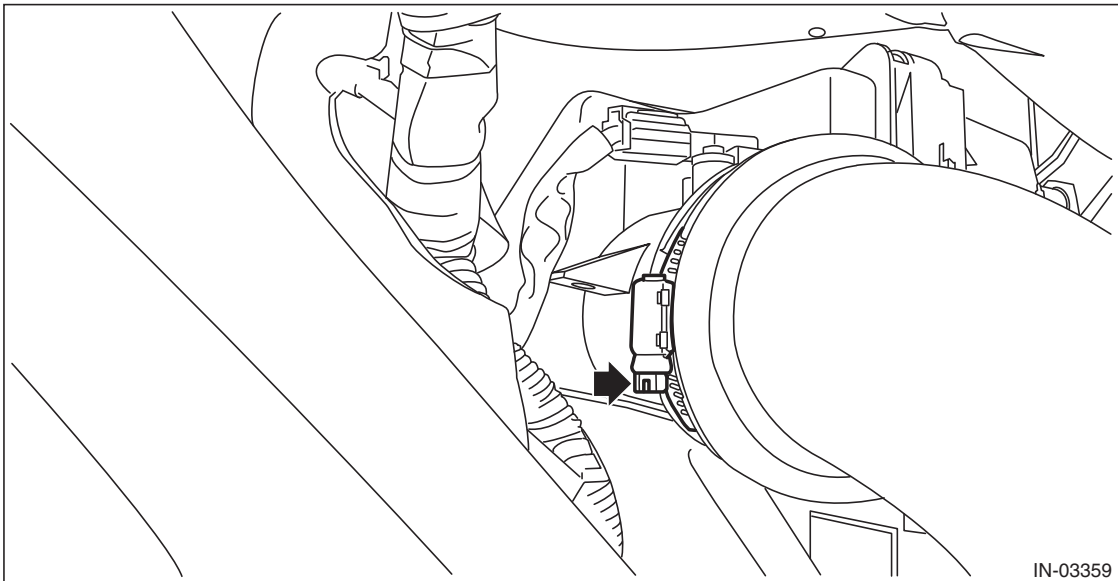
- 4) Install the clip (B) to the air cleaner case (rear), and connect the connector (A) to the mass air flow and intake air temperature sensor.



- 5) Tighten the clamp which secures the air intake boot to the air cleaner case (rear).

Tightening torque:

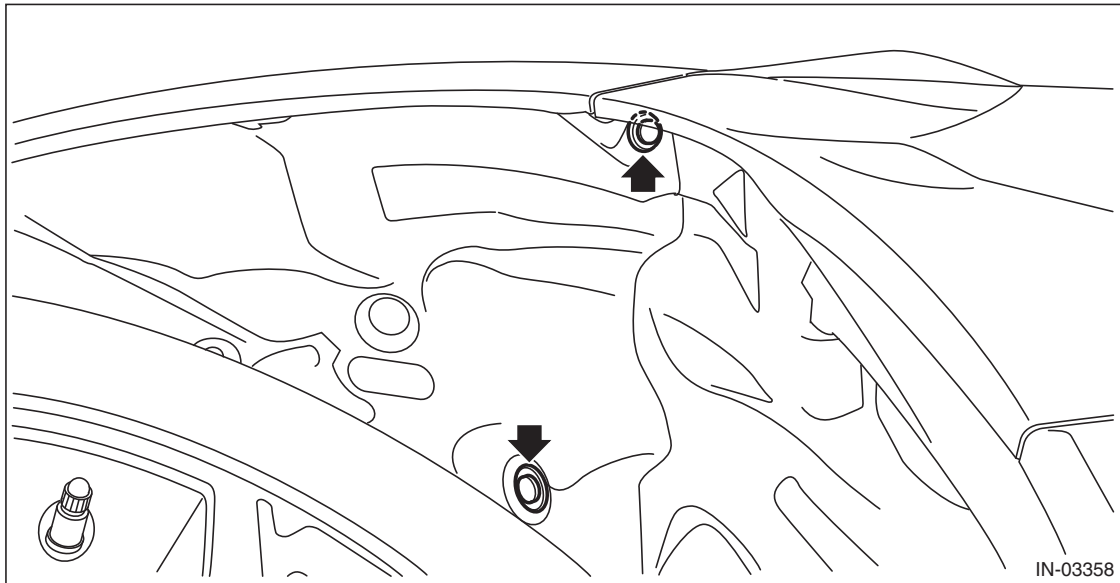
2.5 N·m (0.3 kgf-m, 1.8 ft-lb)



Air Cleaner Case

INTAKE (INDUCTION)

- 6) Set the front mud guard RH to the vehicle, and install the clips which secure the front mud guard RH.



- 7) Install the engine control module (ECM). <Ref. to FU(H4DOTC)-136, INSTALLATION, Engine Control Module (ECM).>
8) Install the air intake duct (rear). <Ref. to IN(H4DOTC)-19, INSTALLATION, Air Intake Duct.>
9) Connect the battery ground terminal.

C: INSPECTION

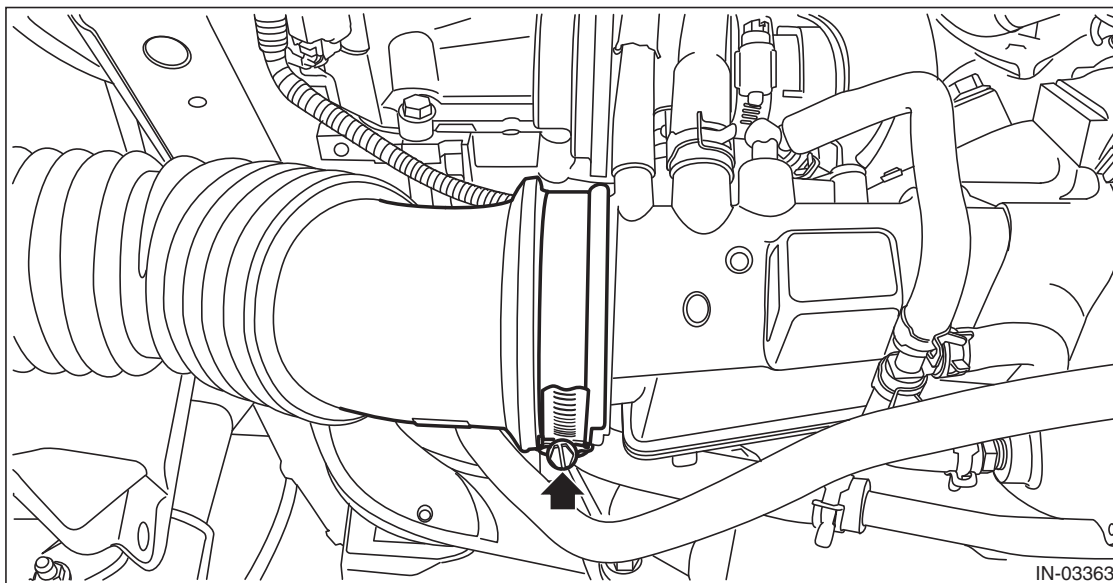
Check that the air cleaner case has no deformation, cracks or other damages.



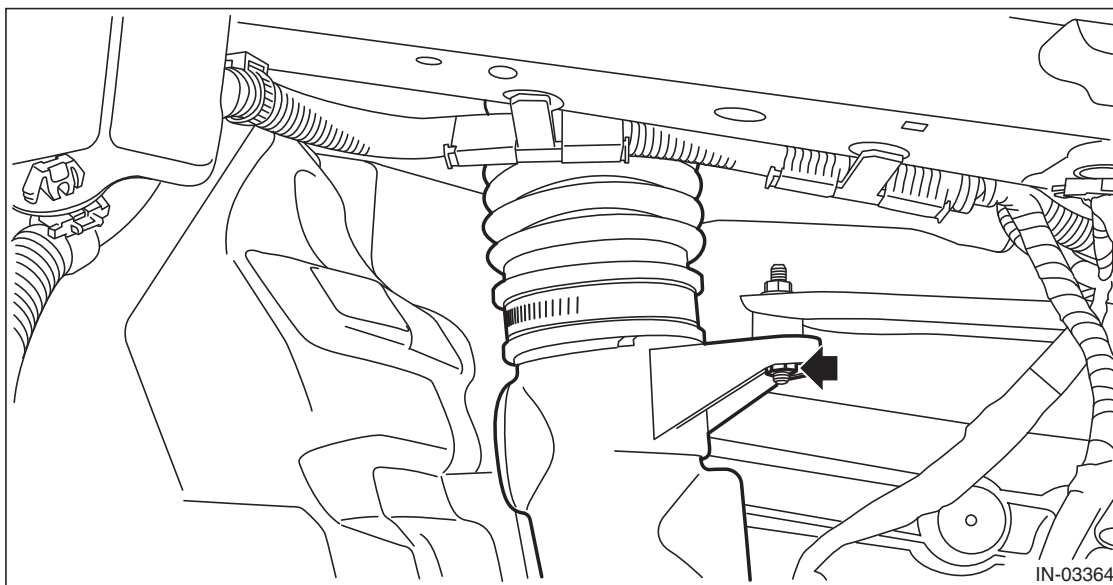
4. Air Intake Boot

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the air cleaner case. <Ref. to IN(H4DOTC)-9, REMOVAL, Air Cleaner Case.>
- 3) Lift up the vehicle.
- 4) Remove the under cover. <Ref. to EI-22, REMOVAL, Front Under Cover.>
- 5) Remove the air intake boot from the intake duct No. 1.



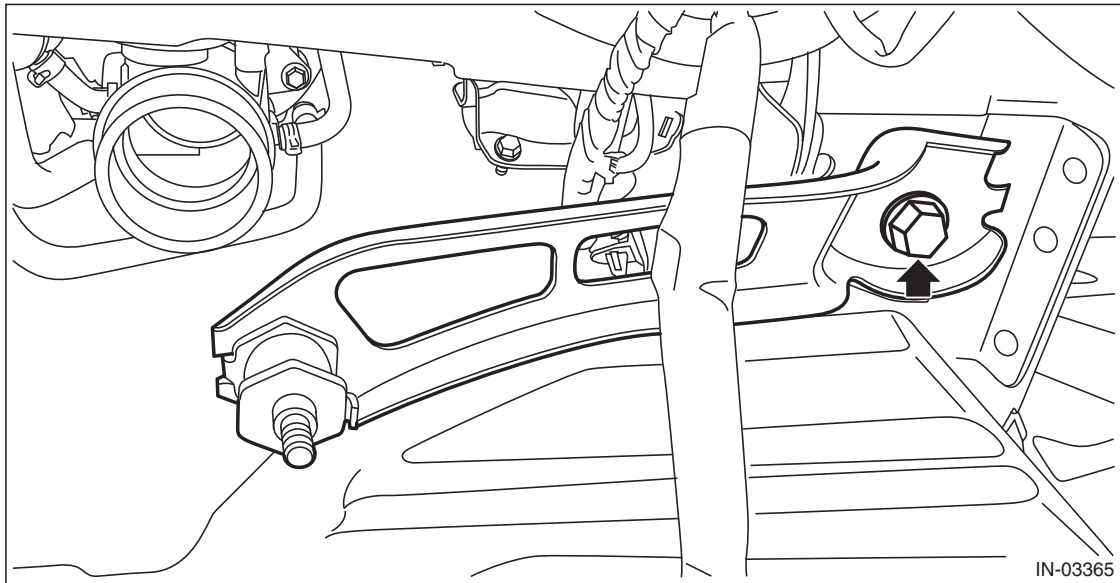
- 6) Lower the vehicle.
- 7) Remove the nuts which secure the turbo duct to the vehicle, and remove the air intake boot from the upper side of the vehicle together with the turbo duct.



Air Intake Boot

INTAKE (INDUCTION)

8) Remove the duct bracket from the vehicle.

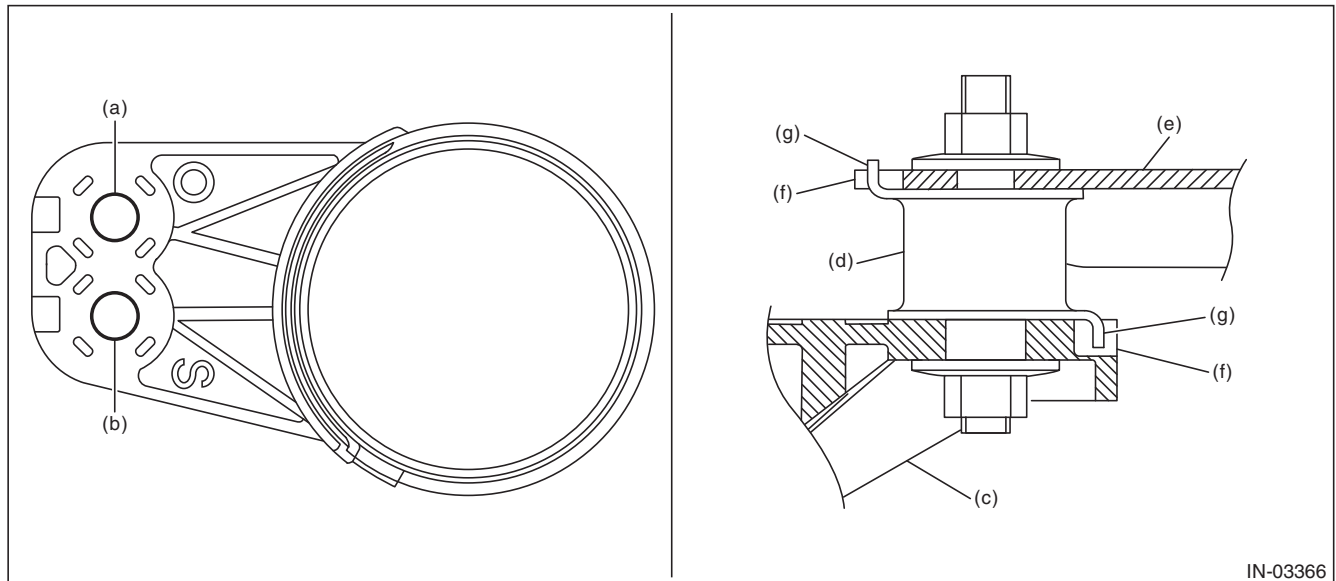


B: INSTALLATION

Install in the reverse order of removal.

NOTE:

When installing the air intake boot to the vehicle, pay attention to the mounting hole position, and align the protrusion for stopping rotation of cushion to the cutout portion on the turbo duct.



- (a) Attachment hole
- (b) Not used
- (c) Turbo duct

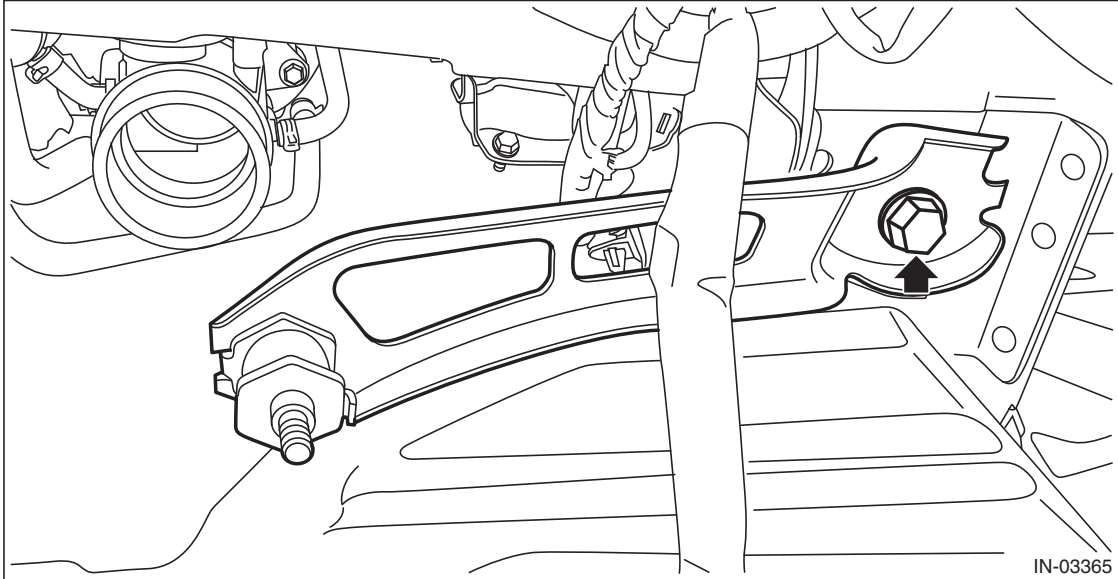
- (d) Cushion
- (e) Duct bracket
- (f) Cutout portion

- (g) Protrusion portion

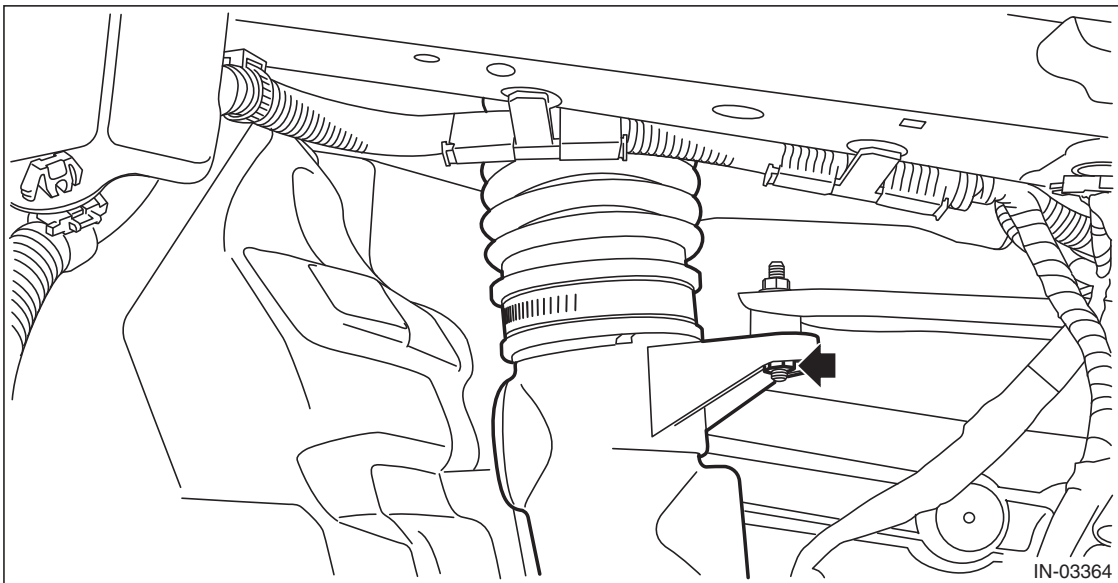
Air Intake Boot

INTAKE (INDUCTION)

Tightening torque:
18 N·m (1.8 kgf-m, 13.3 ft-lb)



Tightening torque:
7.5 N·m (0.8 kgf-m, 5.5 ft-lb)

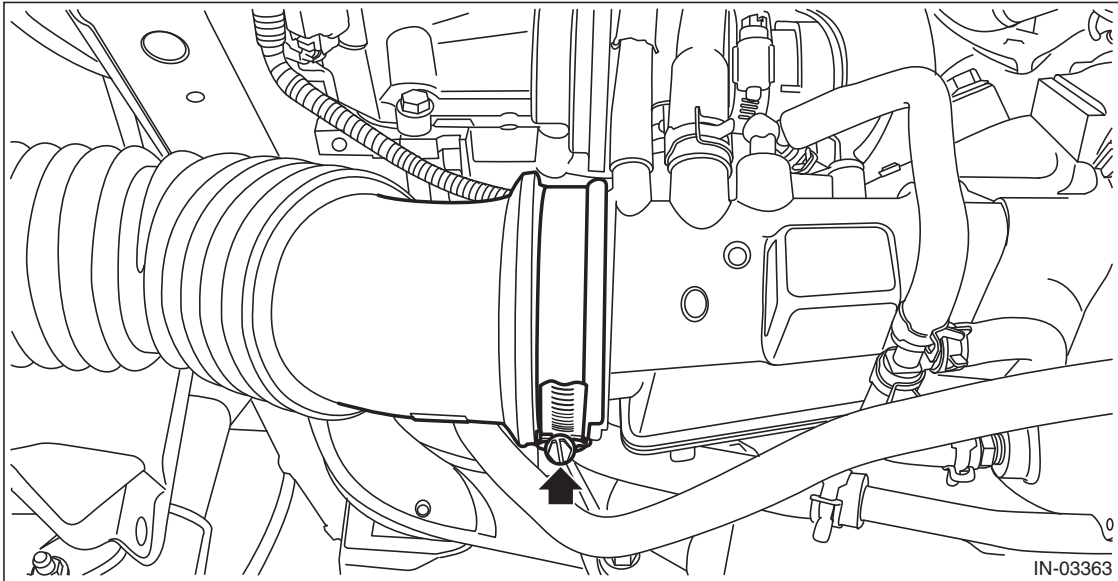


Air Intake Boot

INTAKE (INDUCTION)

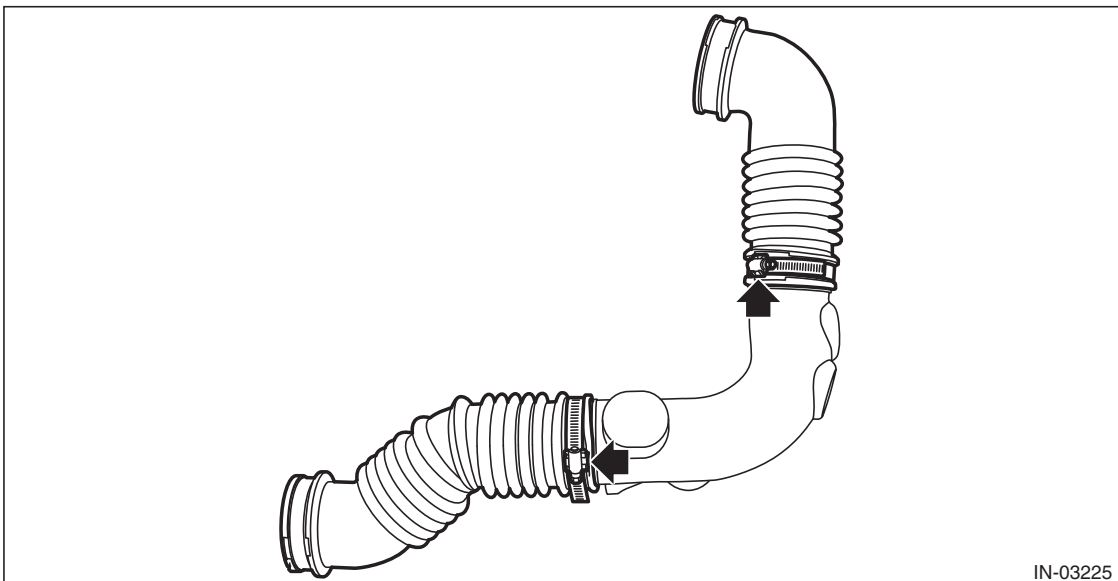
Tightening torque:

2.5 N·m (0.3 kgf-m, 1.8 ft-lb)



C: DISASSEMBLY

Remove the air intake boot from the turbo duct.



D: ASSEMBLY

Assemble in the reverse order of disassembly.

Tightening torque:

2.5 N·m (0.3 kgf-m, 1.8 ft-lb)

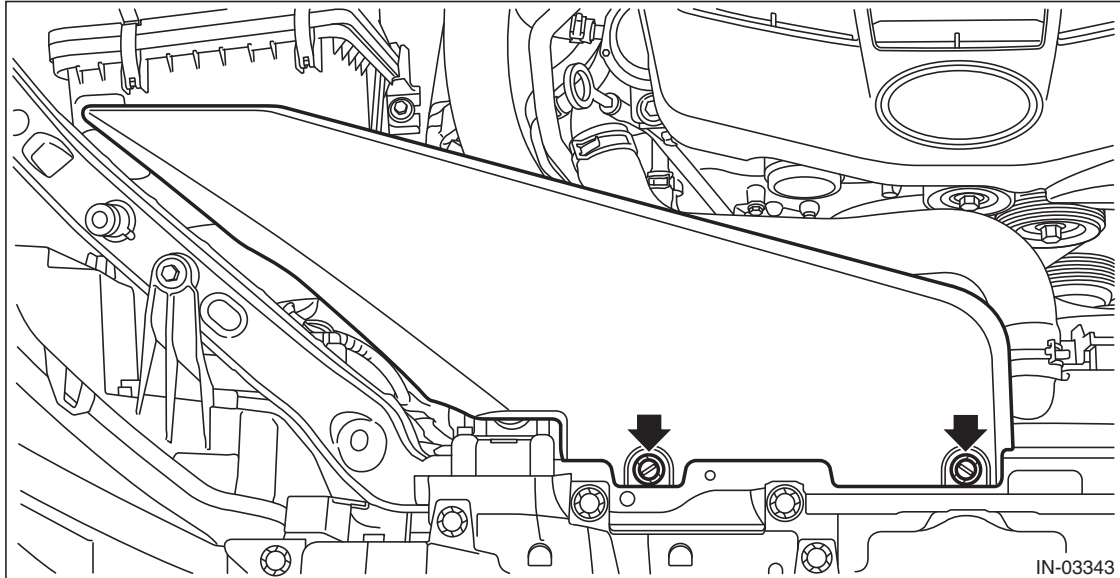
E: INSPECTION

Check that the air intake boot and turbo duct have no cracks, damage or loose part.

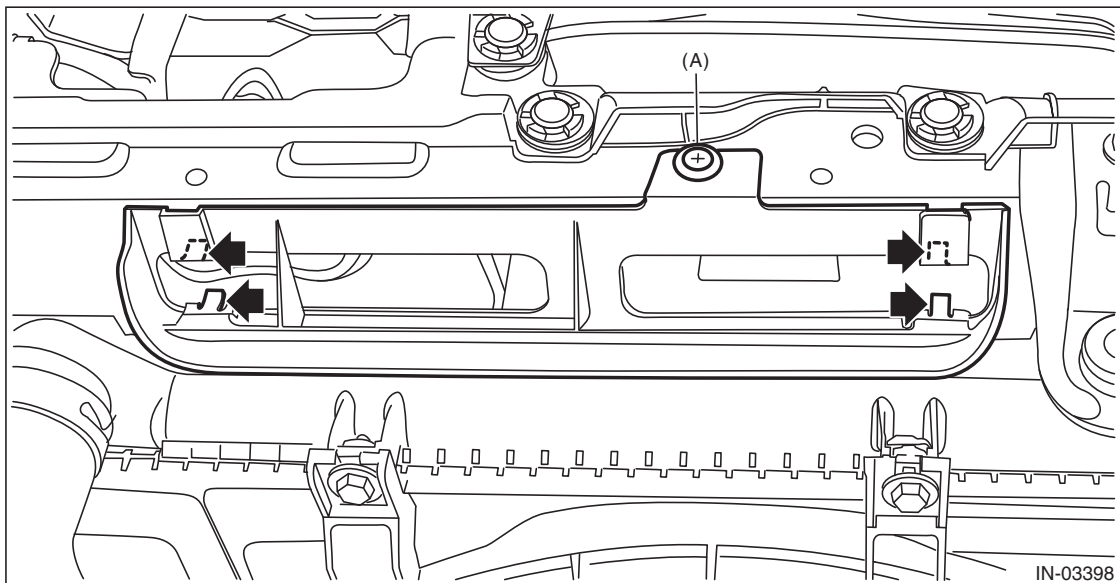
5. Air Intake Duct

A: REMOVAL

- 1) Remove the clip which secures air intake duct (rear), and remove the air intake duct (rear).



- 2) Remove the clip (A) and four claws and then remove the air intake duct (front).



B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

- 1) Check that the air intake duct has no deformation, cracks or other damages.
- 2) Inspect that no foreign objects are mixed in the air intake duct.

Intake Duct

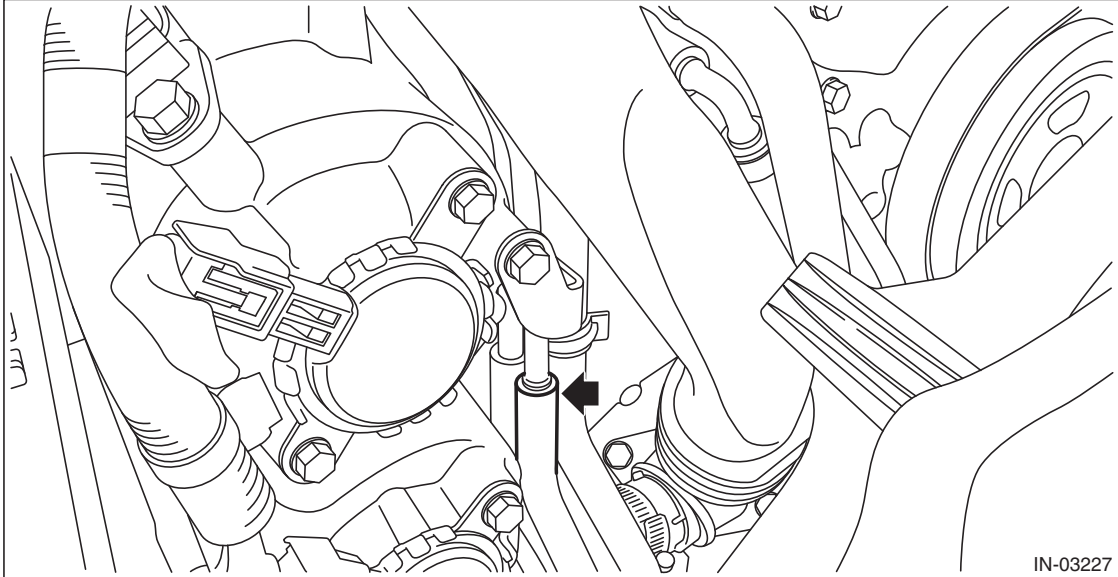
INTAKE (INDUCTION)

6. Intake Duct

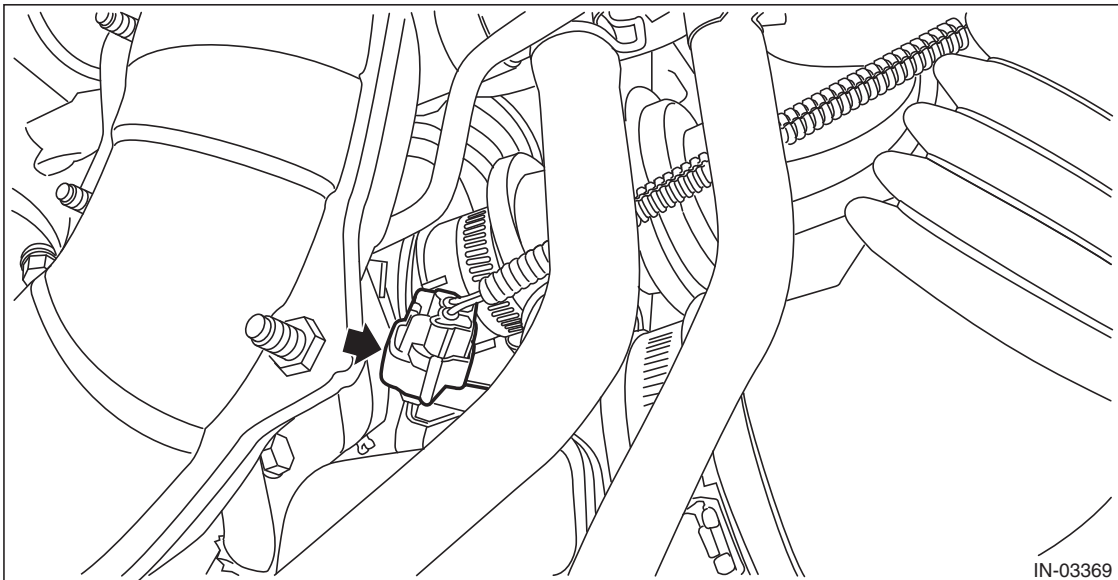
A: REMOVAL

1. INTAKE DUCT NO. 1

- 1) Disconnect the ground cable from battery.
- 2) Remove the air intake duct (rear). <Ref. to IN(H4DOTC)-19, REMOVAL, Air Intake Duct.>
- 3) Disconnect the vacuum hose from vacuum pipe.



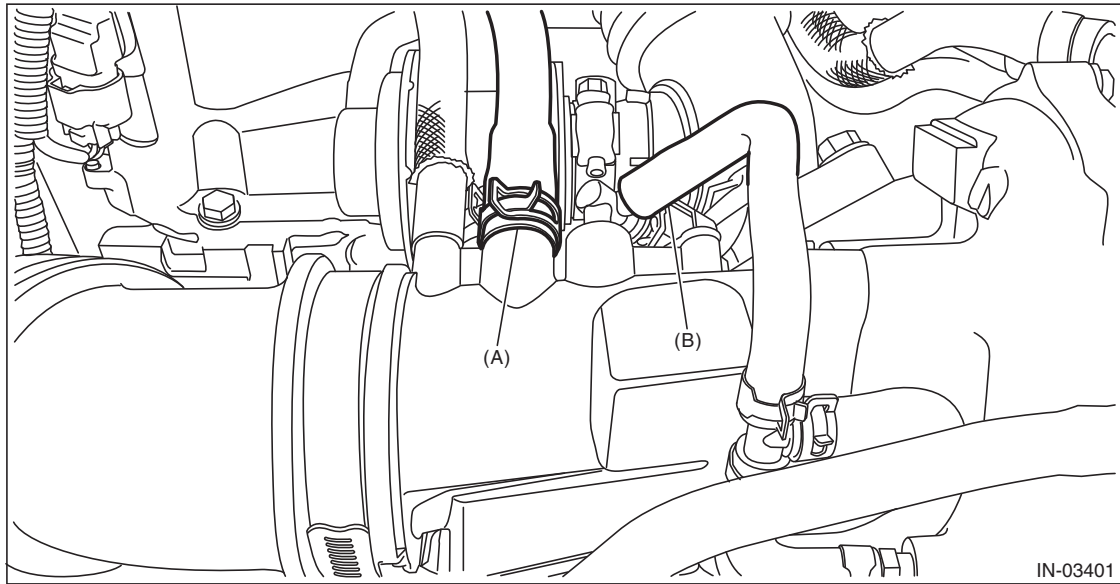
- 4) Lift up the vehicle.
- 5) Remove the under cover. <Ref. to EI-22, REMOVAL, Front Under Cover.>
- 6) Disconnect the connector from the wastegate control solenoid valve.



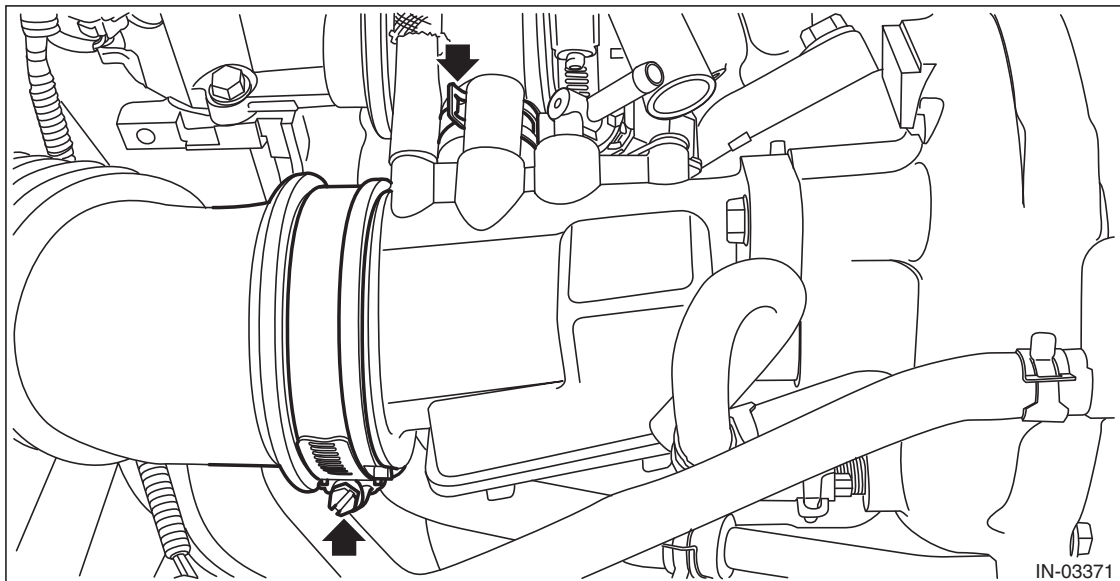
Intake Duct

INTAKE (INDUCTION)

7) Disconnect the PCV pipe (A) from the intake duct No. 1, and disconnect the vacuum control hose (B) from the wastegate control solenoid valve.



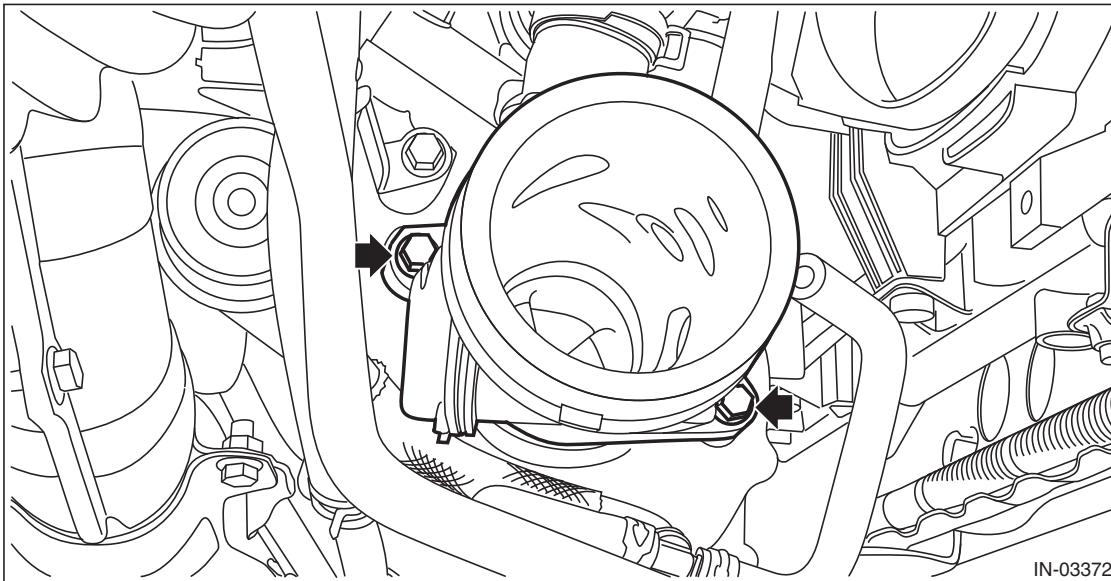
8) Remove the air intake boot from the intake duct No. 1, and disengage the clip which secures the air bypass valve to the intake duct No. 1.



Intake Duct

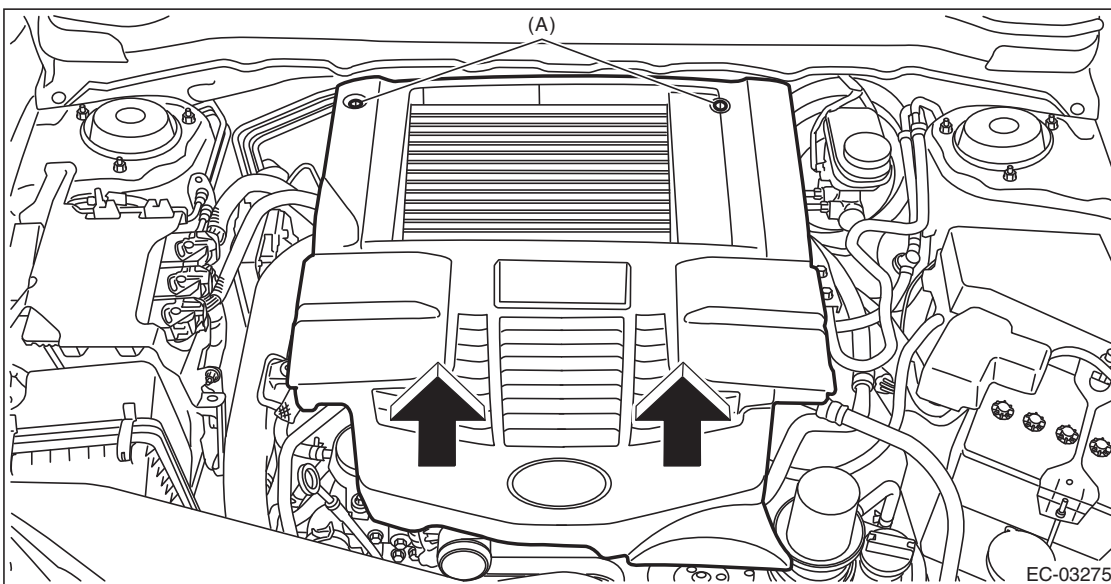
INTAKE (INDUCTION)

- 9) Remove the bolts which secure the intake duct No. 1 to the turbocharger, and remove the intake duct No. 1.



2. INTAKE DUCT NO. 2

- 1) Remove the clip (A), lift the front of the collector cover in the direction of arrow, and then remove the collector cover.

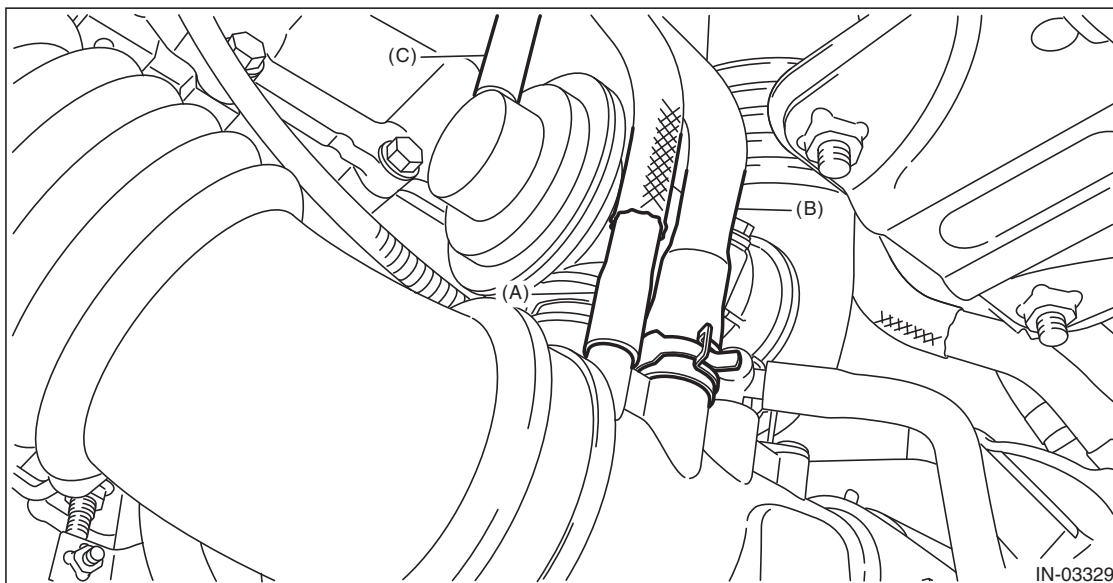


- 2) Disconnect the ground cable from battery.
3) Remove the air intake duct (rear). <Ref. to IN(H4DOTC)-19, REMOVAL, Air Intake Duct.>
4) Remove the intercooler. <Ref. to IN(H4DOTC)-35, REMOVAL, Intercooler.>
5) Remove the radiator sub fan and fan motor assembly. <Ref. to CO(H4DOTC)-55, REMOVAL, Radiator Sub Fan and Fan Motor.>
6) Lift up the vehicle.
7) Remove the under cover. <Ref. to EI-22, REMOVAL, Front Under Cover.>

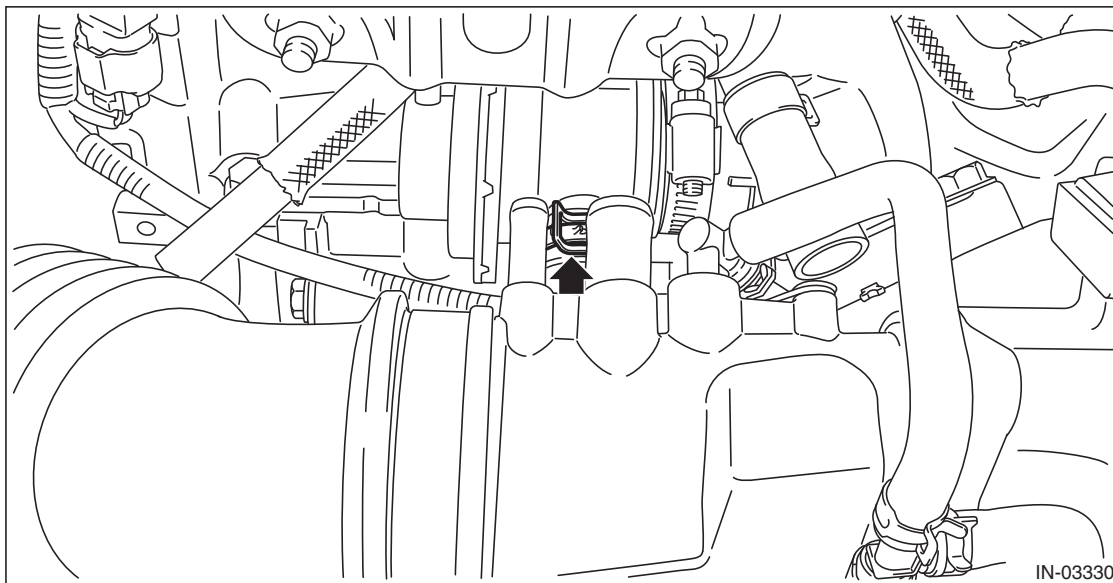
Intake Duct

INTAKE (INDUCTION)

8) Disconnect the PCV pipe (A) and vacuum hose (B) from the intake duct No. 1, and disconnect the vacuum hose (C) from the air by-pass valve.



9) Disengage the clip which secures the air by-pass valve to the intake duct No. 1.

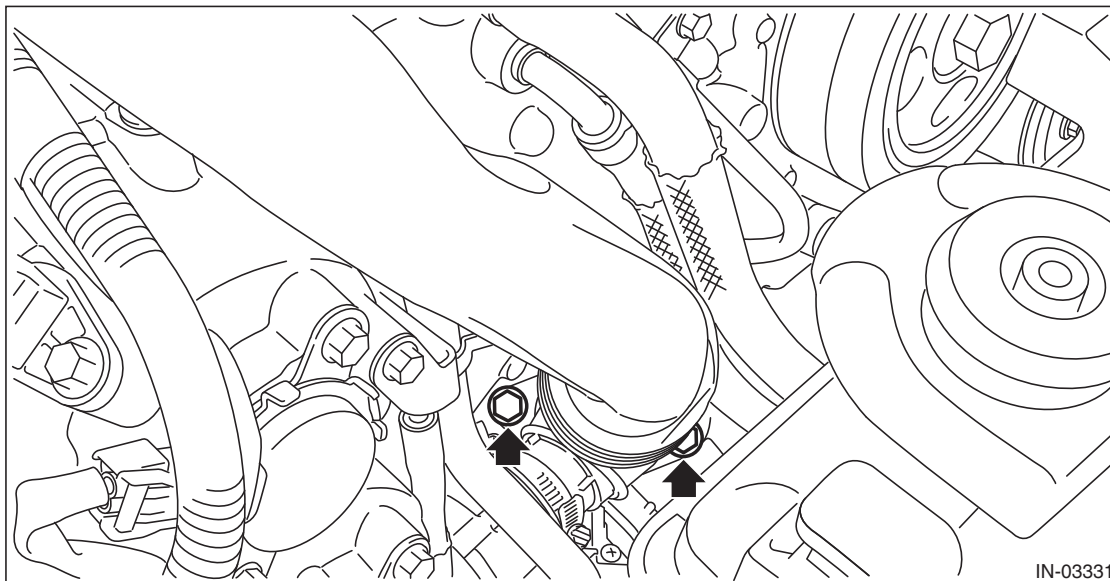


10) Lower the vehicle.

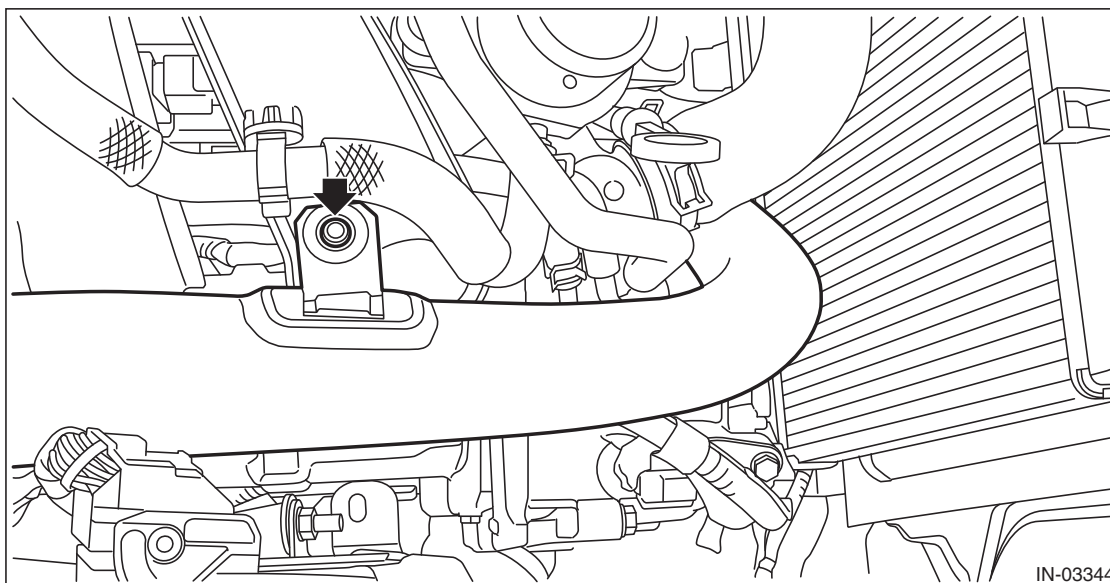
Intake Duct

INTAKE (INDUCTION)

11) Remove the bolts which secure the intake duct No. 2 to the turbocharger.



12) Pull out the air by-pass valve from the intake duct No. 1, and remove the intake duct No. 2 from the intake manifold.

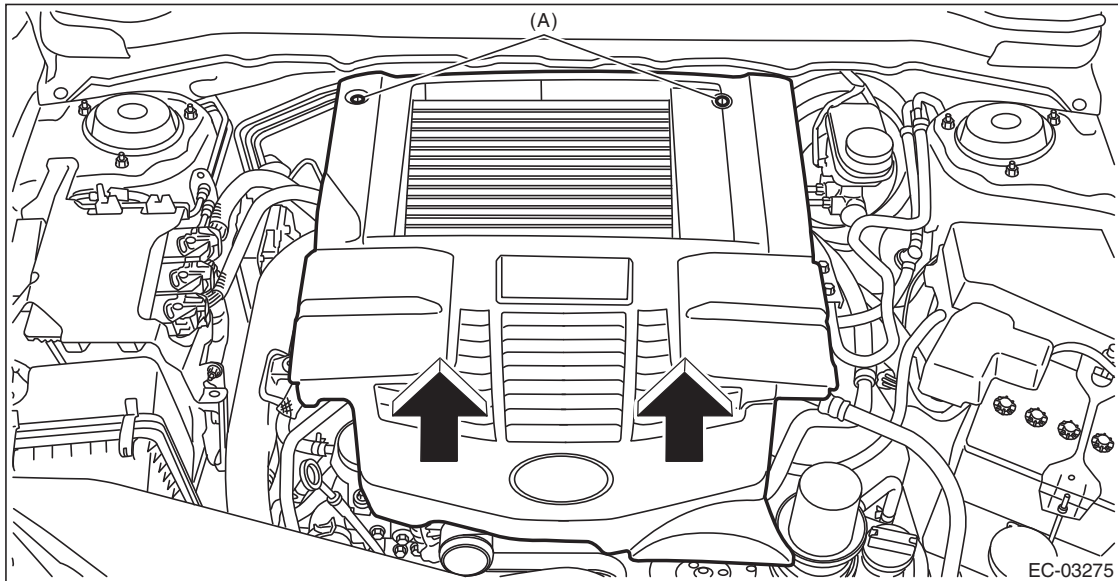


Intake Duct

INTAKE (INDUCTION)

3. INTAKE DUCT NO. 3

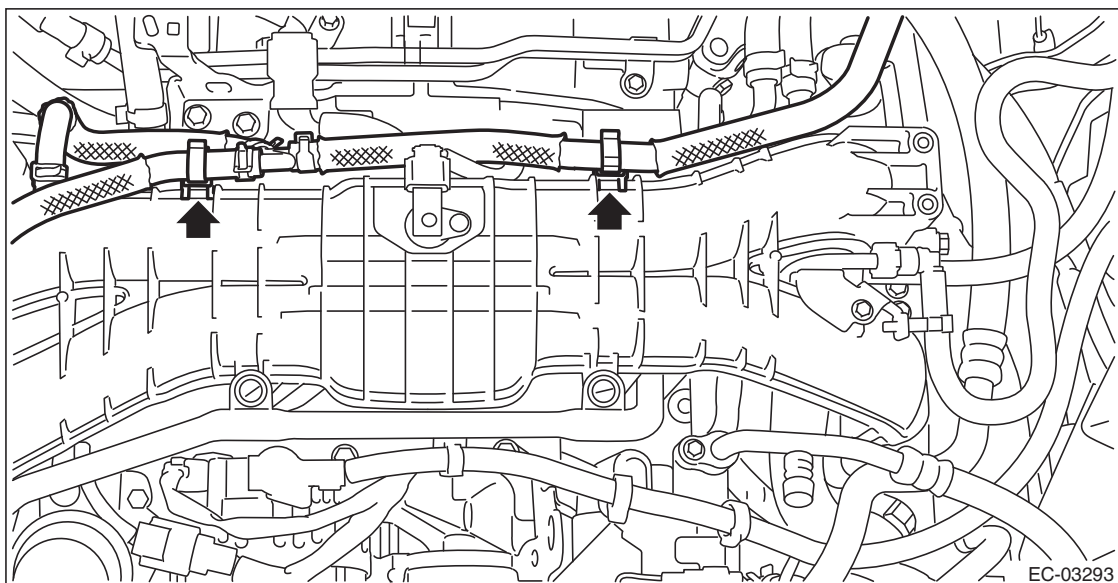
1) Remove the clip (A), lift the front of the collector cover in the direction of arrow, and then remove the collector cover.



2) Disconnect the ground cable from battery.

3) Remove the intercooler. <Ref. to IN(H4DOTC)-35, REMOVAL, Intercooler.>

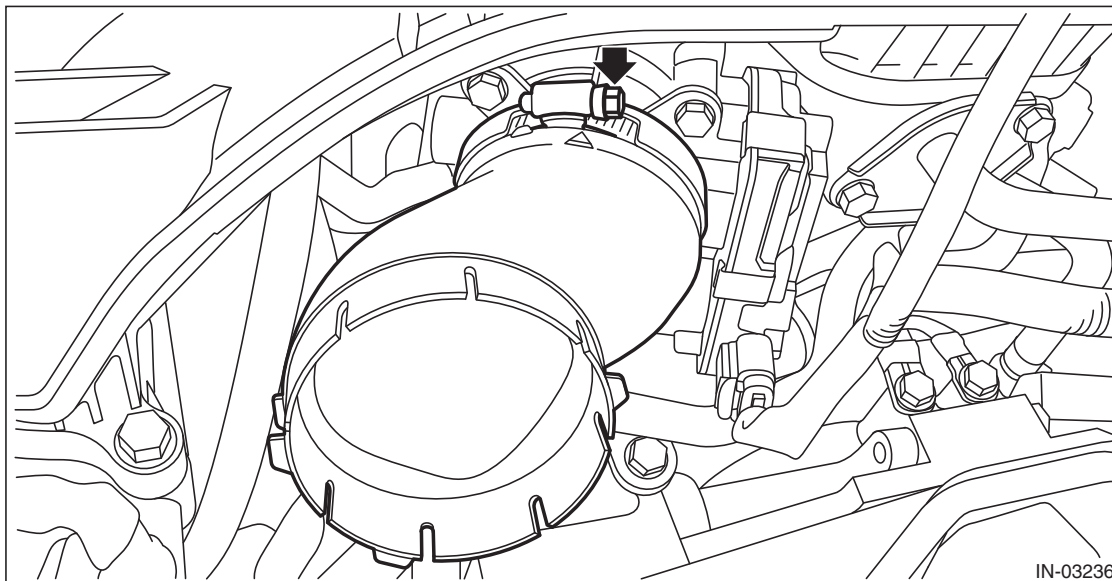
4) Remove the clip securing the brake booster vacuum hose to the intake manifold, and move the brake booster vacuum hose at the locations that do not interfere operation.



Intake Duct

INTAKE (INDUCTION)

5) Remove the intake duct No. 3 from the throttle body.



B: INSTALLATION

1. INTAKE DUCT NO. 1

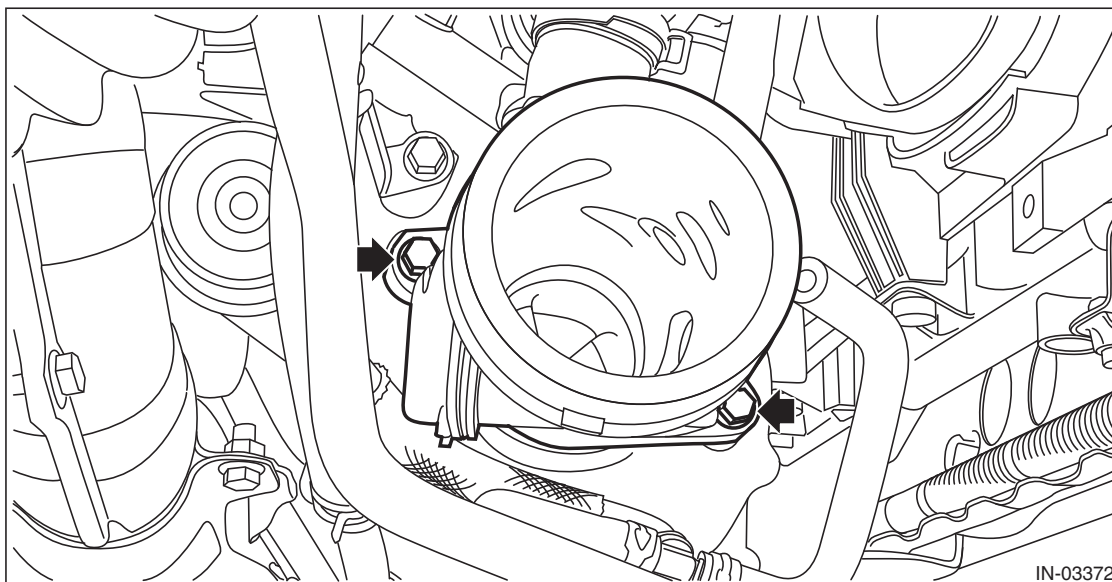
1) Install the intake duct No. 1 to the turbocharger.

NOTE:

- Use new O-rings.
- Be careful not to pinch the O-ring.
- Check that the air by-pass valve is firmly inserted into the intake duct No. 1.

Tightening torque:

6.4 N·m (0.7 kgf-m, 4.7 ft-lb)



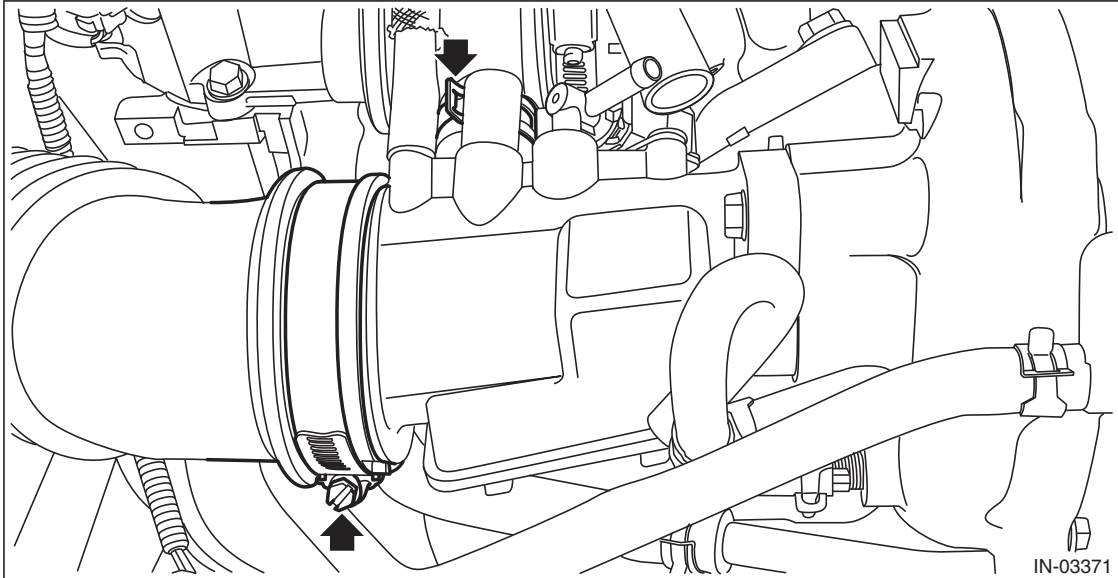
Intake Duct

INTAKE (INDUCTION)

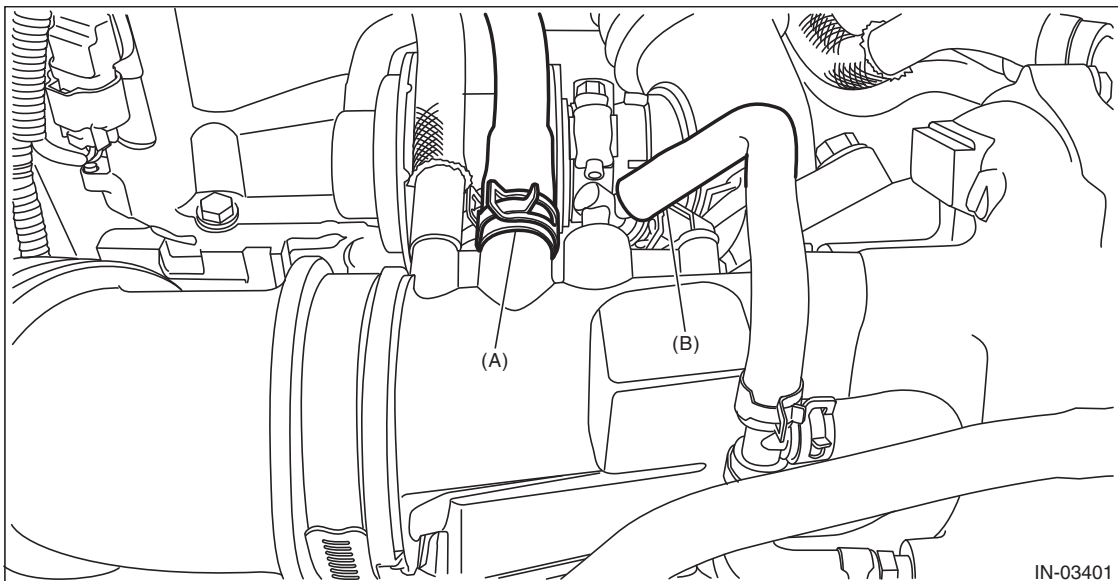
2) Engage the clip which secures the air by-pass valve to the intake duct No. 1, and install the air intake boot to the intake duct No. 1.

Tightening torque:

2.5 N·m (0.3 kgf-m, 1.8 ft-lb)



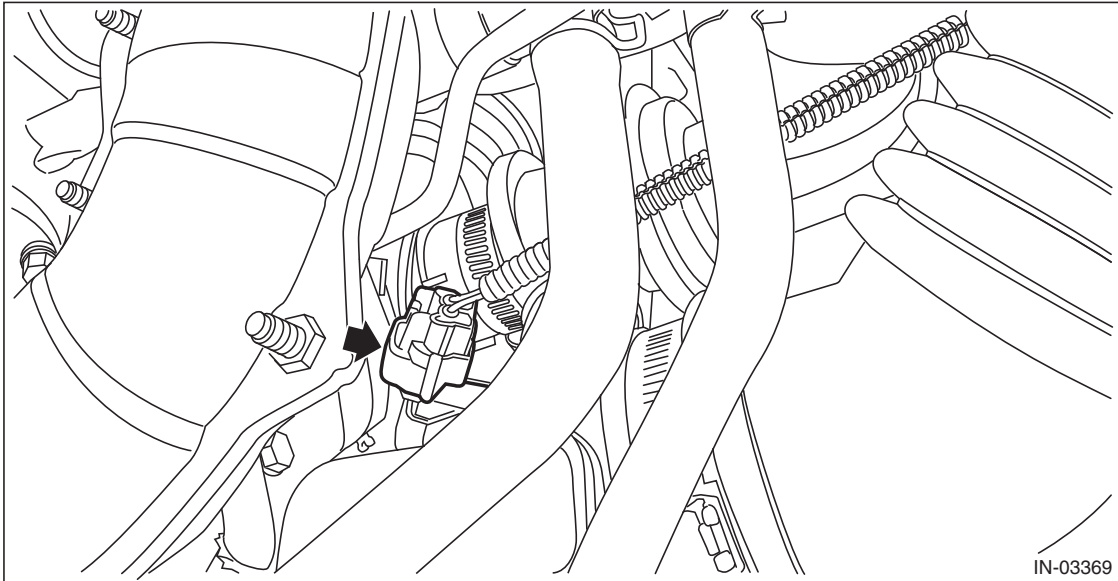
3) Connect the PCV pipe (A) to the intake duct No. 1, and connect the vacuum control hose (B) to the waste-gate control solenoid valve.



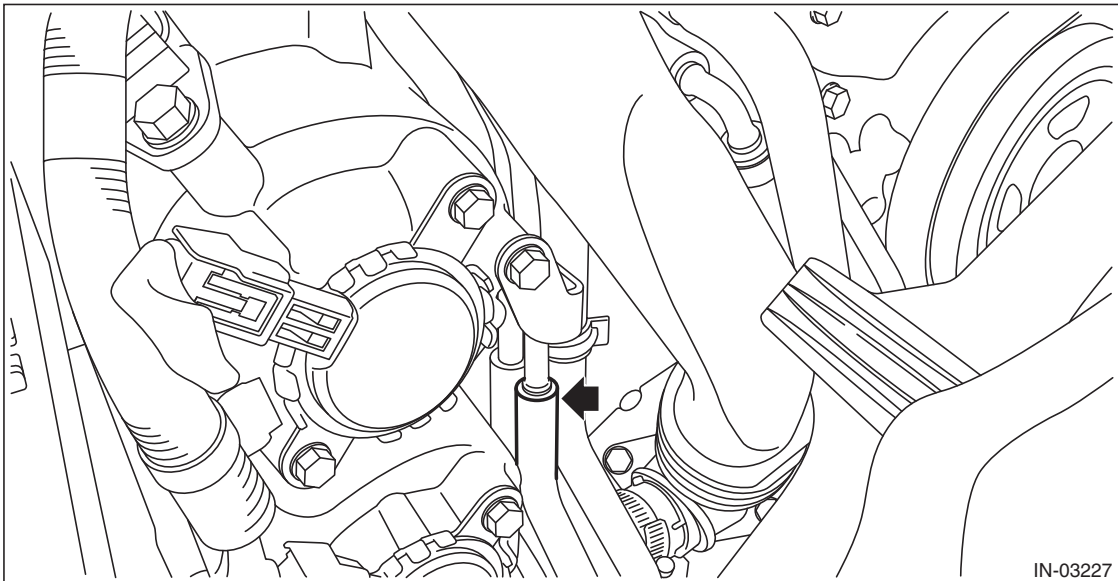
Intake Duct

INTAKE (INDUCTION)

- 4) Connect the connector to the wastegate control solenoid valve.



- 5) Install the under cover. <Ref. to EI-22, INSTALLATION, Front Under Cover.>
6) Lower the vehicle.
7) Connect the vacuum hose to the vacuum pipe.



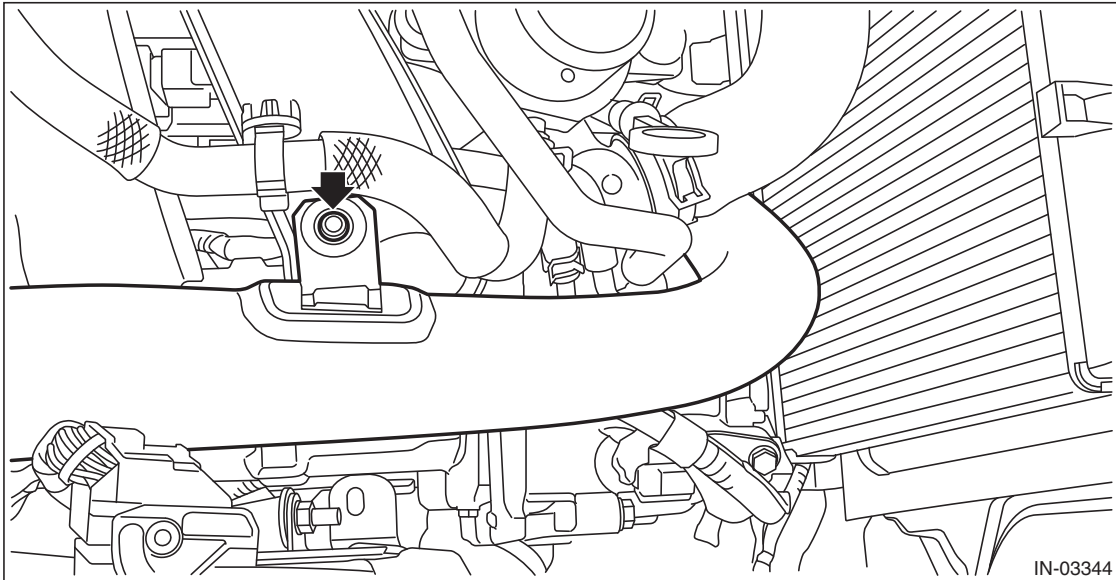
- 8) Install the air intake duct (rear). <Ref. to IN(H4DOTC)-19, INSTALLATION, Air Intake Duct.>
9) Connect the battery ground terminal.
10) Install the collector cover.

Intake Duct

INTAKE (INDUCTION)

2. INTAKE DUCT NO. 2

1) Set the air by-pass valve to the intake duct No. 1, and install the intake duct No. 2 to the intake manifold.



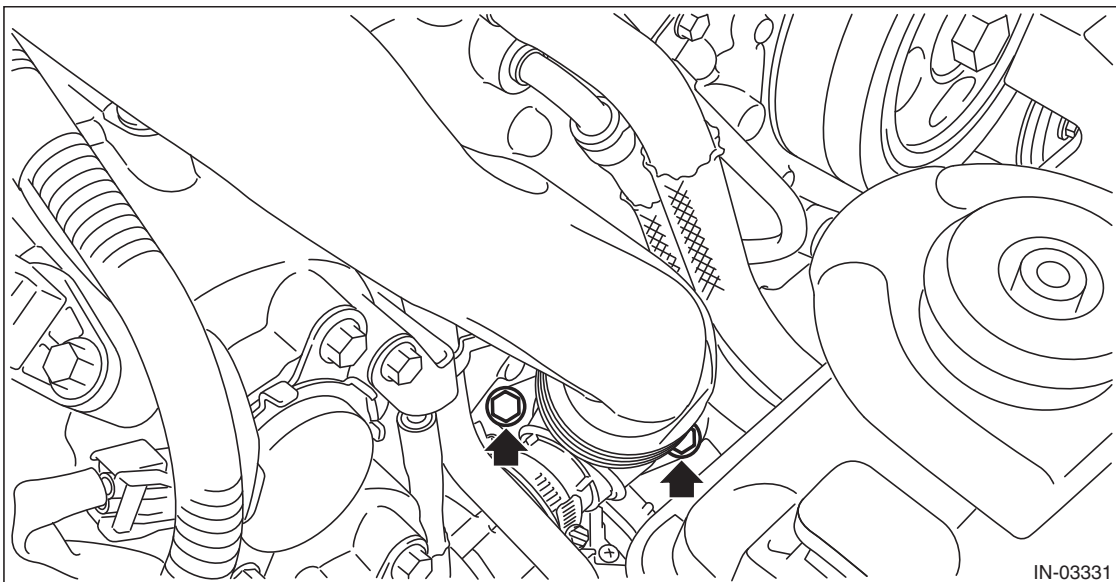
2) Install the bolt which secure the intake duct No. 2 to the turbocharger.

NOTE:

- Use new O-rings.
- Be careful not to pinch the O-ring.
- Check that the air by-pass valve is firmly inserted into the intake duct No. 1.

Tightening torque:

16 N·m (1.6 kgf-m, 1.8 ft-lb)

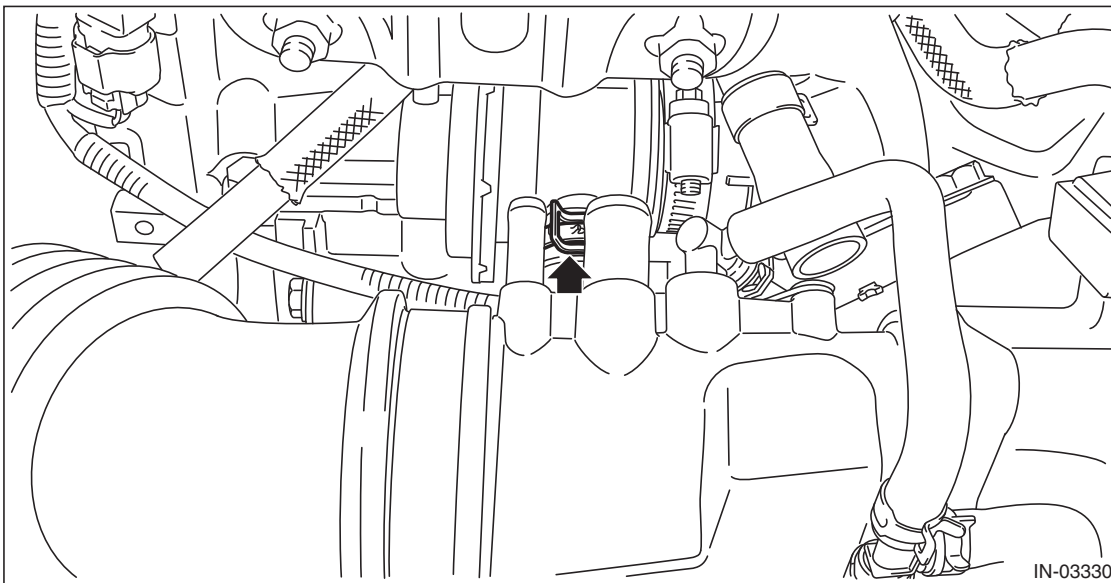


3) Lift up the vehicle.

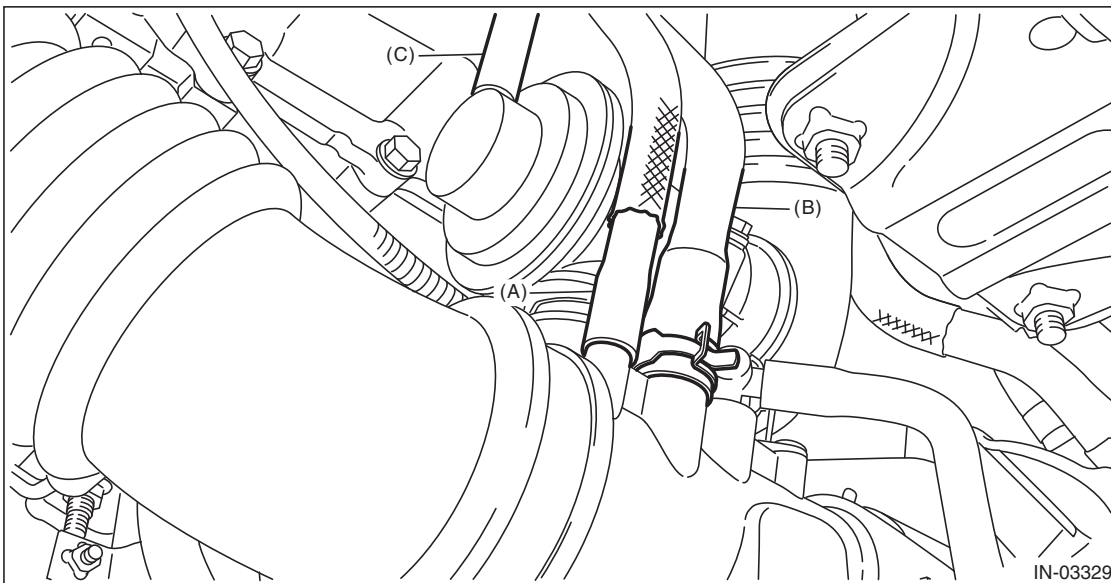
Intake Duct

INTAKE (INDUCTION)

- 4) Engage the clip which secures the air by-pass valve to the intake duct No. 1.



- 5) Connect the PCV pipe (A) and vacuum hose (B) to the intake duct No. 1, and connect the vacuum hose (C) to the air by-pass valve.



- 6) Install the under cover. <Ref. to EI-22, INSTALLATION, Front Under Cover.>
7) Lower the vehicle.
8) Install the radiator sub fan and fan motor assembly. <Ref. to CO(H4DOTC)-55, INSTALLATION, Radiator Sub Fan and Fan Motor.>
9) Install the intercooler. <Ref. to IN(H4DOTC)-37, INSTALLATION, Intercooler.>
10) Install the air intake duct (rear). <Ref. to IN(H4DOTC)-19, INSTALLATION, Air Intake Duct.>
11) Connect the battery ground terminal.
12) Install the collector cover.

Intake Duct

INTAKE (INDUCTION)

3. INTAKE DUCT NO. 3

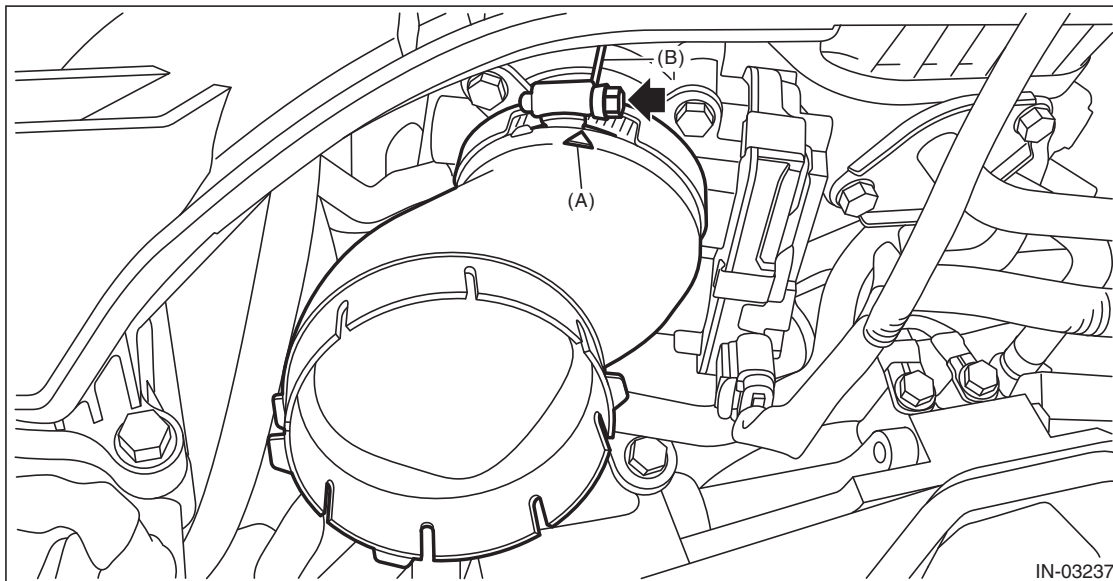
1) Align the triangle mark (A) on the intake duct No. 3 to the rib (B) on the throttle body, and install the intake duct No. 3 to the throttle body.

NOTE:

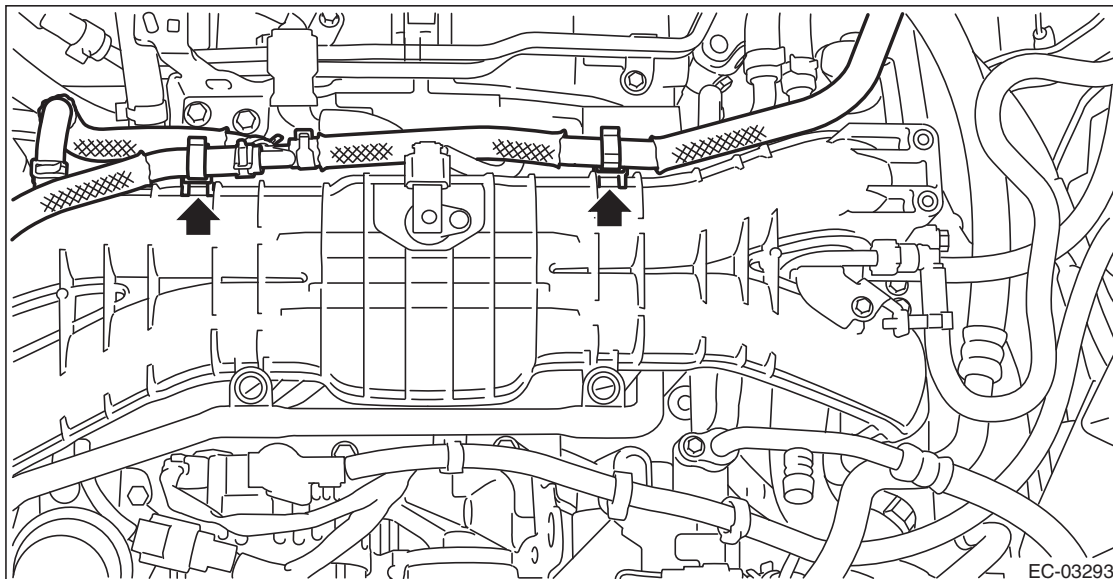
- Use a new insulator.
- Apply a thin coat of SUBARU PS fluid (K0515YA000) or liquid paraffin to the inner periphery of the insulator.
- When inserting the intake duct No. 3 to the throttle body, be careful that the insulator is not turned over.

Tightening torque:

3 N·m (0.3 kgf-m, 2.2 ft-lb)



2) Install the clip which secures the brake booster vacuum hose to the intake manifold.



- 3) Install the intercooler. <Ref. to IN(H4DOTC)-37, INSTALLATION, Intercooler.>
- 4) Connect the battery ground terminal.
- 5) Install the collector cover.

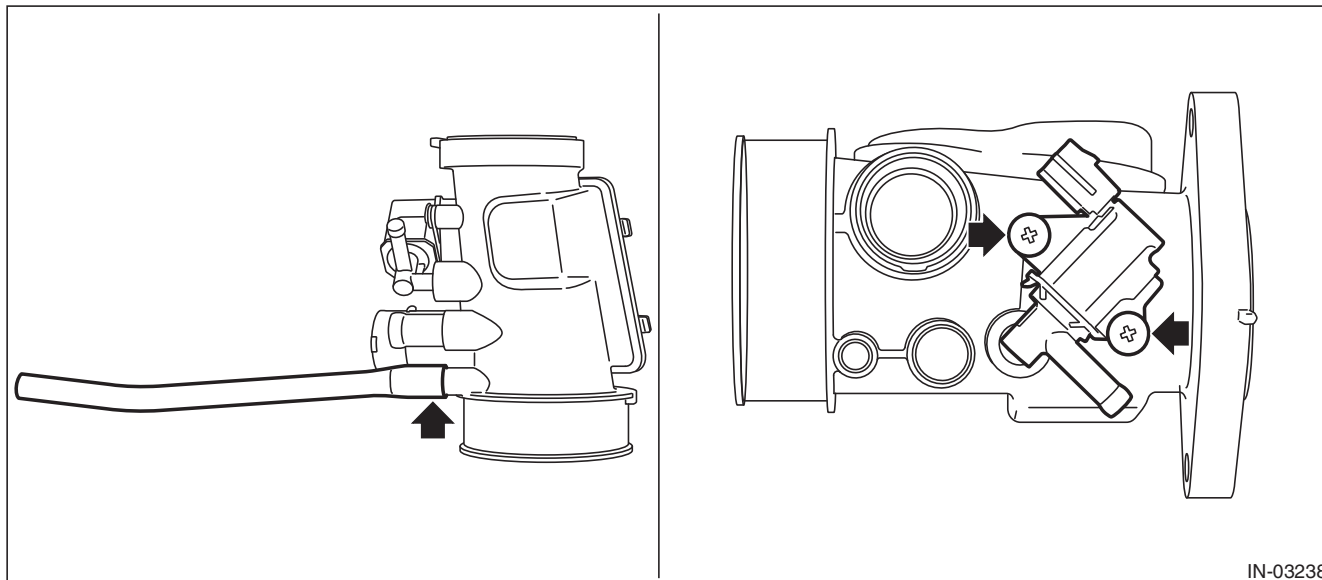
Intake Duct

INTAKE (INDUCTION)

C: DISASSEMBLY

1. INTAKE DUCT NO. 1

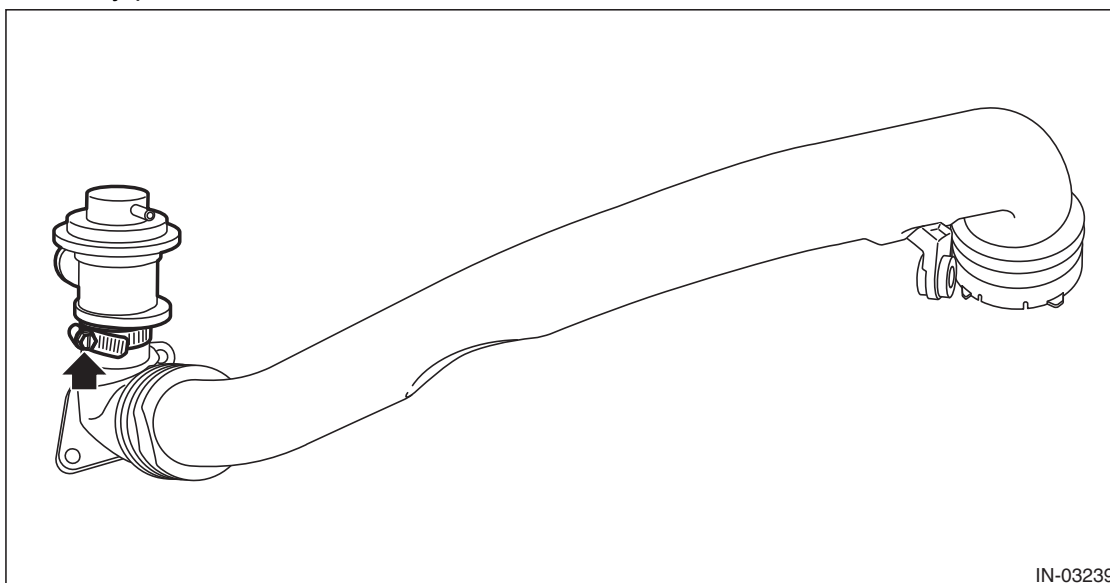
Remove the vacuum hose and wastegate control solenoid valve from the intake duct.



IN-03238

2. INTAKE DUCT NO. 2

Remove the air by-pass valve from the intake duct No. 2.



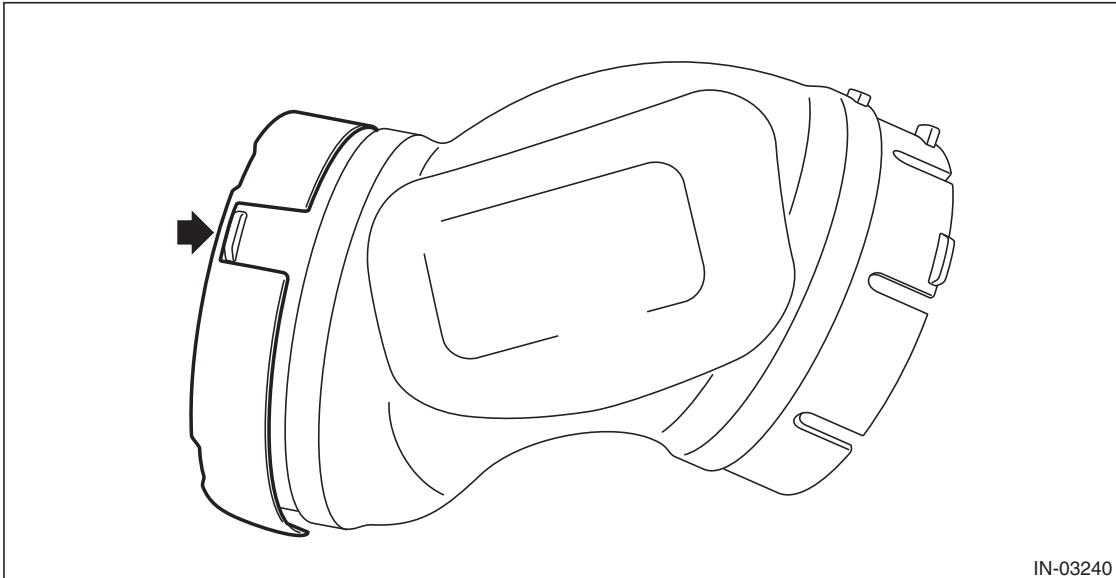
IN-03239

Intake Duct

INTAKE (INDUCTION)

3. INTAKE DUCT NO. 3

Remove the insulator from the intake duct No. 3.



IN-03240

D: ASSEMBLY

1. INTAKE DUCT NO. 1

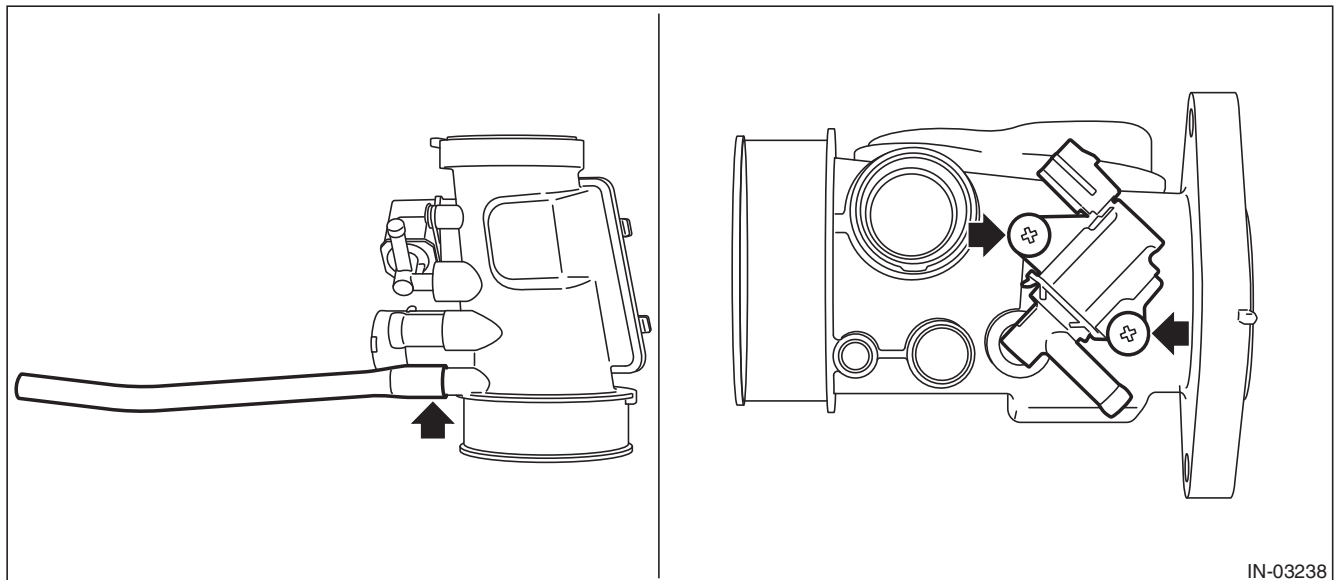
Install the vacuum hose and wastegate control solenoid valve to the intake duct No. 1.

NOTE:

- Use new O-rings.
- When tightening the boost control solenoid valve, check that it is securely seated.

Tightening torque:

2.8 N·m (0.3 kgf-m, 2.1 ft-lb)



IN-03238

2. INTAKE DUCT NO. 2

Assemble in the reverse order of disassembly.

Tightening torque:

3 N·m (0.3 kgf-m, 2.2 ft-lb)

Intake Duct

INTAKE (INDUCTION)

3. INTAKE DUCT NO. 3

Assemble in the reverse order of disassembly.

NOTE:

Use a new insulator.

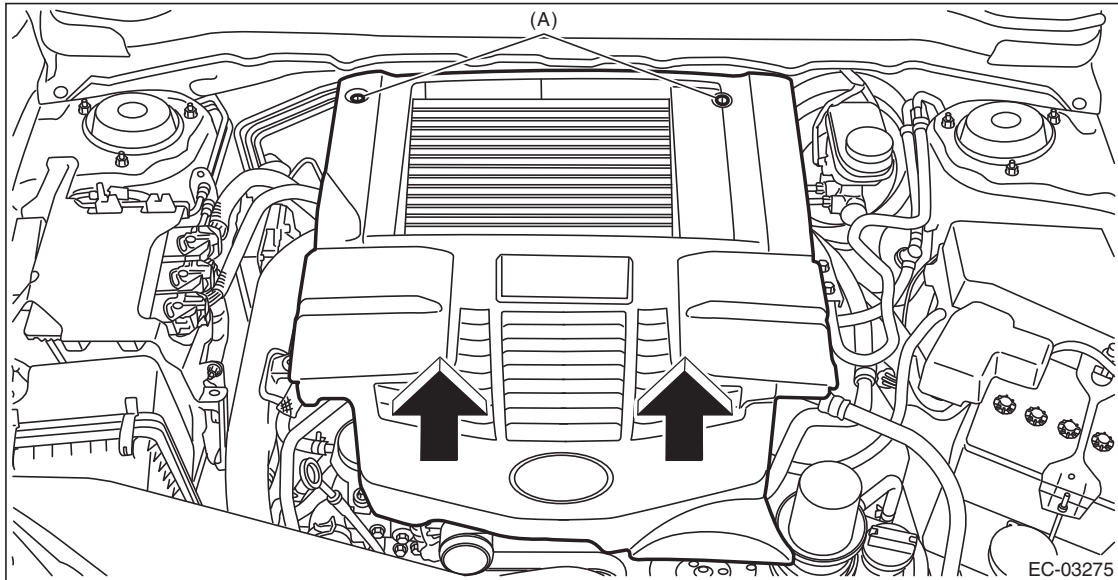
E: INSPECTION

- 1) Check that the intake duct has no deformation, cracks or other damages.
- 2) Check the vacuum hose for cracks, damage or looseness.

7. Intercooler

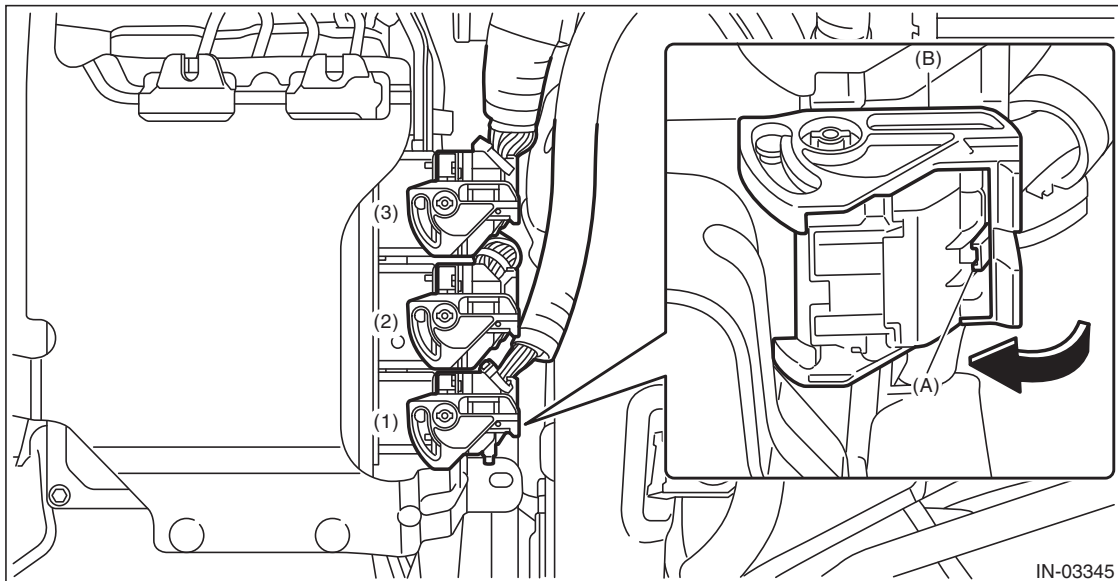
A: REMOVAL

1) Remove the clip (A), lift the front of the collector cover in the direction of arrow, and then remove the collector cover.



2) Disconnect the ground cable from battery.

3) While pressing the section (A) shown in the figure, move the lock lever (B) in the direction of the arrow to disconnect the connectors from the ECM in numerical order as shown in the figure.

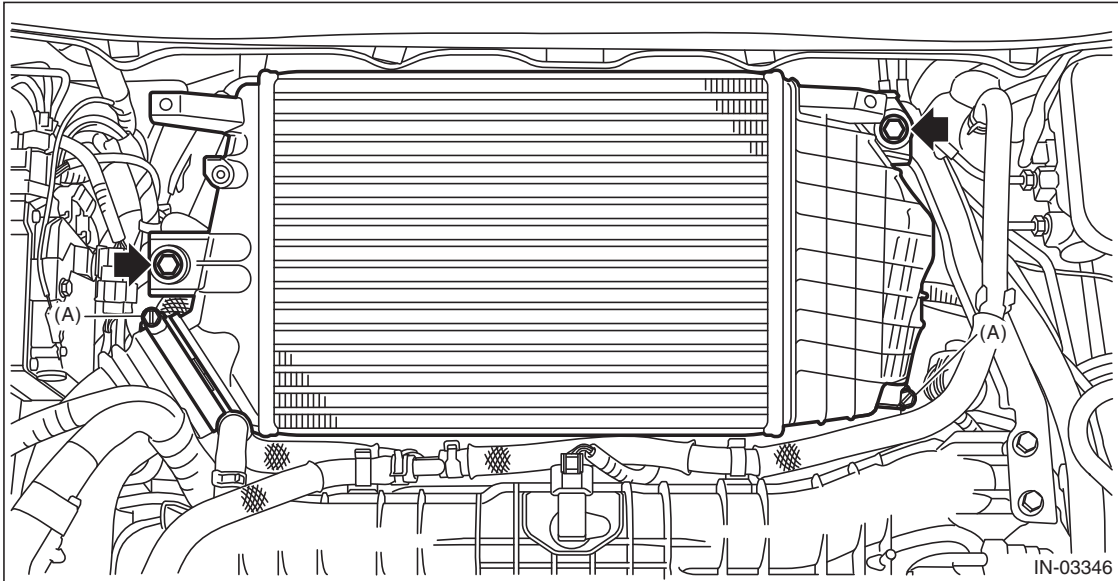


4) Loosen the clamp (A) which holds the intake duct to intercooler.

Intercooler

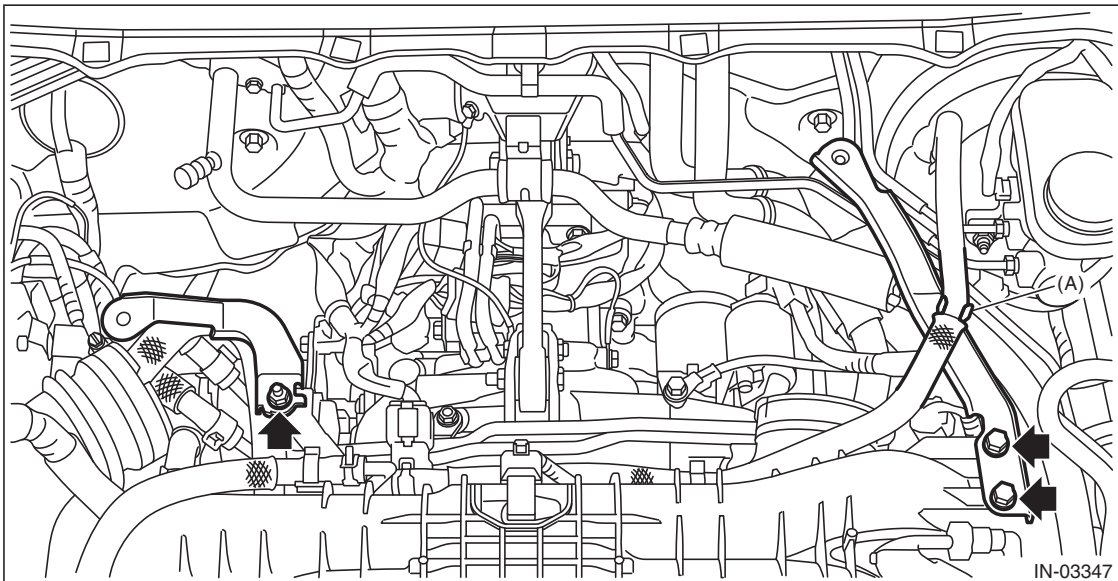
INTAKE (INDUCTION)

- 5) Remove the bolts which secure the intercooler to the intercooler stay, and remove the intercooler.



- 6) Remove the brake booster vacuum hose from the clip (A).

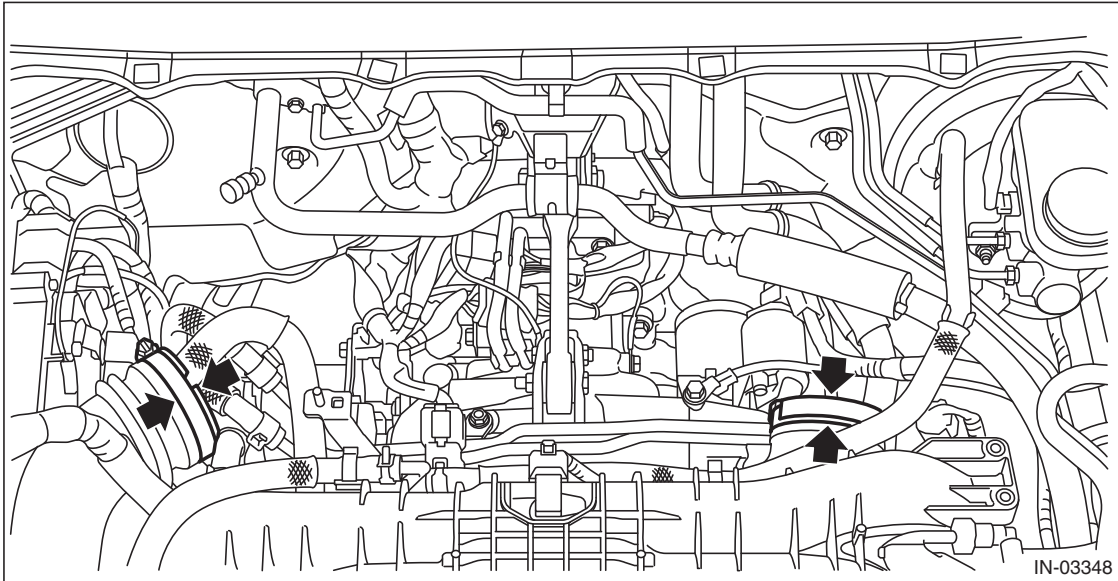
- 7) Remove the intercooler stay RH from the engine hanger stay, and remove the intercooler stay LH from the intake manifold.



Intercooler

INTAKE (INDUCTION)

8) Remove the insulator and clamp from intake duct.

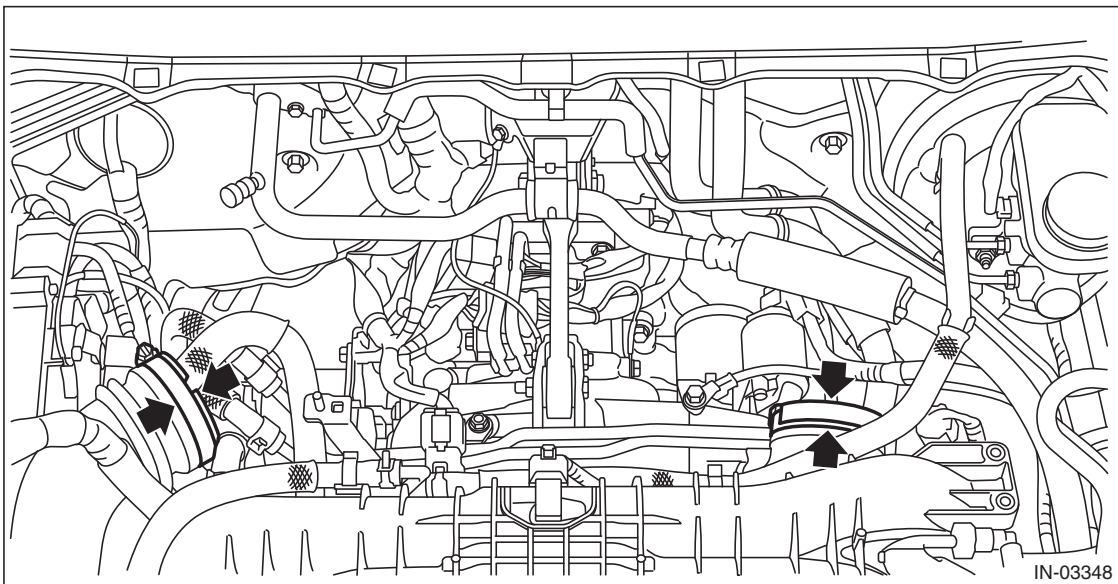


B: INSTALLATION

1) Install the insulator and clamp to the intake duct.

NOTE:

- Use a new insulator.
- Apply a thin coat of SUBARU PS fluid (K0515YA000) or liquid paraffin to the inner periphery of the insulator.



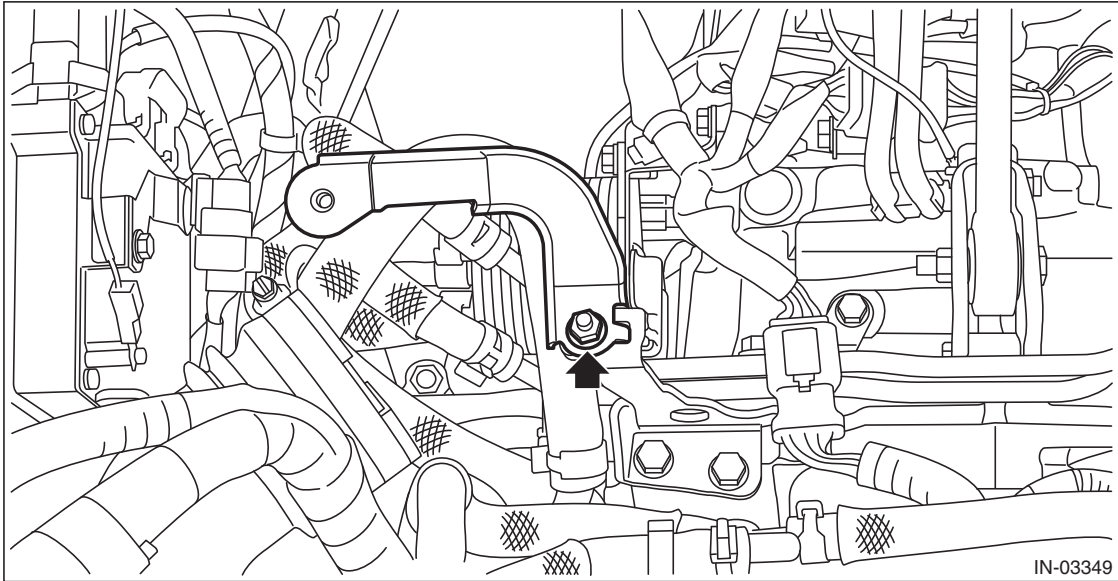
Intercooler

INTAKE (INDUCTION)

2) Install the intercooler stay RH to the engine hanger stay.

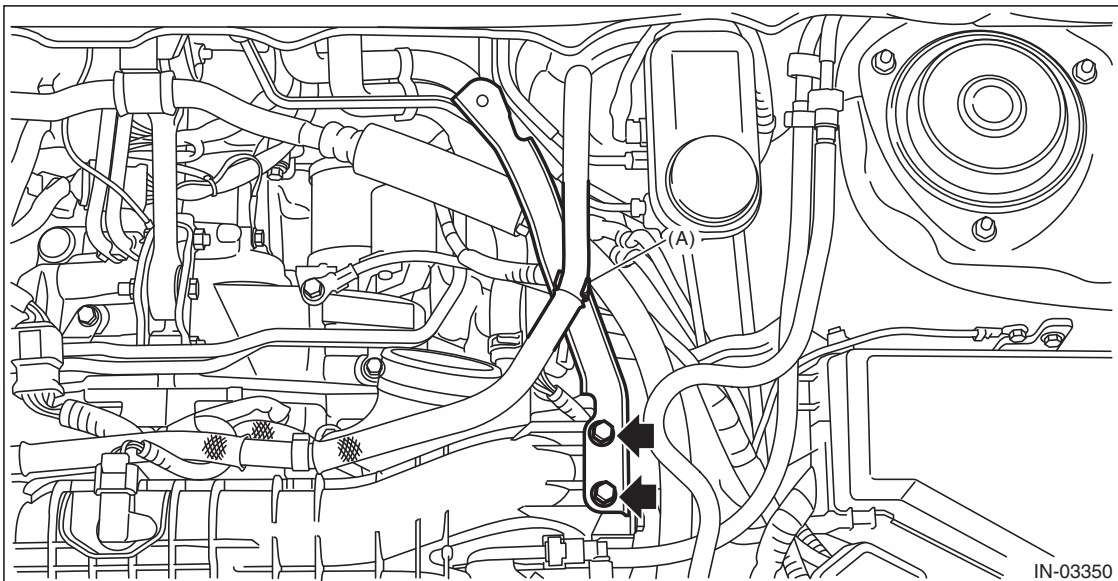
Tightening torque:

16 N·m (1.6 kgf-m, 11.8 ft-lb)



3) Temporarily tighten the intercooler stay LH to the intake manifold.

4) Install the brake booster vacuum hose to the clip (A).



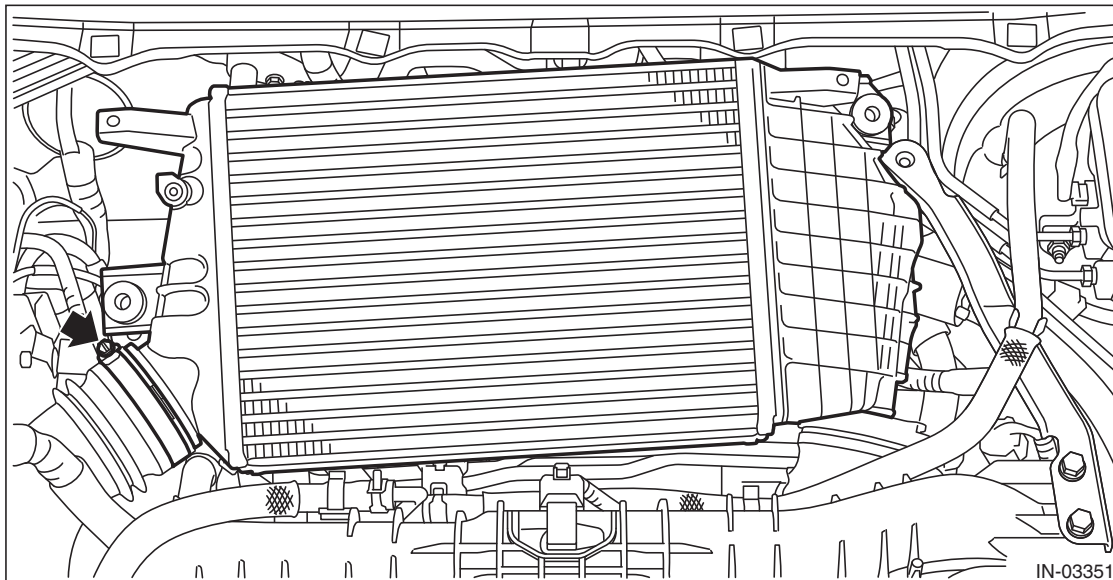
Intercooler

INTAKE (INDUCTION)

5) Insert the intercooler into the intake duct No. 2, and temporarily tighten the clamp which secures the intake duct No. 2 to the intercooler.

NOTE:

When inserting the intercooler into the intake duct No. 2, be careful that the insulator is not turned over.



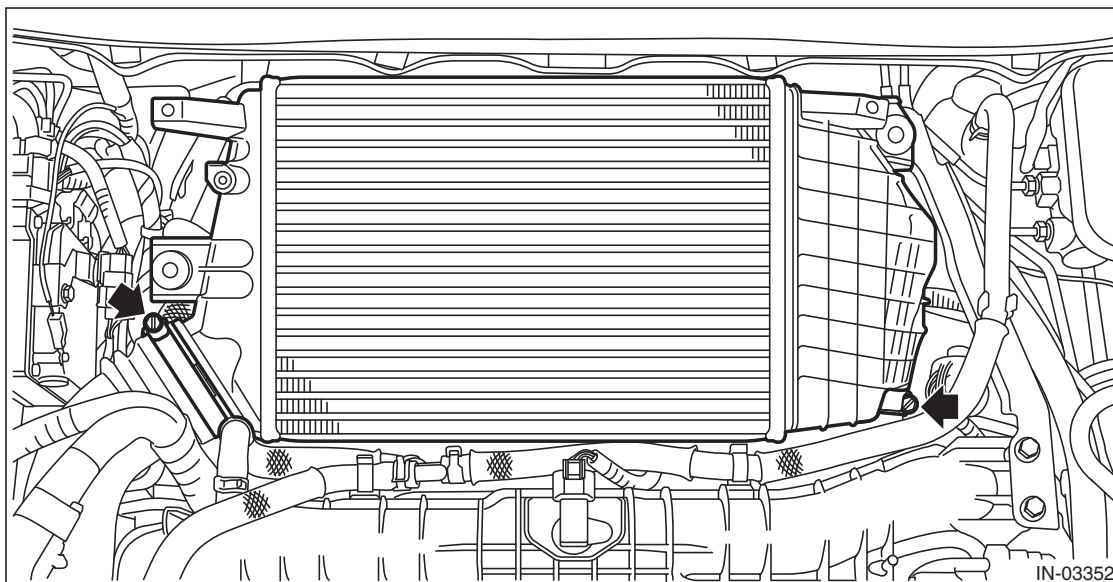
6) Insert the intercooler into the intake duct No. 3, and tighten the clamp which secures the intake duct to the intercooler.

NOTE:

When inserting the intercooler into the intake duct No. 3, be careful that the insulator is not turned over.

Tightening torque:

3 N·m (0.3 kgf-m, 2.2 ft-lb)



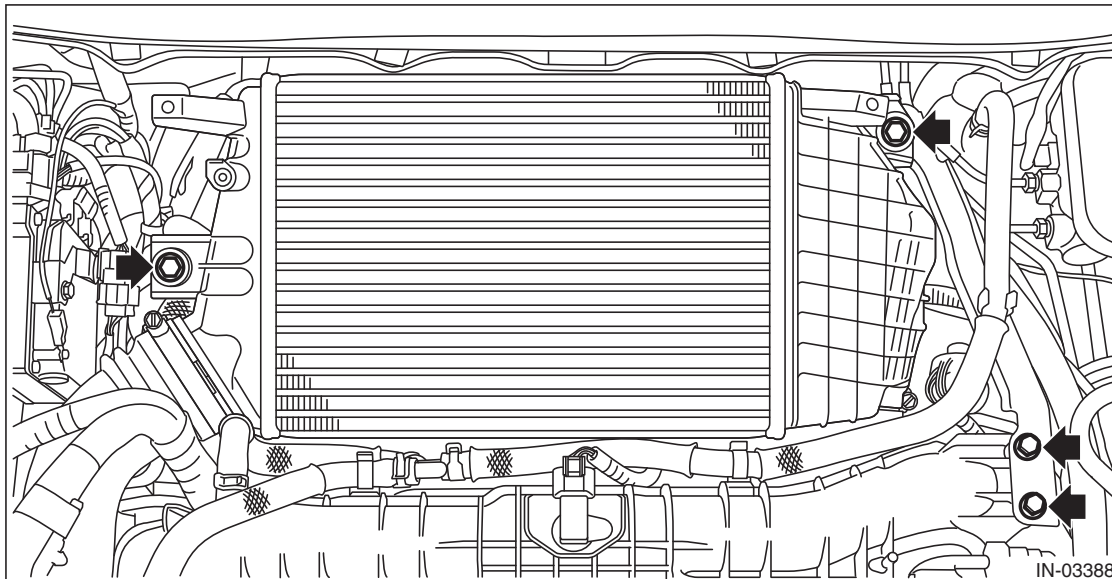
Intercooler

INTAKE (INDUCTION)

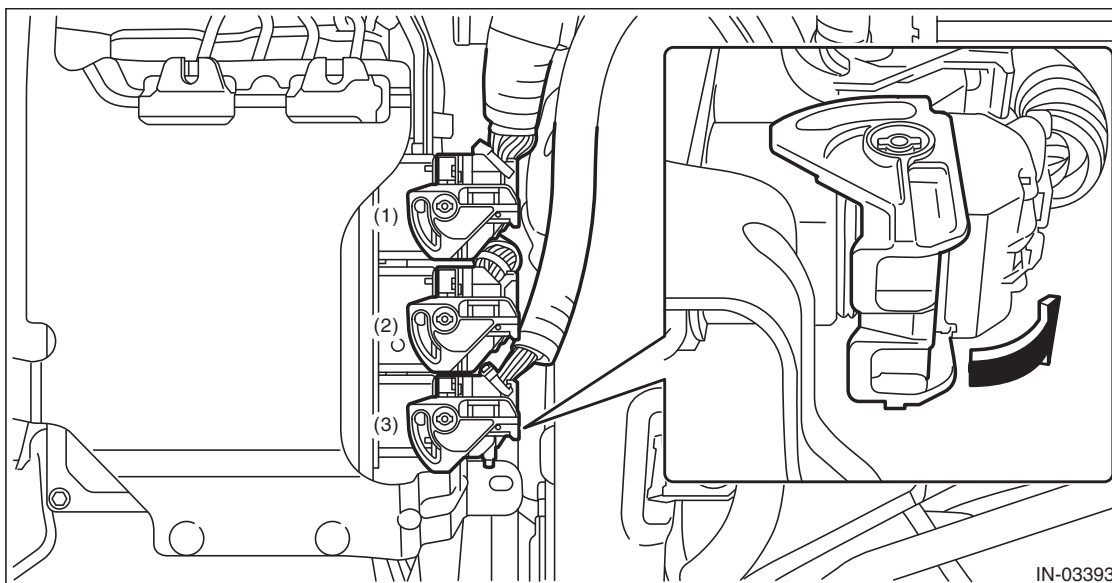
7) Install the bolts which secure the intercooler to the intercooler stay, and tighten the bolt which secures the intercooler stay LH to the intake manifold.

Tightening torque:

16 N·m (1.6 kgf-m, 11.8 ft-lb)



8) Move the lock lever in the direction of the arrow, and connect the connector to the ECM in numerical order as shown in the figure.



9) Connect the battery ground terminal.

10) Install the collector cover.

C: INSPECTION

Check that the intercooler and intercooler stay have no deformation, cracks or other damages.

8. Turbocharger

A: REMOVAL

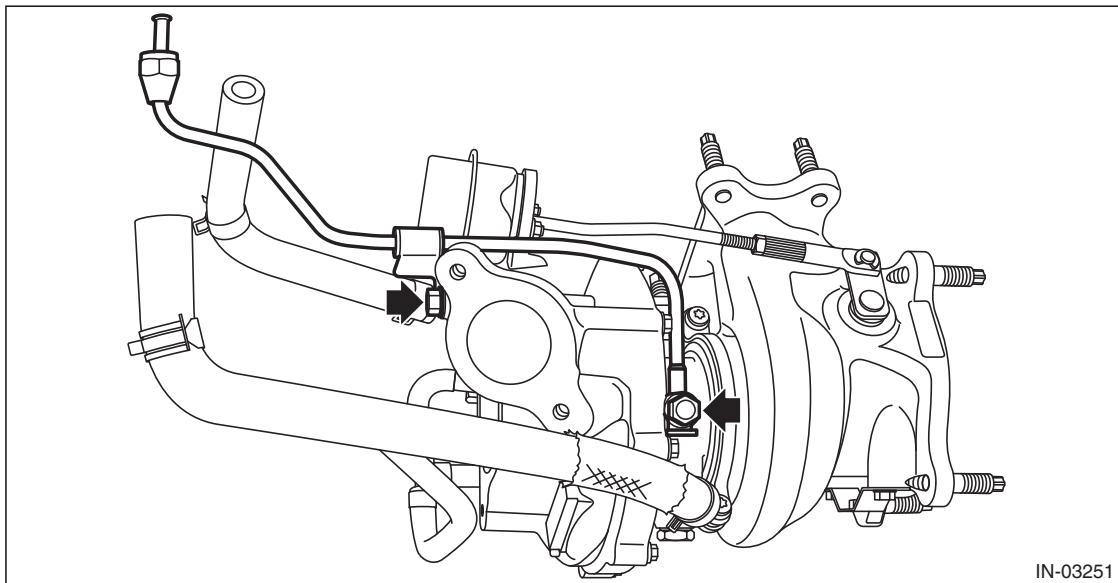
Remove the turbo charger and front exhaust pipe as a unit. Refer to "Front Exhaust Pipe" for the removal procedure. <Ref. to EX(H4DOTC)-7, REMOVAL, Front Exhaust Pipe.> <Ref. to EX(H4DOTC)-24, DISASSEMBLY, Front Exhaust Pipe.>

B: INSTALLATION

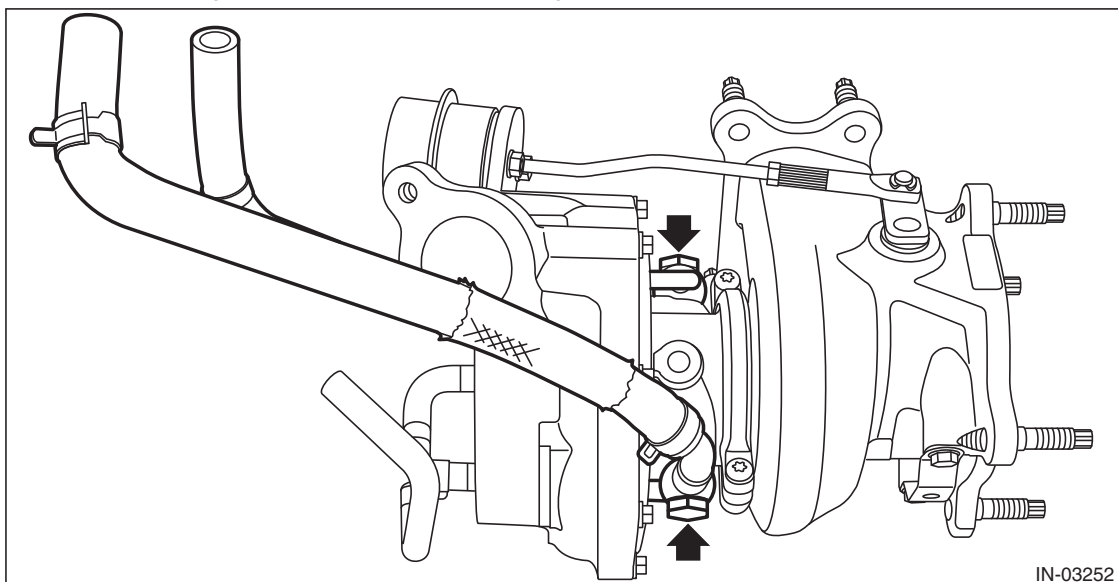
Refer to "Front Exhaust Pipe" for the installation procedure. <Ref. to EX(H4DOTC)-15, INSTALLATION, Front Exhaust Pipe.> <Ref. to EX(H4DOTC)-27, ASSEMBLY, Front Exhaust Pipe.>

C: DISASSEMBLY

- 1) Remove the union screw pipe assembly from the turbocharger.



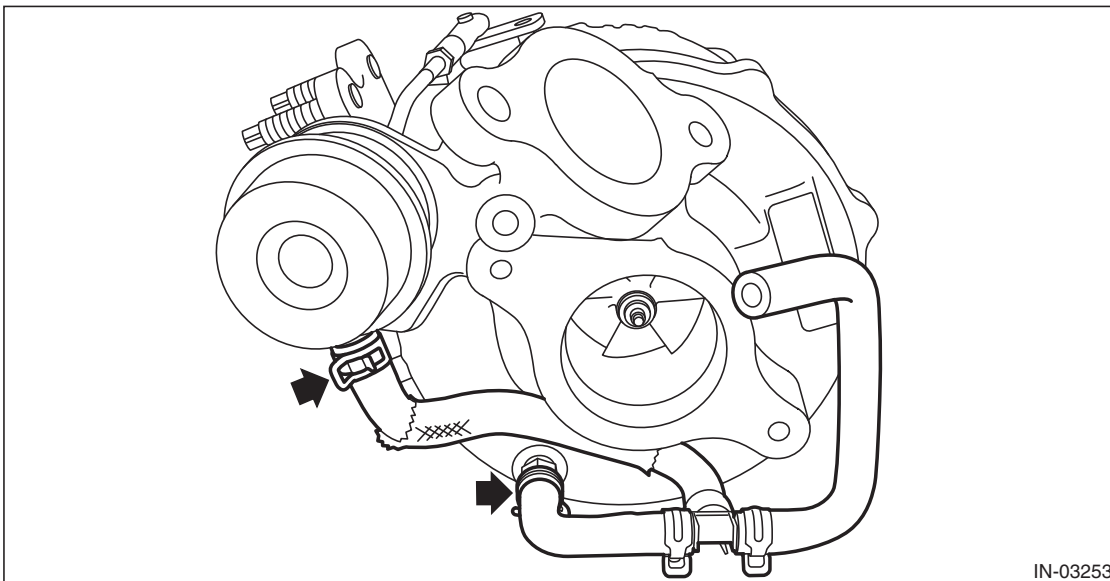
- 2) Remove the turbocharger pipe from the turbocharger.



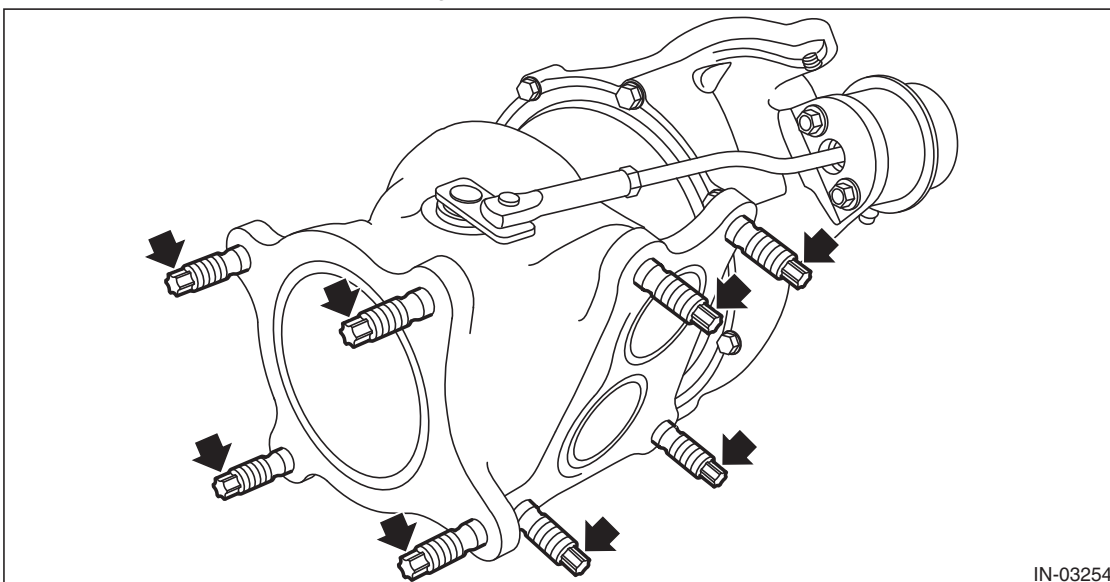
Turbocharger

INTAKE (INDUCTION)

- 3) Remove the air control hose from the turbocharger.



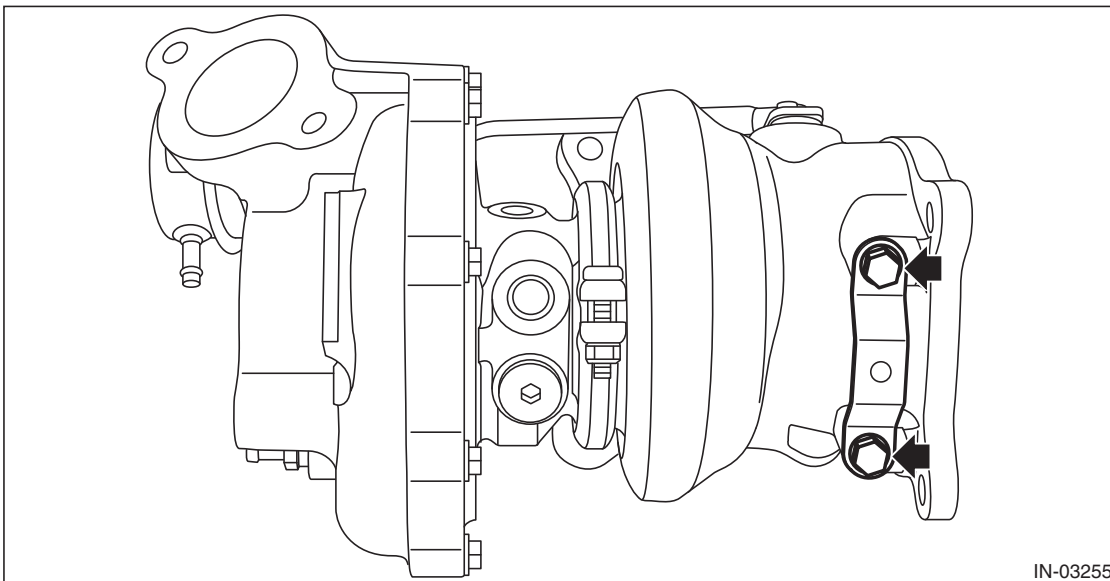
- 4) Remove the stud bolt from the turbocharger.



Turbocharger

INTAKE (INDUCTION)

- 5) Remove the exhaust stay from the turbocharger.

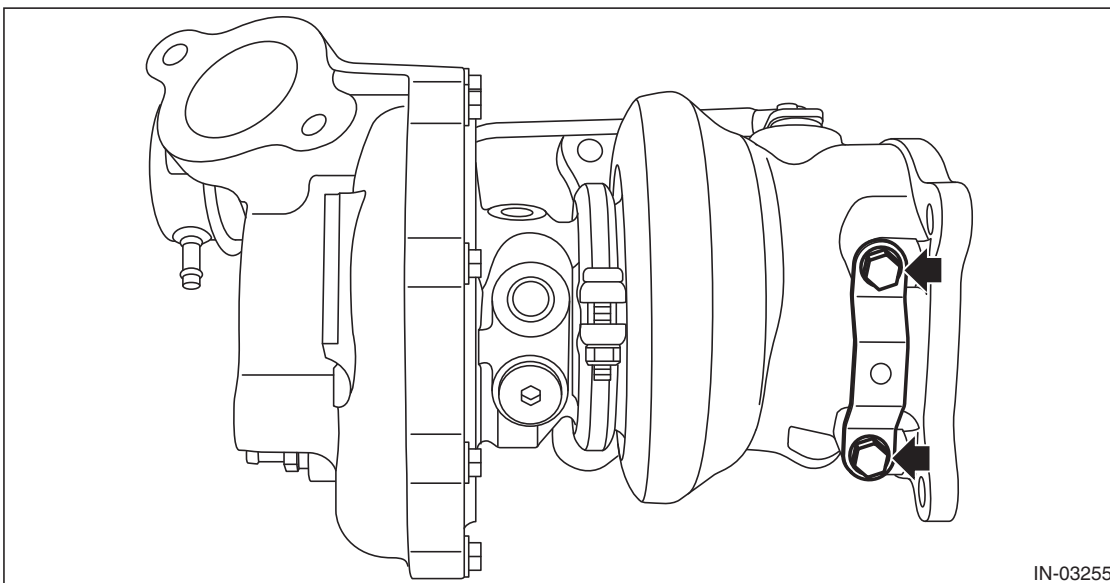


D: ASSEMBLY

- 1) Install the exhaust stay to the turbocharger.

Tightening torque:

6.4 N·m (0.7 kgf-m, 4.7 ft-lb)



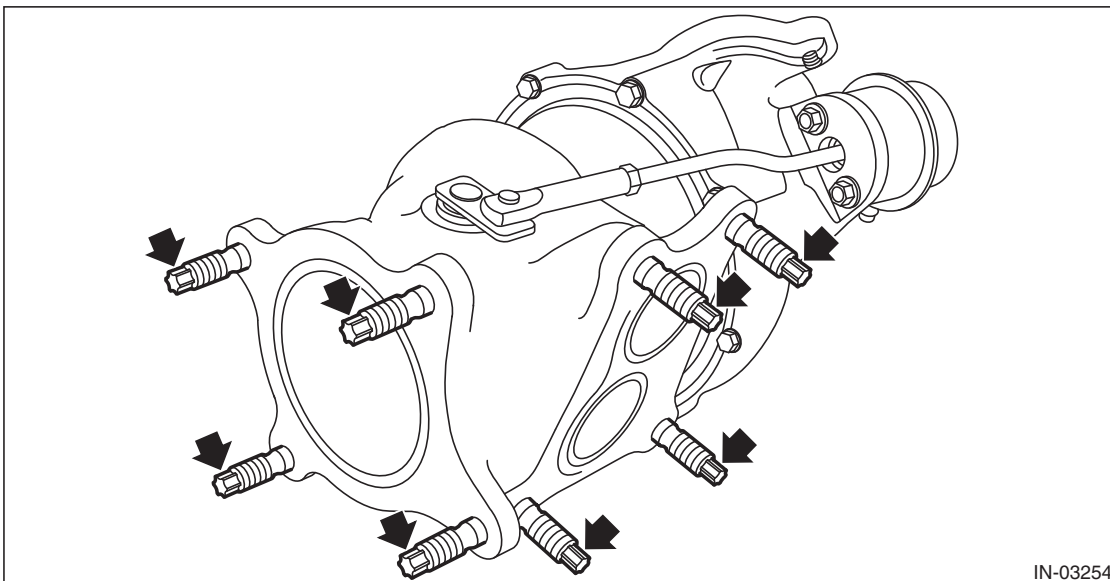
Turbocharger

INTAKE (INDUCTION)

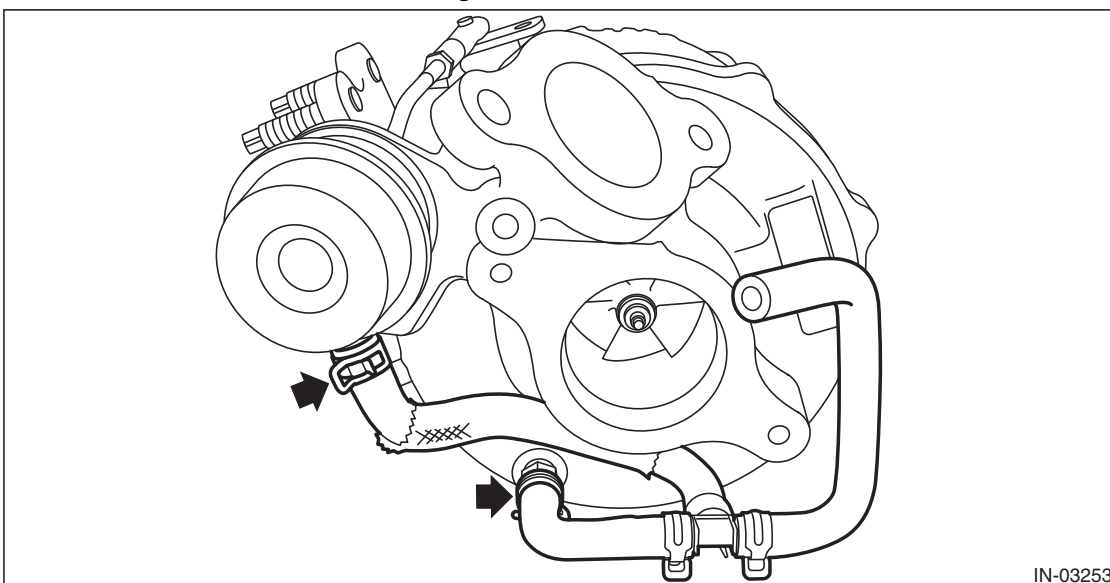
2) Attach the stud bolts to the turbocharger.

Tightening torque:

14.7 N·m (1.5 kgf-m, 10.8 ft-lb)



3) Install the air control hose to the turbocharger.



Turbocharger

INTAKE (INDUCTION)

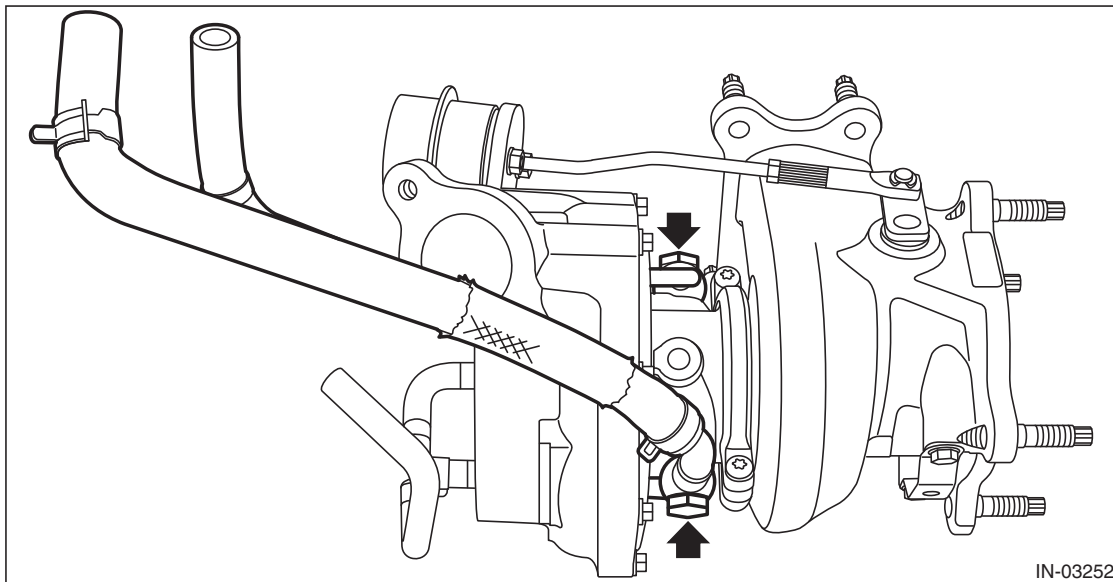
4) Install the turbocharger pipe to the turbocharger.

NOTE:

Use a new gasket.

Tightening torque:

31.5 N·m (3.2 kgf-m, 23.2 ft-lb)



5) Install the union screw pipe assembly to the turbocharger.

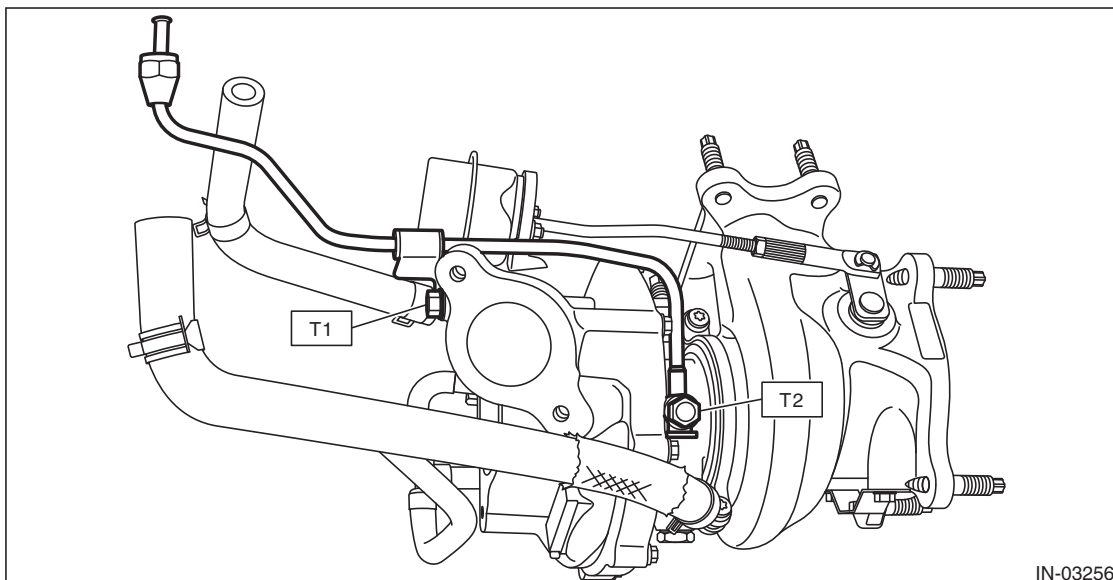
NOTE:

Use a new gasket.

Tightening torque:

T1: 6.4 N·m (0.7 kgf-m, 4.7 ft-lb)

T2: 16 N·m (1.6 kgf-m, 11.8 ft-lb)



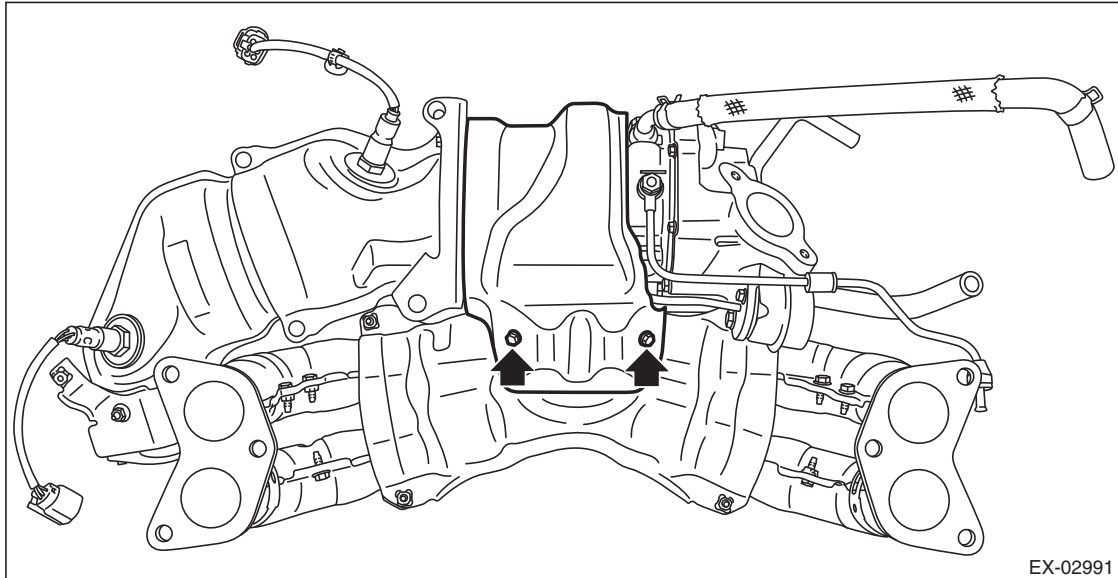
Turbocharger

INTAKE (INDUCTION)

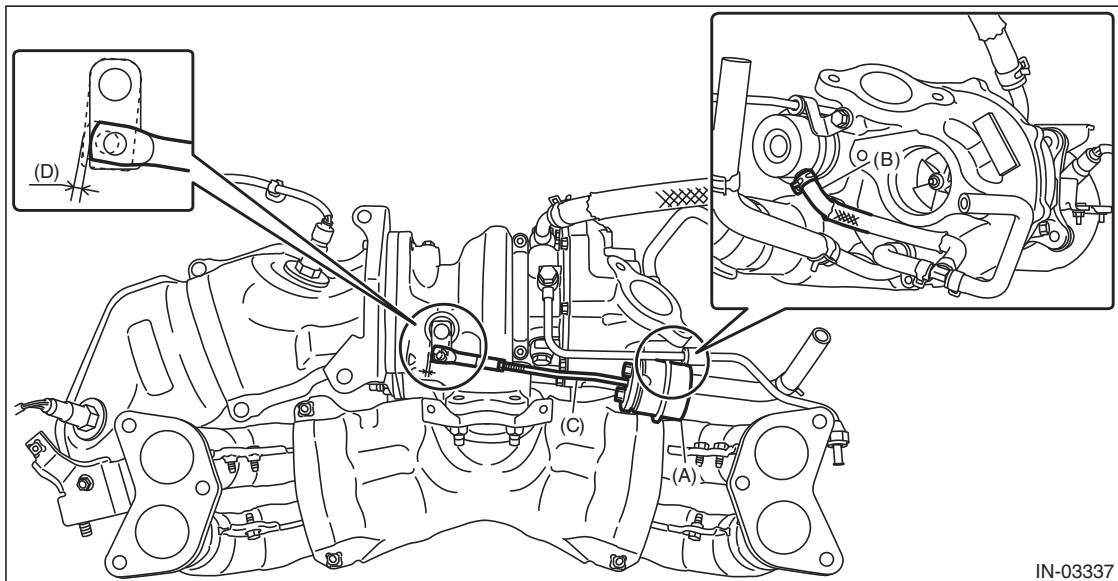
E: INSPECTION

1. WASTE GATE ACTUATOR

- 1) Remove the front exhaust pipe. <Ref. to EX(H4DOTC)-7, REMOVAL, Front Exhaust Pipe.>
- 2) Remove the exhaust cover.



- 3) Remove the vacuum control hose (B) from the waste gate actuator (A) of the turbocharger, and connect the Mighty Vac to the waste gate actuator (A).



- (A) Waste gate actuator (C) Control rod (D) Control rod stroke
(B) Vacuum control hose

Turbocharger

INTAKE (INDUCTION)

4) Pressurize slowly with the Mighty Vac, and check the pressure when the control rod stroke (D) becomes 1 ± 0.15 mm (0.0394 ± 0.0059 in). If it is not within the standard, replace the turbocharger assembly.

CAUTION:

Do not pressurize over 112.7 kPa (1.15 kgf/cm², 16.34 psi) to prevent damaging the waste gate actuator.

Operating pressure (control rod stroke 1 ± 0.15 mm (0.0394 ± 0.0059 in)):

Standard

84.0 — 88.0 kPa (0.86 — 0.90 kgf/cm², 12.18 — 12.76 psi)

5) After inspection, install the related parts in the reverse order of removal.

Tightening torque:

6.4 N·m (0.7 kgf-m, 4.7 ft-lb)

2. OTHER INSPECTIONS

- 1) Check that the turbocharger and pipe have no deformation, cracks or other damages.
- 2) Check that the hose has no cracks, damage or loose part.
- 3) Check that there are no oil leakage or water leakage from the pipe attachment section.



Oil Catch Tank

INTAKE (INDUCTION)

9. Oil Catch Tank

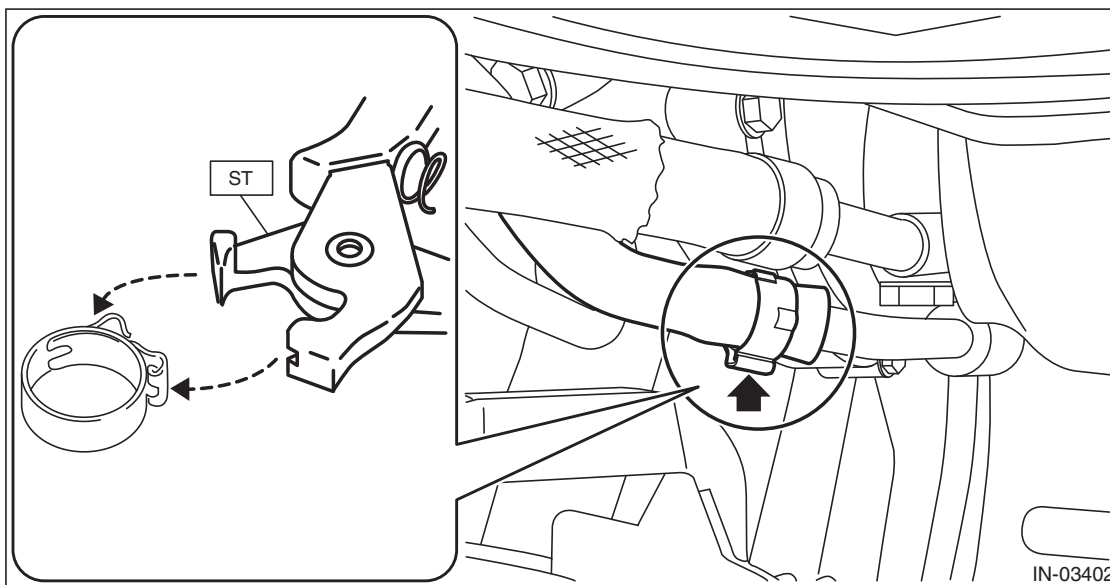
A: REMOVAL

- 1) Remove the air intake duct (rear). <Ref. to IN(H4DOTC)-19, REMOVAL, Air Intake Duct.>
- 2) Disconnect the PCV hose assembly from the oil catch tank.

NOTE:

To disconnect the PCV hose assembly, fit the cut outs of the ST with the protrusions on the clamp as shown in the figure, squeeze the ST's handles together and unlock the clamp.

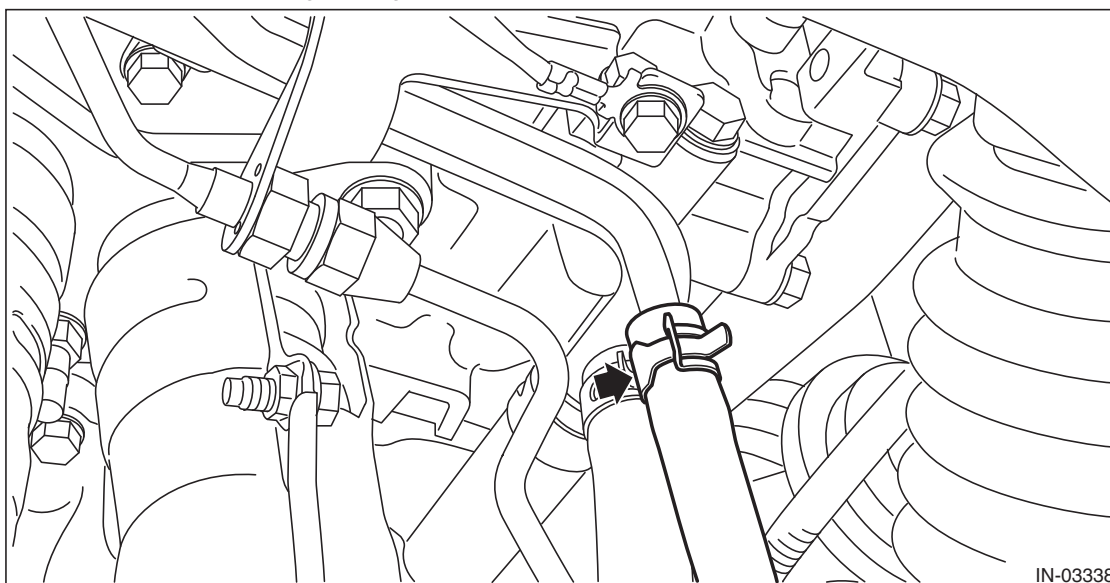
ST 18353AA000 CLAMP PLIERS



- 3) Lift up the vehicle.
- 4) Remove the under cover. <Ref. to EI-22, REMOVAL, Front Under Cover.>
- 5) Disconnect the turbocharger hose from the oil pipe, and drain the engine oil in the oil catch tank.

NOTE:

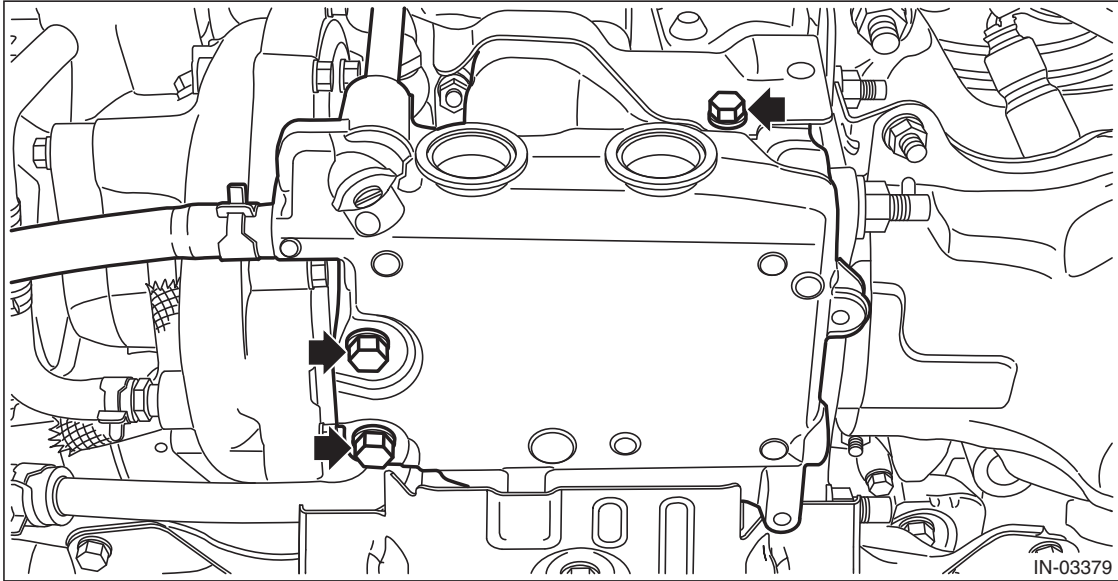
Prepare the container for draining of engine oil.



Oil Catch Tank

INTAKE (INDUCTION)

6) Remove bolts which secure the oil catch tank to the turbocharger and exhaust stay, and remove the oil catch tank.



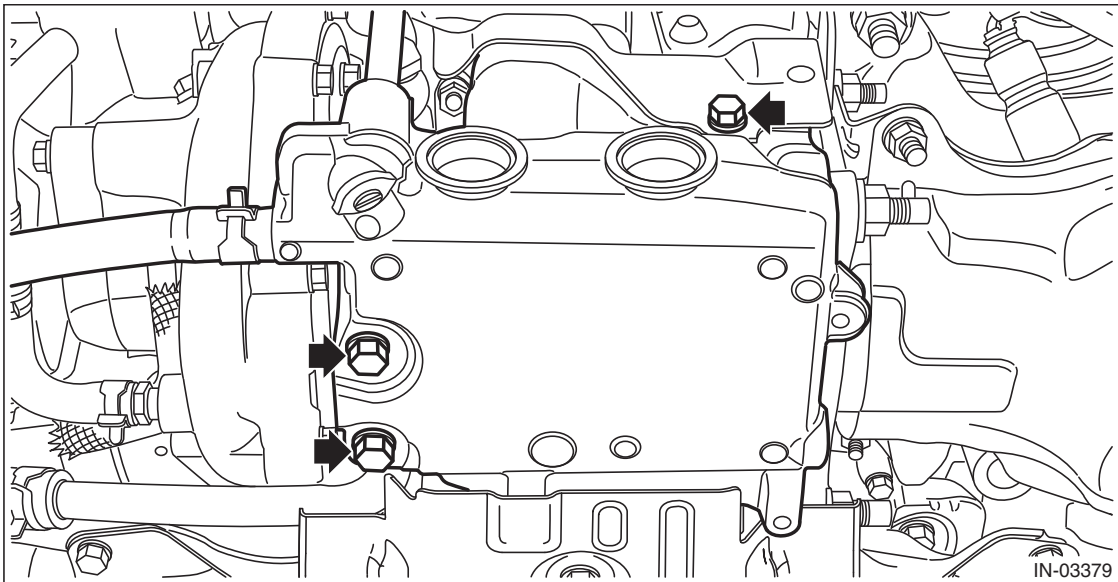
B: INSTALLATION

1) Install the oil catch tank to the turbocharger and exhaust stay.

(1) Set the oil catch tank to the turbocharger, and temporarily tighten the bolts which secure the oil catch tank to the turbocharger and exhaust stay.

NOTE:

Use a new gasket.



Oil Catch Tank

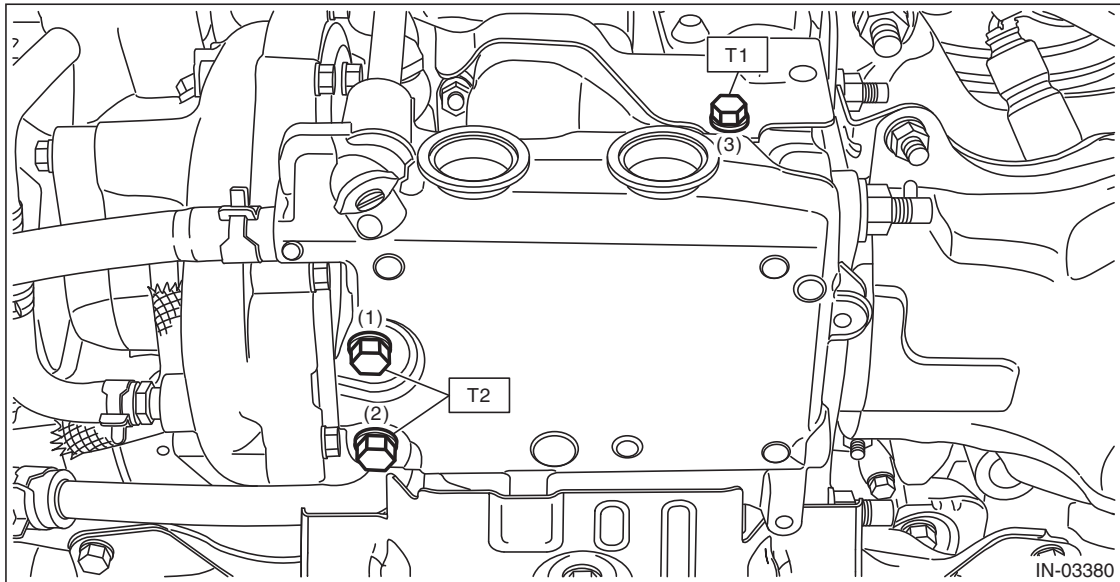
INTAKE (INDUCTION)

(2) Tighten the bolts which secure the oil catch tank to the turbocharger and exhaust stay in numerical order as shown in the figure.

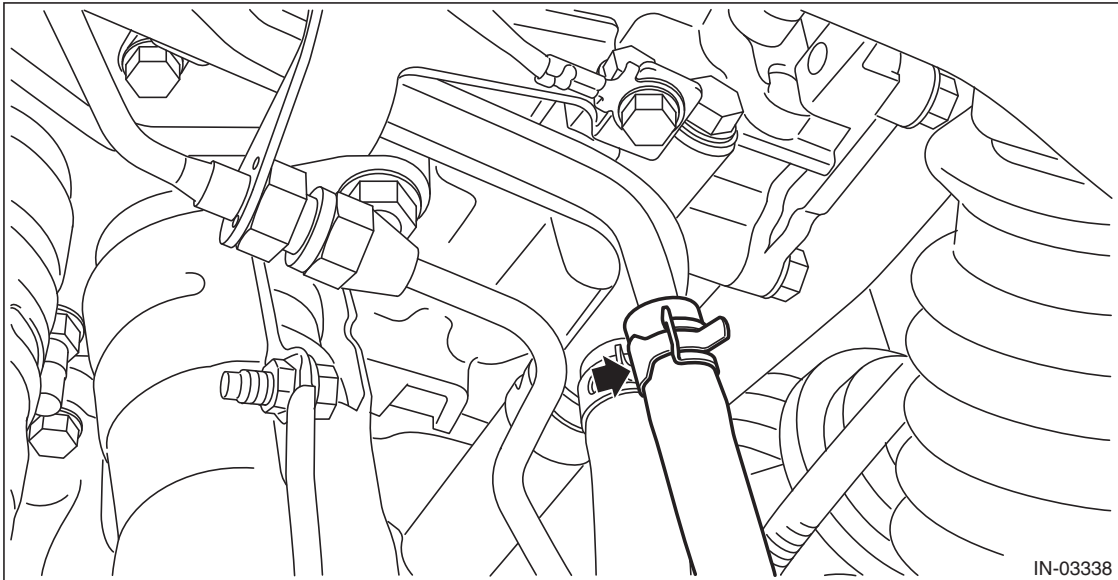
Tightening torque:

T1: 6.4 N·m (0.7 kgf-m, 4.7 ft-lb)

T2: 10.5 N·m (1.1 kgf-m, 7.7 ft-lb)



2) Connect the turbocharger hose to the oil pipe.



3) Install the under cover. <Ref. to EI-22, INSTALLATION, Front Under Cover.>

4) Lower the vehicle.

Oil Catch Tank

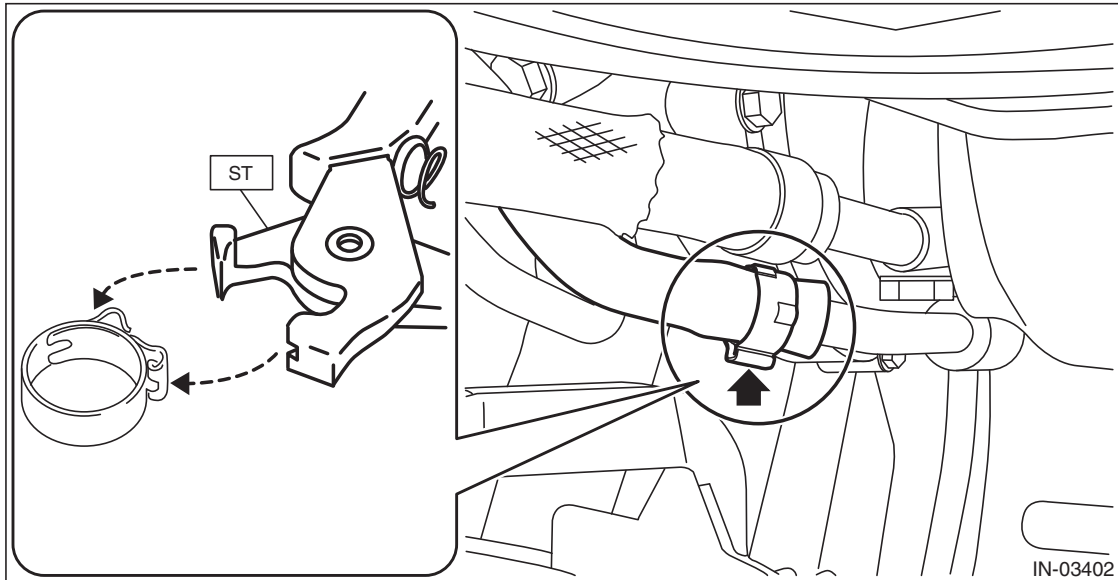
INTAKE (INDUCTION)

5) Connect the PCV hose assembly to the oil catch tank.

NOTE:

Use a new clamp. To connect the PCV hose assembly, fit the cut outs of the ST with the protrusions on the clamp as shown in the figure, squeeze the ST's handles together and lock the clamp.

ST 18353AA000 CLAMP PLIERS

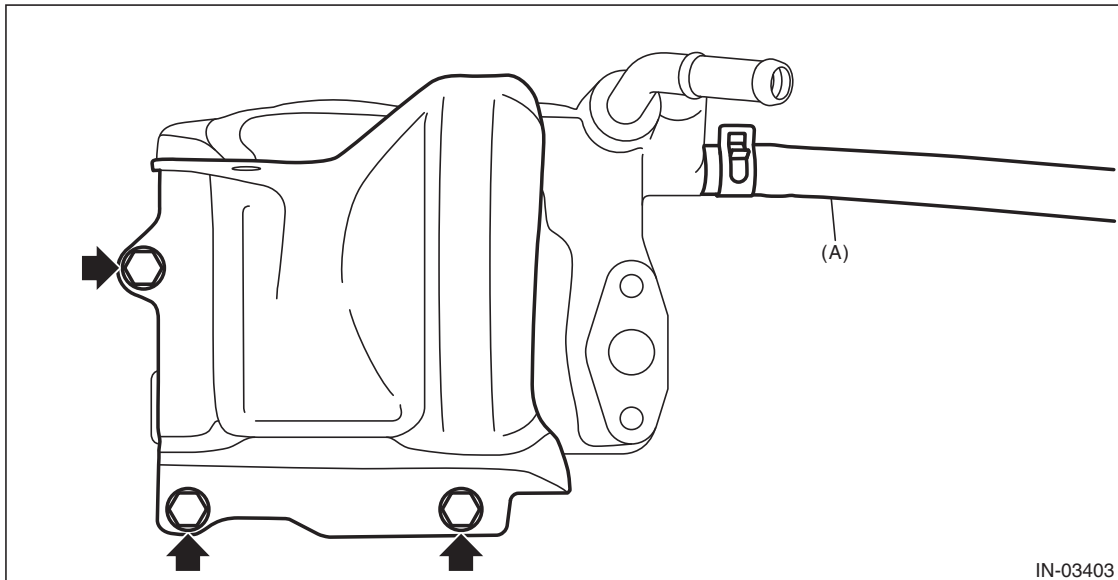


6) Install the air intake duct (rear). <Ref. to IN(H4DOTC)-19, INSTALLATION, Air Intake Duct.>

7) Check the engine oil level and replenish the engine oil if necessary. <Ref. to LU(H4DO)-13, INSPECTION, Engine Oil.>

C: DISASSEMBLY

Disconnect the turbo charger hose (A) from the oil catch tank, and remove the exhaust cover from the oil catch tank.



Oil Catch Tank

INTAKE (INDUCTION)

D: ASSEMBLY

Assemble in the reverse order of disassembly.

Tightening torque:

6.4 N·m (0.7 kgf-m, 4.7 ft-lb)

E: INSPECTION

- 1) Check that the oil catch tank does not have deformation, cracks or damage.
- 2) Check that the PCV hose and turbocharger hose have no cracks, damage or loose part.



10.Scavenge Pump

A: REMOVAL

Refer to "Scavenge Pump" for removal procedure of scavenge pump. <Ref. to LU(H4DO)-54, REMOVAL, Scavenge Pump.>

B: INSTALLATION

Refer to "Scavenge Pump" for installation procedure of scavenge pump. <Ref. to LU(H4DO)-55, INSTALLATION, Scavenge Pump.>

C: INSPECTION

Refer to "Scavenge Pump" for inspection procedure of scavenge pump. <Ref. to LU(H4DO)-55, INSPECTION, Scavenge Pump.>

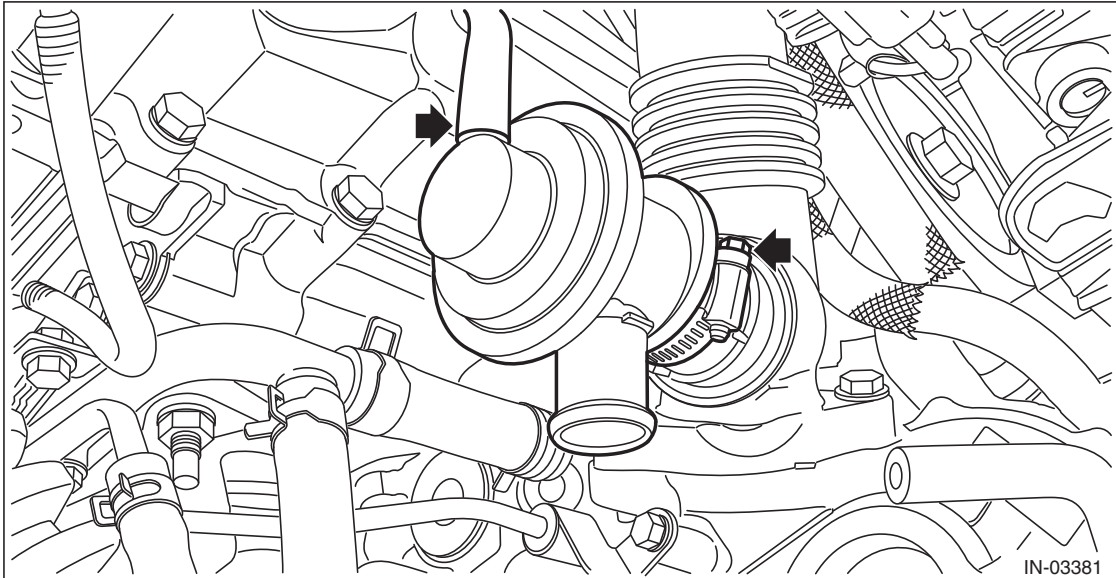
Air By-pass Valve

INTAKE (INDUCTION)

11. Air By-pass Valve

A: REMOVAL

- 1) Remove the intake duct No. 1. <Ref. to IN(H4DOTC)-20, INTAKE DUCT NO. 1, REMOVAL, Intake Duct.>
- 2) Disconnect the vacuum hose from the air by-pass valve, and remove the air by-pass valve from the intake duct No. 2.



B: INSTALLATION

Install in the reverse order of removal.

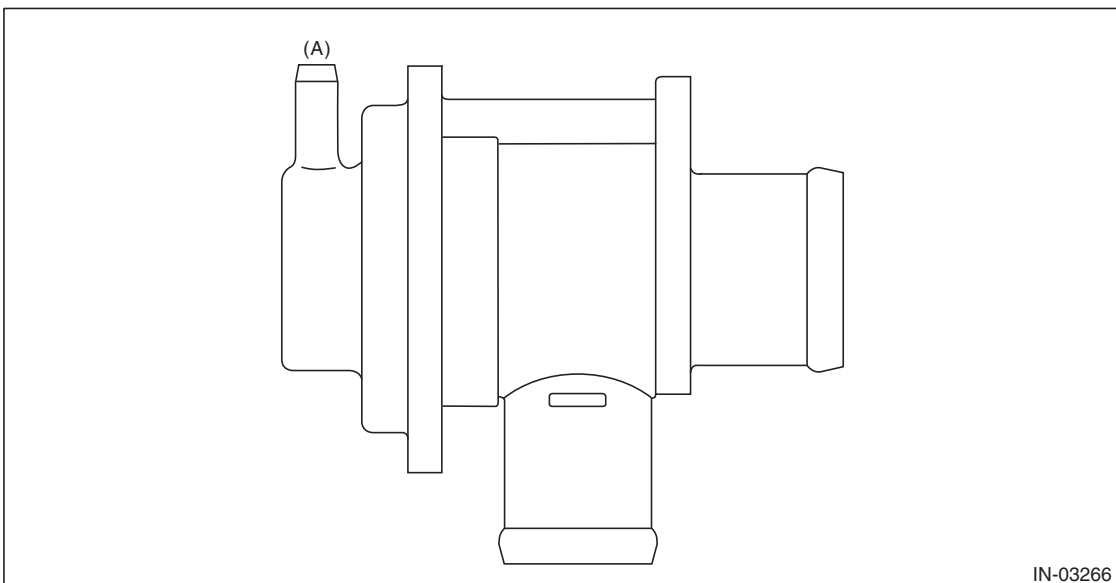
Tightening torque:

3 N·m (0.3 kgf-m, 2.2 ft-lb)

C: INSPECTION

1. AIR BY-PASS VALVE

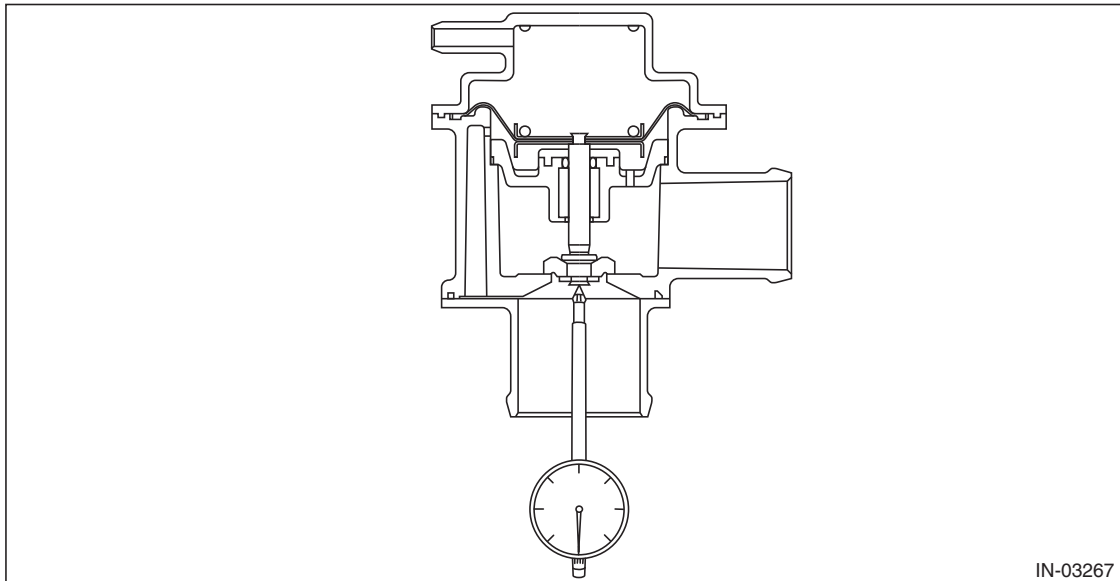
- 1) Check that the air by-pass valve has no deformation, cracks or other damages.
- 2) Connect the Mighty Vac to the nipple (A) of the air by-pass valve.



Air By-pass Valve

INTAKE (INDUCTION)

- 3) Using the Mighty Vac, generate the vacuum pressure to -93.3 kPa (-0.95 kgf/cm^2 , -13.5 psi). Check that the Mighty Vac gauge needle holds 10 seconds without falling by -92.6 kPa (-0.94 kgf/cm^2 , -13.4 psi).
- 4) Set a dial gauge to the end of valve rod of the air by-pass valve.



- 5) Using the Mighty Vac, generate the negative pressure, and check the pressure when dial gauge needle (valve stroke) shows 0.5 mm (0.02 in). If it is not within the standard, replace the air by-pass valve.

Opening pressure (valve stroke 0.5 mm (0.02 in)):

Standard

-13.3 — -21.3 kPa (-0.14 — -0.22 kgf/cm^2 , -1.93 — -3.09 psi)

2. OTHER INSPECTIONS

Check that the vacuum hose and air by-pass pipe have no cracks, damage or loose part.

Resonator Chamber

INTAKE (INDUCTION)

12. Resonator Chamber

A: REMOVAL

The resonator chamber and air cleaner case are integrated into one unit; therefore, refer to “Air Cleaner Case” for removal procedure. <Ref. to IN(H4DOTC)-9, REMOVAL, Air Cleaner Case.>

B: INSTALLATION

The resonator chamber and air cleaner case are integrated into one unit; therefore, refer to “Air Cleaner Case” for installation procedure. <Ref. to IN(H4DOTC)-11, INSTALLATION, Air Cleaner Case.>

C: INSPECTION

Check that the resonator chamber has no deformation, cracks or other damages.