

EXHAUST

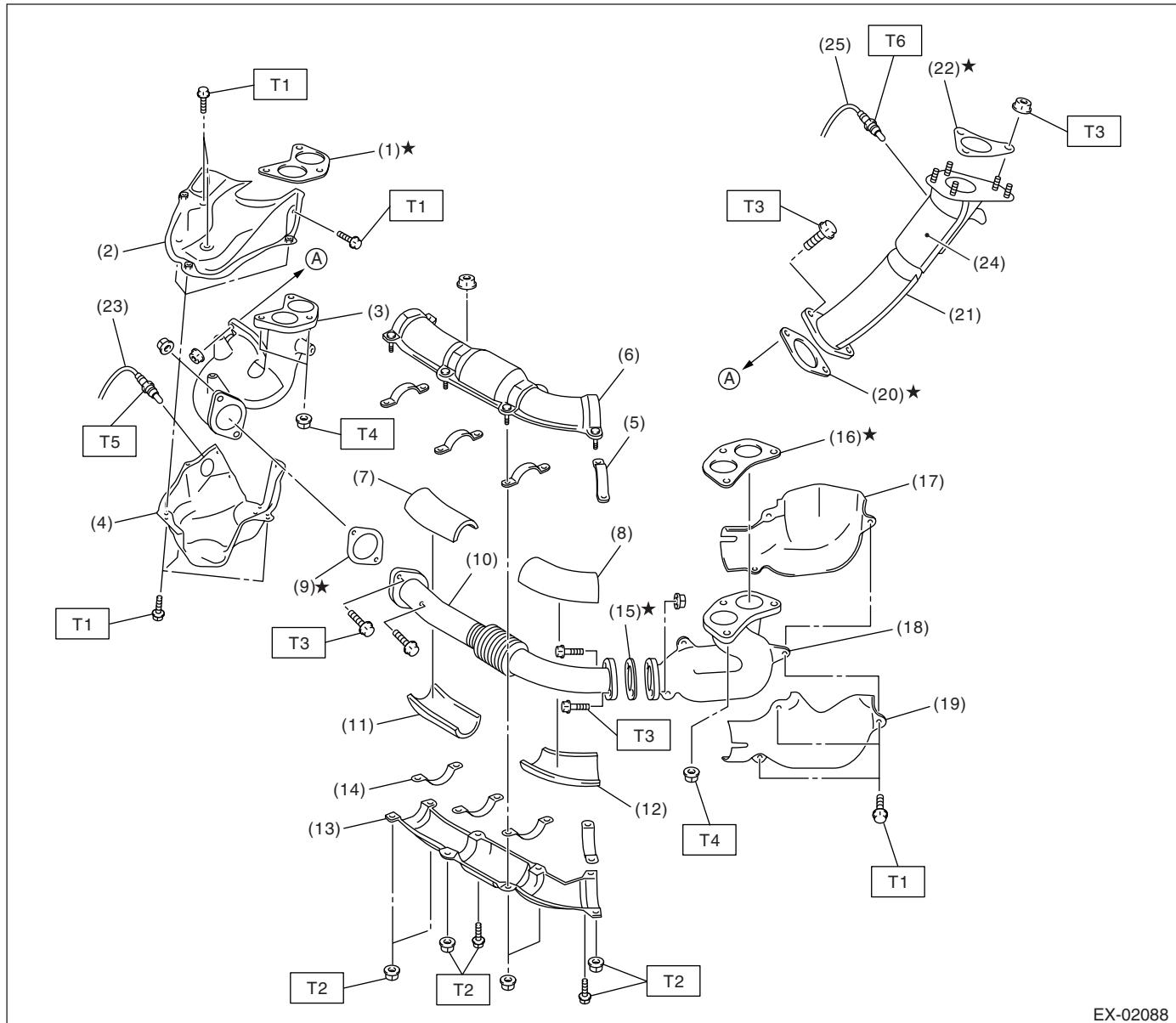
General Description

EXHAUST

1. General Description

A: COMPONENT

1. FRONT EXHAUST PIPE



EX-02088

General Description

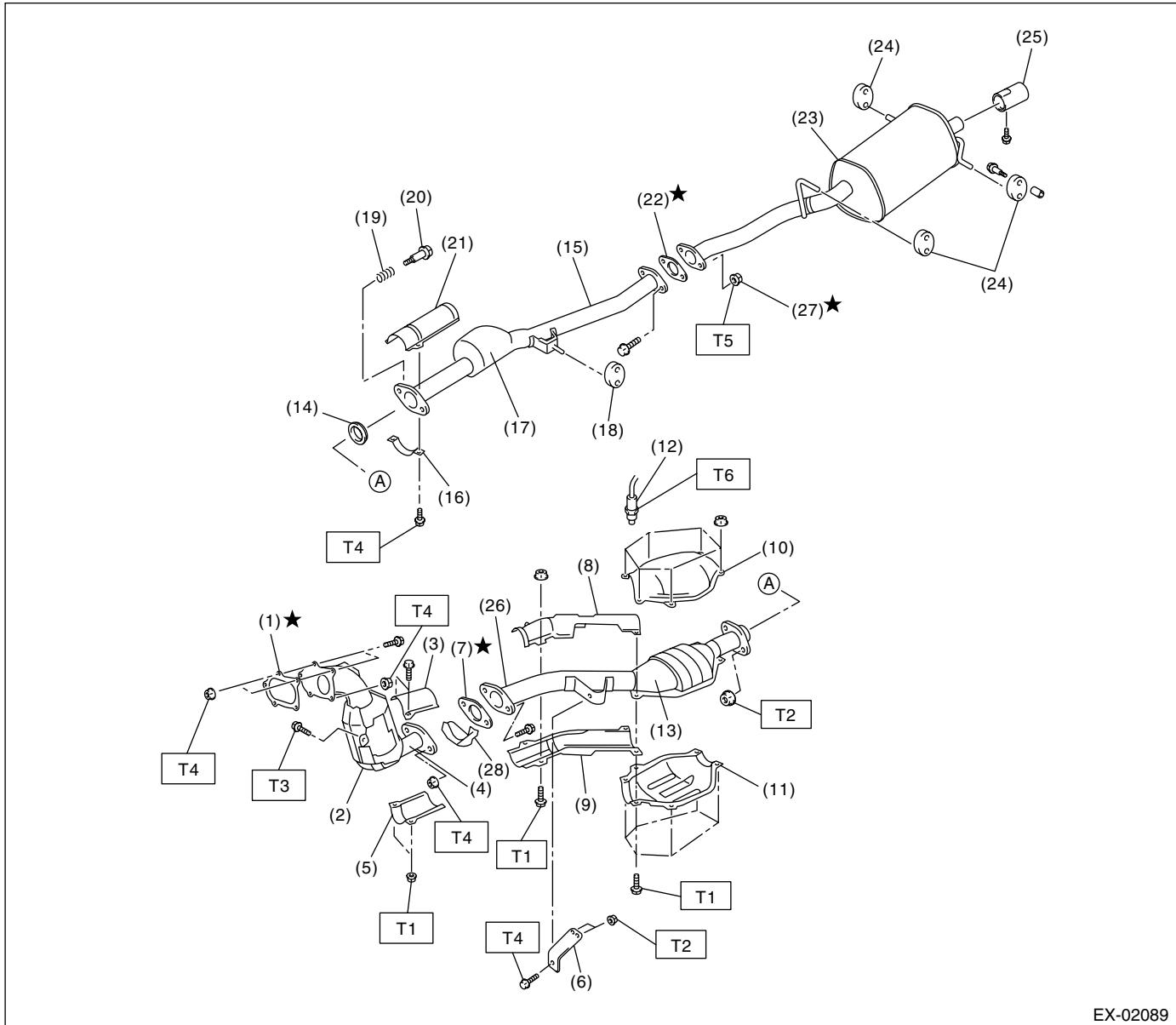
EXHAUST

(1) Gasket	(12) Front exhaust pipe lower insulator (LH)	(25) Exhaust temperature sensor (except STi model)
(2) Exhaust manifold upper cover (RH)	(13) Front exhaust pipe lower cover	
(3) Exhaust manifold (RH)	(14) Front exhaust pipe lower clamp	
(4) Exhaust manifold lower cover (RH)	(15) Gasket	Tightening torque: N·m (kgf·m, ft·lb)
(5) Front exhaust pipe upper clamp	(16) Gasket	T1: 19 (1.9, 13.7)
(6) Front exhaust pipe upper cover	(17) Exhaust manifold upper cover (LH)	T2: 25 (2.5, 18.1)
(7) Front exhaust pipe upper insulator (RH)	(18) Exhaust manifold (LH)	T3: 35 (3.6, 26)
(8) Front exhaust pipe upper insulator (LH)	(19) Exhaust manifold lower cover (LH)	T4: 40 (4, 28.9)
(9) Gasket	(20) Gasket	T5: <Ref. to FU(H4DOTC)-43, INSTALLATION, Front Oxygen (A/F) Sensor.>
(10) Front exhaust pipe	(21) Turbocharger joint pipe	T6: <Ref. to FU(H4DOTC)-47, INSTALLATION, Exhaust Temperature Sensor.>
(11) Front exhaust pipe lower insulator (RH)	(22) Gasket	
	(23) Front oxygen (A/F) sensor	
	(24) Precatalytic converter (except STi model)	

General Description

EXHAUST

2. CENTER AND REAR EXHAUST PIPE, AND MUFFLER



EX-02089

(1) Gasket	(13) Rear catalytic converter	(26) Center exhaust pipe (Rear)
(2) Front catalytic converter	(14) Gasket	(27) Self-locking nut
(3) Center pipe upper cover (Front)	(15) Rear exhaust pipe	
(4) Center exhaust pipe (Front)	(16) Clamp	
(5) Center pipe lower cover (Front)	(17) Chamber	
(6) Bracket	(18) Cushion rubber	
(7) Gasket	(19) Spring	
(8) Center pipe upper cover (Rear)	(20) Bolt	
(9) Center pipe lower cover (Rear)	(21) Rear exhaust pipe upper cover (Front)	
(10) Rear catalytic converter upper cover	(22) Gasket	
(11) Rear catalytic converter lower cover	(23) Muffler	
(12) Rear oxygen sensor	(24) Cushion rubber	
	(25) Muffler cutter	

Tightening torque: N·m (kgf-m, ft-lb)

T1: 13 (1.3, 9.6)

T2: 18 (1.8, 13)

T3: 30 (3.1, 22.4)

T4: 35 (3.6, 26)

T5: 48 (4.9, 35.4)

T6: <Ref. to FU(H4DOTC)-45,
INSTALLATION, Rear Oxygen
Sensor.>

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 sensors or units, be sure to disconnect the ground cable from battery.

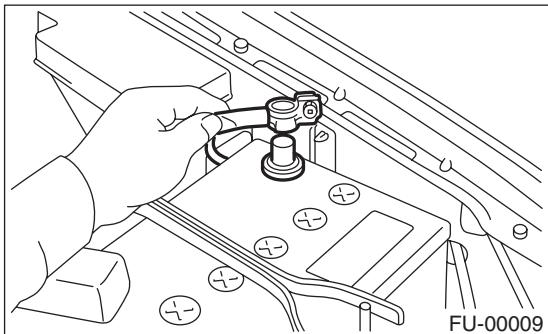
Front Exhaust Pipe

EXHAUST

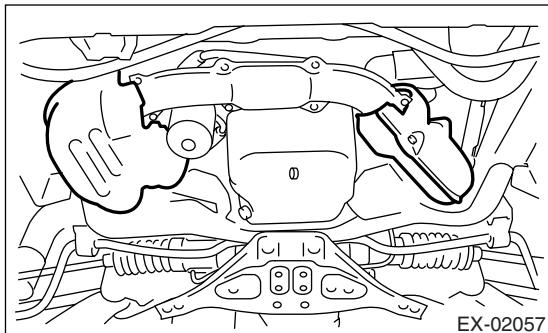
2. Front Exhaust Pipe

A: REMOVAL

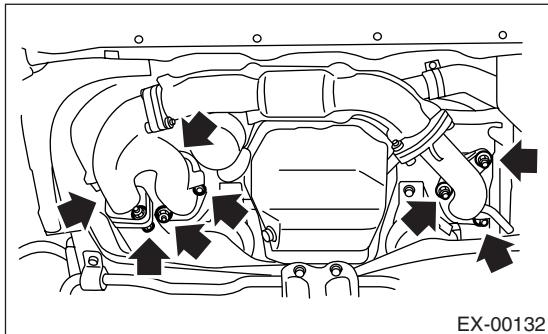
- 1) Disconnect the ground cable from battery.



- 2) Remove the front oxygen (A/F) sensor. <Ref. to FU(H4DOTC)-43, REMOVAL, Front Oxygen (A/F) Sensor.>
- 3) Remove the under cover.
- 4) Remove the lower exhaust manifold cover (RH).
- 5) Remove the lower and upper exhaust manifold covers (LH).

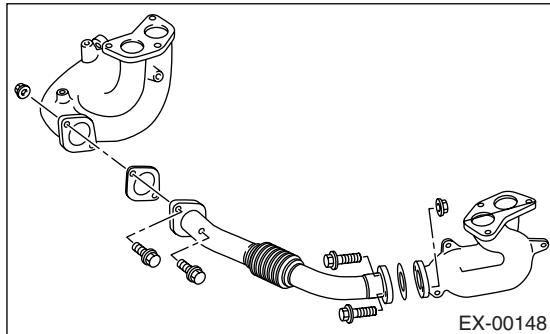


- 6) Remove the bolts and nuts which hold the front exhaust pipe assembly to turbocharger joint pipe.
- 7) While holding the front exhaust pipe assembly with one hand, remove the nuts which hold the front exhaust pipe assembly to cylinder head exhaust port.



- 8) Remove the front exhaust pipe assembly.
- 9) Remove the covers from exhaust manifold and front exhaust pipe.

- 10) Separate the front exhaust pipe from exhaust manifolds.



B: INSTALLATION

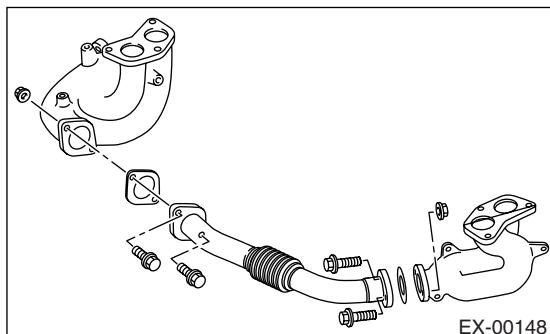
NOTE:

Replace the gaskets with new ones.

- 1) Assemble the front exhaust pipe and exhaust manifolds.

Tightening torque:

35 N·m (3.6 kgf-m, 26 ft-lb)



- 2) Install the front exhaust pipe covers.

Tightening torque:

25 N·m (2.5 kgf-m, 18.1 ft-lb)

- 3) Install the upper exhaust manifold cover (RH).

Tightening torque:

19 N·m (1.9 kgf-m, 13.7 ft-lb)

- 4) Install the front exhaust pipe assembly.

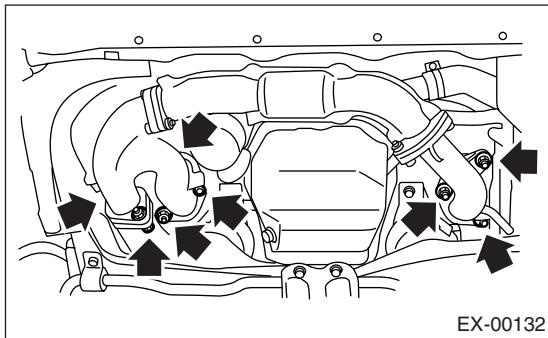
Tightening torque:

35 N·m (3.6 kgf-m, 26 ft-lb)

5) Connect the exhaust manifold (RH) to turbocharger joint pipe.

Tightening torque:

35 N·m (3.6 kgf·m, 26 ft-lb)



6) Install the upper and lower exhaust manifold covers (LH).

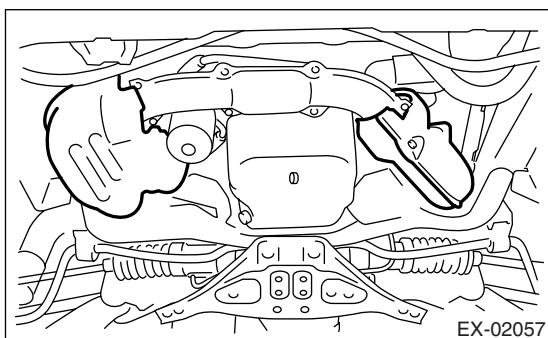
Tightening torque:

19 N·m (1.9 kgf·m, 13.7 ft-lb)

7) Install the lower exhaust manifold cover (RH).

Tightening torque:

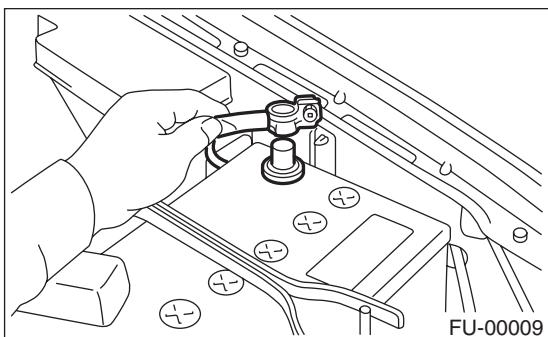
19 N·m (1.9 kgf·m, 13.7 ft-lb)



8) Install the front oxygen (A/F) sensor. <Ref. to FU(H4DOTC)-43, INSTALLATION, Front Oxygen (A/F) Sensor.>

9) Install the under cover.

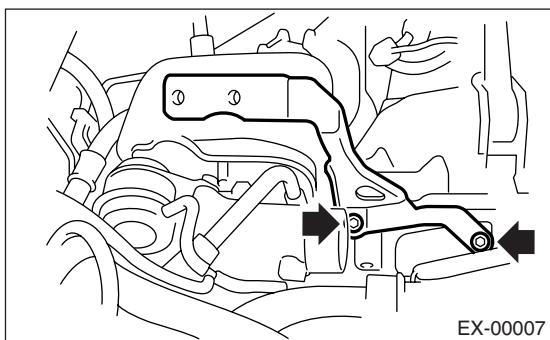
10) Connect the battery ground cable to battery.



3. Center Exhaust Pipe

A: REMOVAL

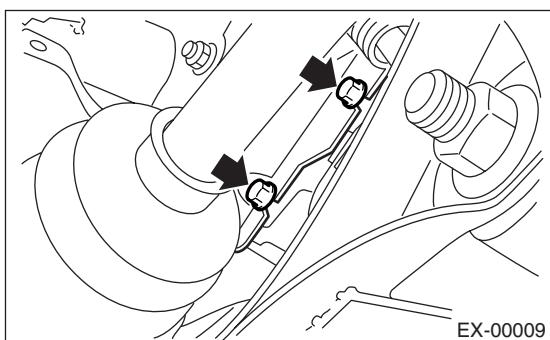
- 1) Set the vehicle on a lift.
- 2) Disconnect the ground cable from battery.
- 3) Remove the intercooler. <Ref. to IN(H4DOTC)-10, REMOVAL, Intercooler.>
- 4) Remove the intercooler bracket.



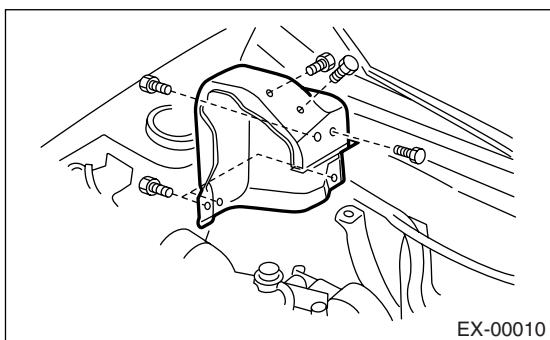
- 5) Lift-up the vehicle.
- 6) Remove the under cover.
- 7) Remove the bolts which install the under side of turbocharger lower cover.

CAUTION:

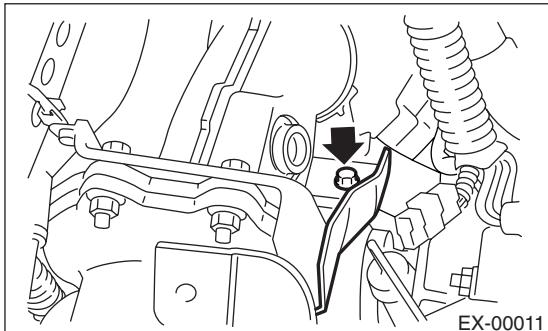
Be careful, the turbocharger and exhaust pipe are hot.



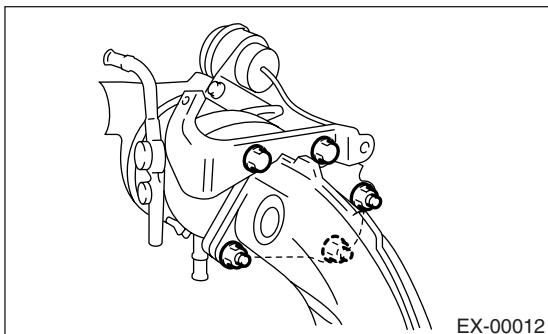
- 8) Lower the vehicle.
- 9) Remove the turbocharger upper cover.



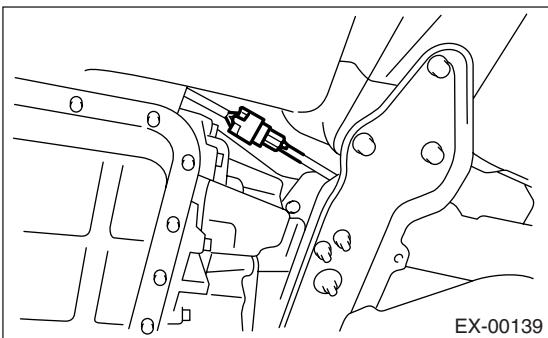
- 10) Remove the bolts which install the upper side of turbocharger lower cover, and remove it.



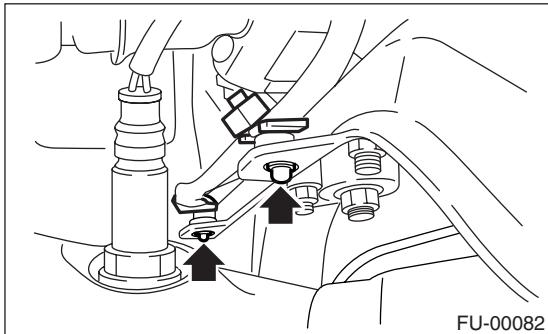
- 11) Separate the center exhaust pipe from turbocharger.



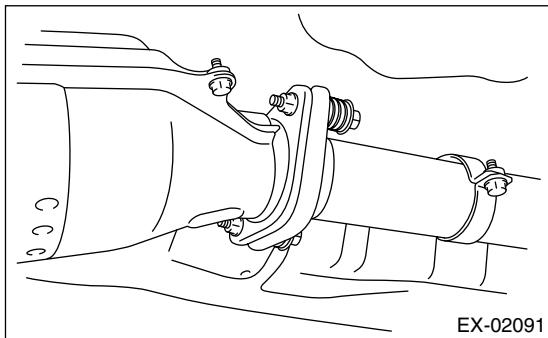
- 12) Lift-up the vehicle.
- 13) Disconnect the connector from rear oxygen sensor.



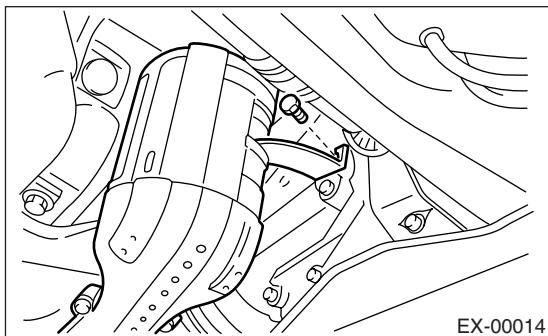
- 14) Vertically draw out the clip from crossmember.



15) Separate the center exhaust pipe from rear exhaust pipe.

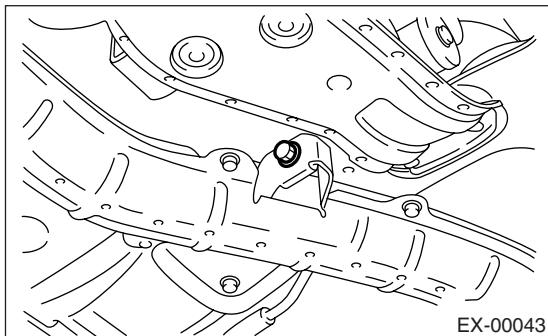


16) Remove the bolt which holds the center exhaust pipe bracket to transmission.



17) Remove the intercooler bracket.
18) Remove the bolt which holds the center exhaust pipe to hanger bracket.

CAUTION:
Be careful not to pull down the center exhaust pipe.



19) Remove the center exhaust pipe.



B: INSTALLATION

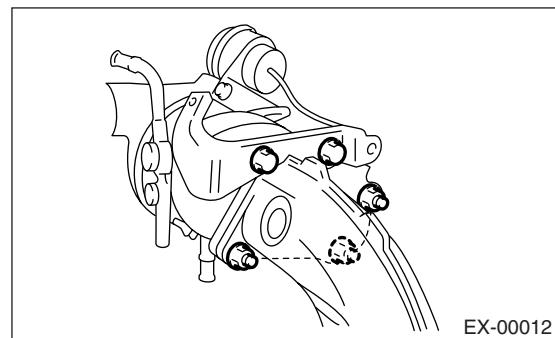
NOTE:

Replace the gaskets with new ones.

- 1) Install the center exhaust pipe and temporarily tighten the bolt which holds the center exhaust pipe to hanger bracket.
- 2) Temporarily tighten the bolt which holds the center pipe to transmission.
- 3) Connect the center exhaust pipe to turbocharger.

Tightening torque:

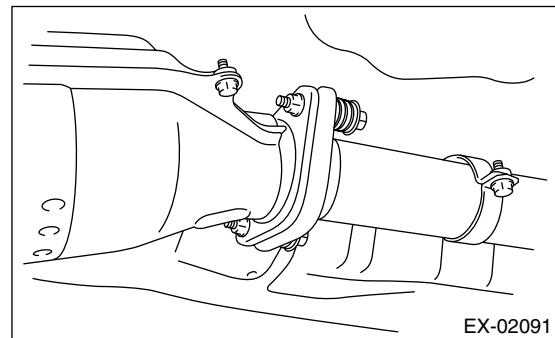
$35 \text{ N}\cdot\text{m} (3.6 \text{ kgf-m}, 26 \text{ ft-lb})$



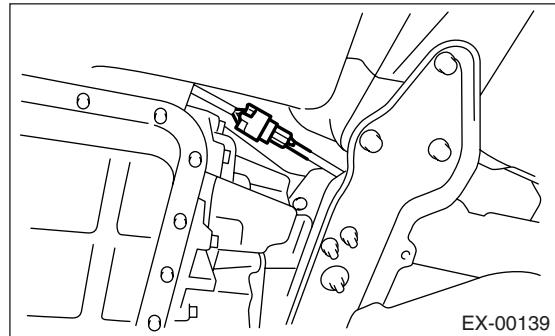
4) Install the center exhaust pipe to rear exhaust pipe.

Tightening torque:

$18 \text{ N}\cdot\text{m} (1.8 \text{ kgf-m}, 13 \text{ ft-lb})$



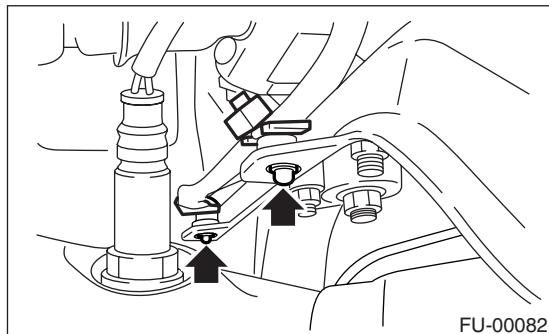
5) Connect the connector to rear oxygen sensor.



Center Exhaust Pipe

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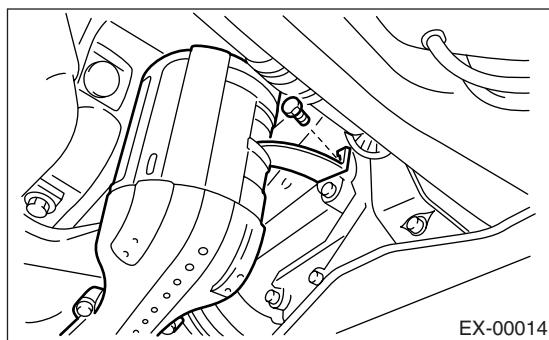
6) Secure the clip on crossmember.



7) Tighten the bolt which holds the center exhaust pipe bracket to transmission.

Tightening torque:

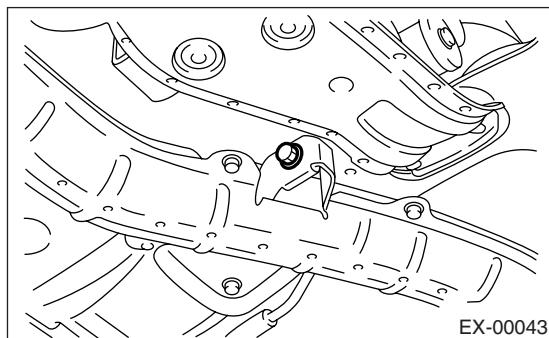
30 N·m (3.1 kgf·m, 22.4 ft·lb)



8) Tighten the bolt which holds the center exhaust pipe to hanger bracket.

Tightening torque:

35 N·m (3.6 kgf·m, 26 ft·lb)

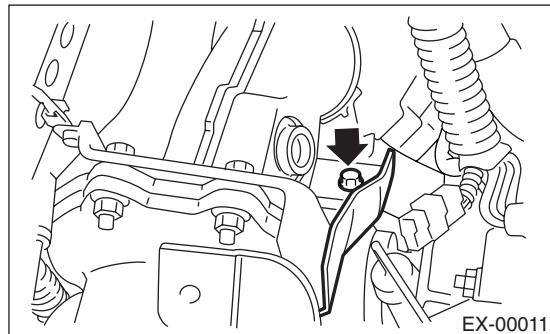


9) Lower the vehicle.

10) Place the turbocharger lower cover, and tighten the bolts which install the upper side of lower cover.

Tightening torque:

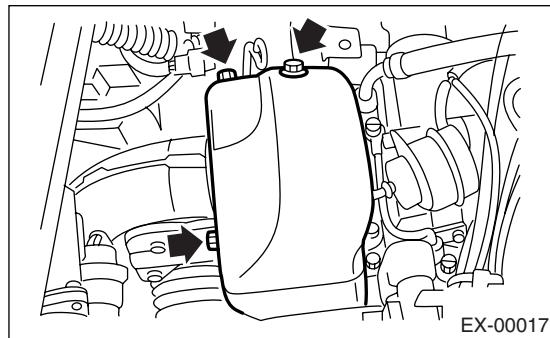
7.4 N·m (0.75 kgf·m, 5.4 ft·lb)



11) Place the turbocharger upper cover, and tighten the bolts which install the upper side of upper cover.

Tightening torque:

7.4 N·m (0.75 kgf·m, 5.4 ft·lb)

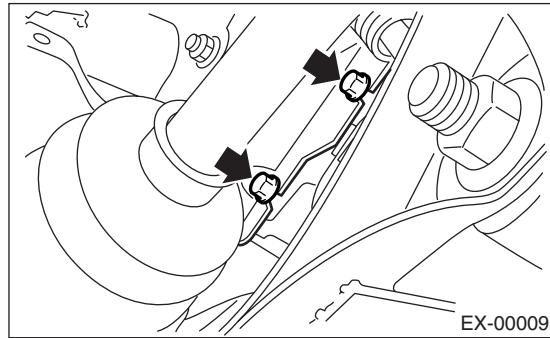


12) Lift-up the vehicle.

13) Tighten the bolts which install the under side of turbocharger lower cover.

Tightening torque:

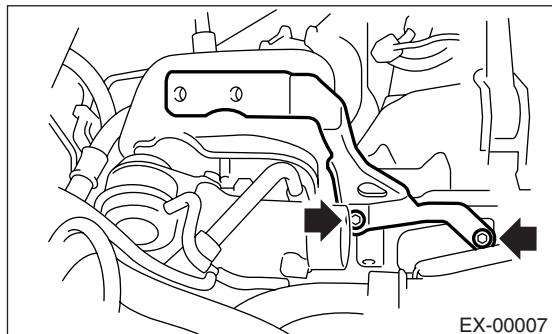
7.4 N·m (0.75 kgf·m, 5.4 ft·lb)



14) Install the under cover.

15) Lower the vehicle.

16) Install the intercooler bracket.

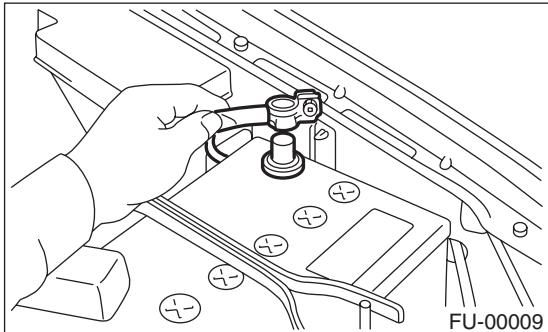


17) Install the intercooler. <Ref. to IN(H4DOTC)-10, INSTALLATION, Intercooler.>

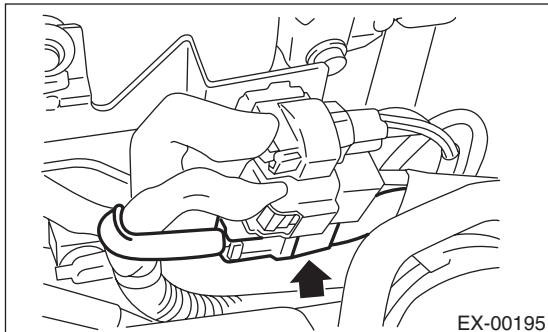
4. Joint Pipe

A: REMOVAL

1) Disconnect the ground cable from battery.



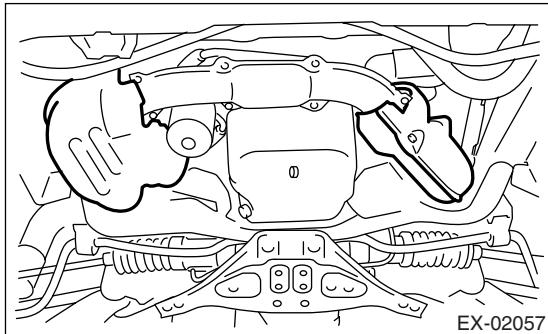
2) Disconnect the exhaust temperature sensor connector. (Except STi model)



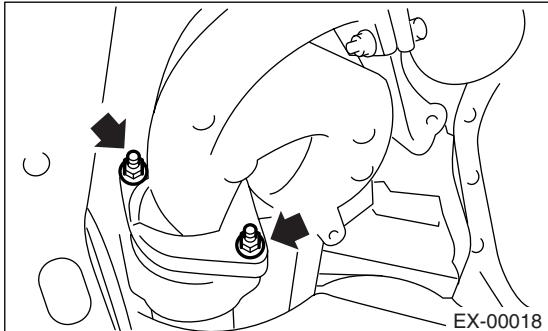
3) Remove the front oxygen (A/F) sensor. <Ref. to FU(H4DOTC)-43, REMOVAL, Front Oxygen (A/F) Sensor.>

4) Remove the under cover.

5) Remove the lower exhaust manifold cover (RH).



6) Remove the nuts which hold the front exhaust manifold to joint pipe.



7) Remove the center exhaust pipe. <Ref. to EX(H4DOTC)-8, REMOVAL, Center Exhaust Pipe.>

8) Remove the turbocharger. <Ref. to IN(H4DOTC)-12, REMOVAL, Turbocharger.>

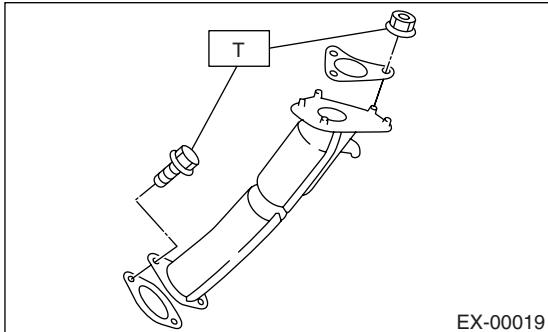
9) Take off the joint pipe in the upward direction.

B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

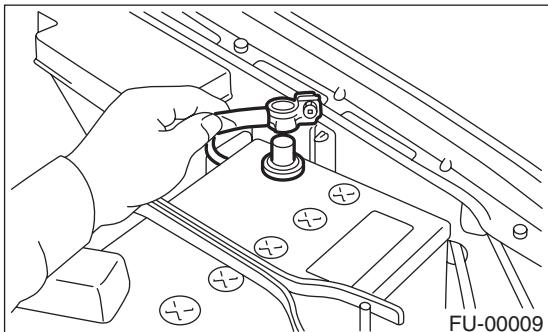
T: 35 N·m (3.6 kgf·m, 26 ft-lb)



5. Rear Exhaust Pipe

A: REMOVAL

- 1) Disconnect the ground cable from battery.

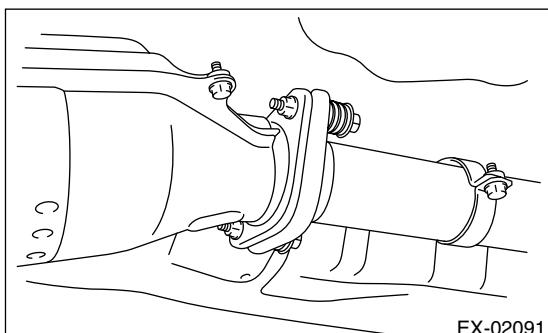


- 2) Lift-up the vehicle.

- 3) Separate the rear exhaust pipe from center exhaust pipe.

CAUTION:

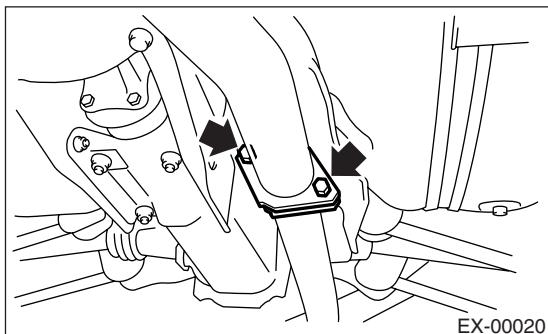
Be careful, the exhaust pipe is hot.



- 4) Separate the rear exhaust pipe from muffler.

CAUTION:

Be careful not to pull down the rear exhaust pipe.



- 5) Remove the rear exhaust pipe.

B: INSTALLATION

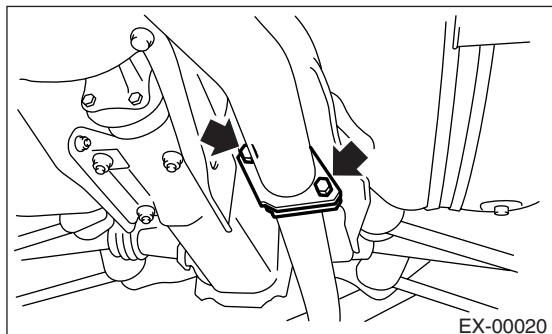
NOTE:

Replace the gaskets with new ones.

- 1) Install the rear exhaust pipe to muffler.

Tightening torque:

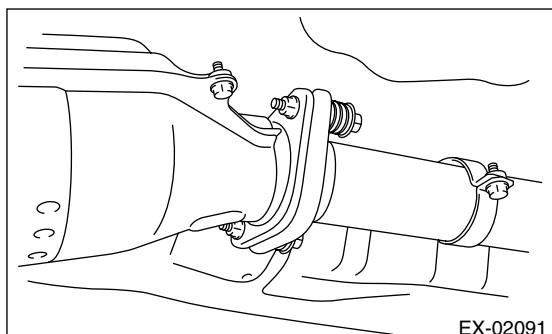
48 N·m (4.9 kgf-m, 35.4 ft-lb)



- 2) Install the rear exhaust pipe to center exhaust pipe.

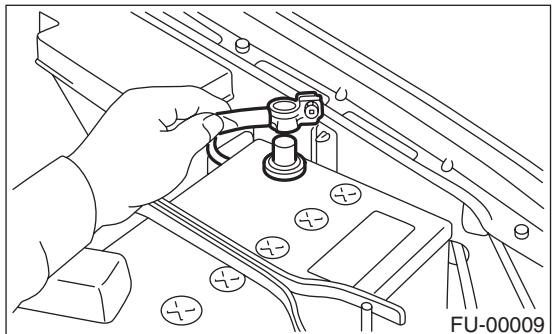
Tightening torque:

18 N·m (1.8 kgf-m, 13 ft-lb)



- 3) Lower the vehicle.

- 4) Connect the battery ground cable to battery.



C: INSPECTION

- 1) Make sure there are no exhaust leaks from connections and welds.

- 2) Make sure there are no holes or rusting.

- 3) Make sure the cushion rubber is not worn or cracked.

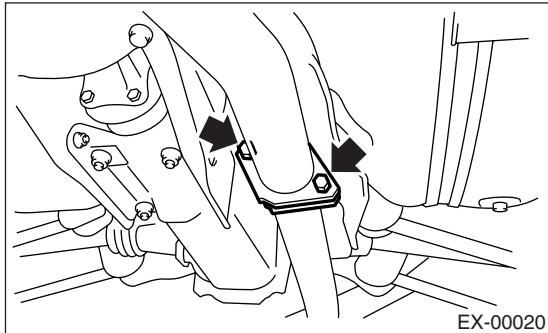
6. Muffler

A: REMOVAL

1) Separate the muffler from rear exhaust pipe.

CAUTION:

Be careful, the exhaust pipe is hot.



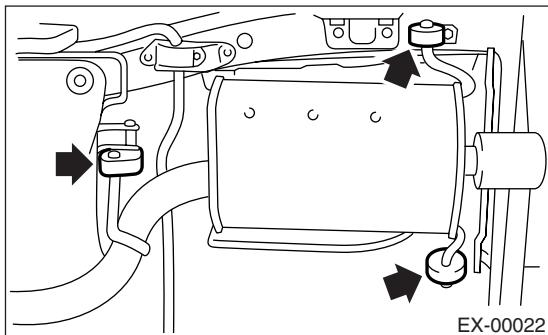
2) Remove the rubber cushions, and detach the muffler.

CAUTION:

Be careful not to drop the muffler during removal.

NOTE:

To facilitate removal, apply a coat of spray type lubricant to the mating area of rubber cushions in advance.



B: INSTALLATION

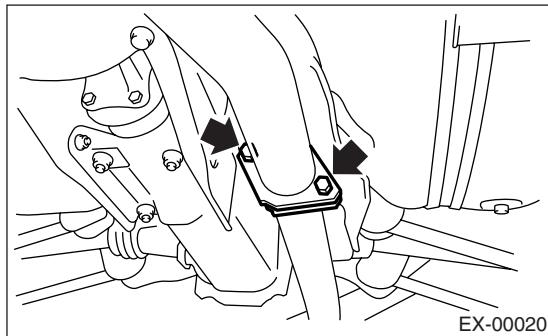
Install in the reverse order of removal.

NOTE:

Replace the gasket and self-locking nut with a new one.

Tightening torque:

48 N·m (4.9 kgf-m, 35.4 ft-lb)



C: INSPECTION

- 1) Make sure there are no exhaust leaks from connections and welds.
- 2) Make sure there are no holes or rusting.
- 3) Make sure the cushion rubber is not worn or cracked.