

EXHAUST

EX(DOHC TURBO)

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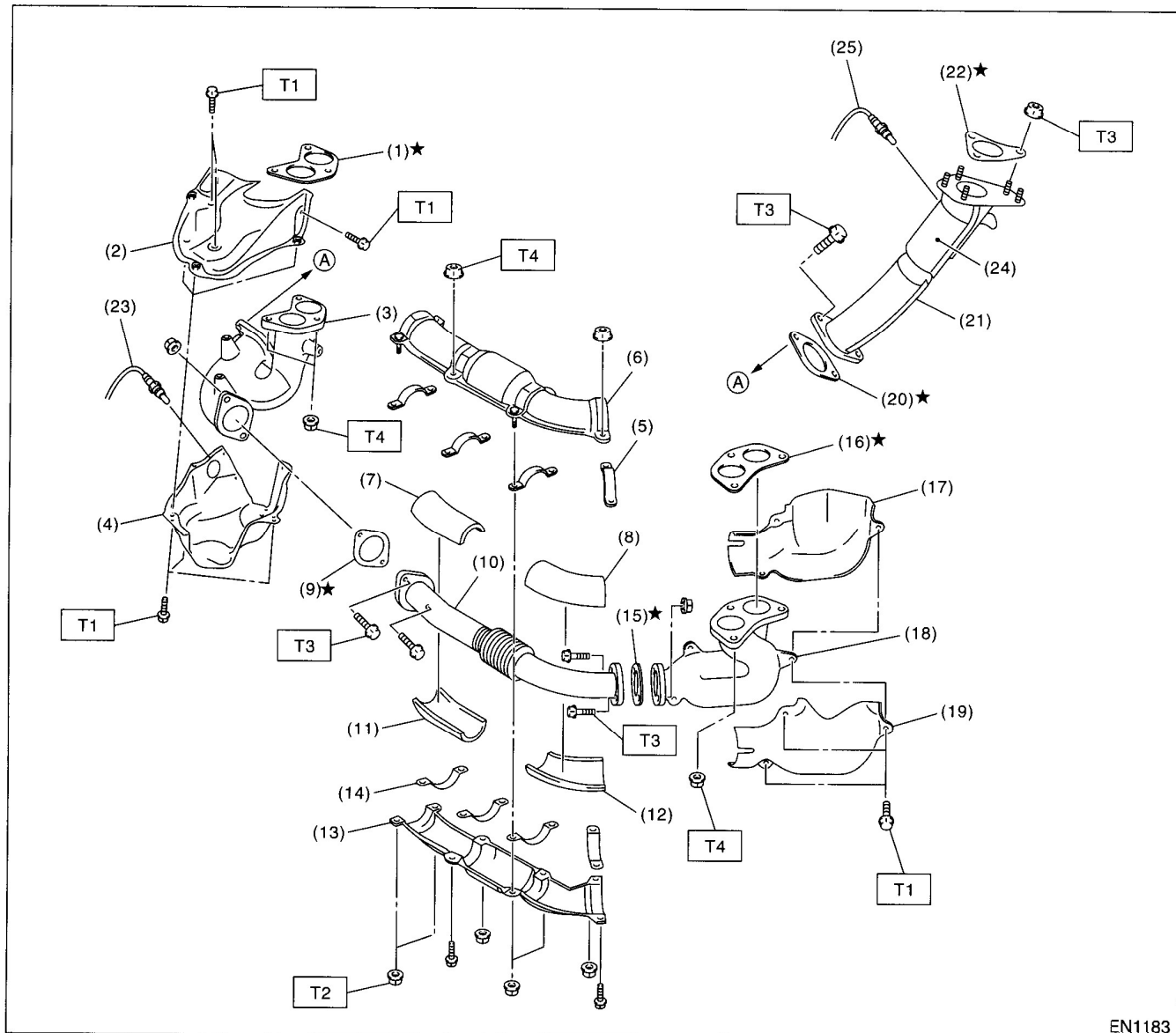
GENERAL DESCRIPTION

EXHAUST

1. General Description

A: COMPONENT

1. FRONT EXHAUST PIPE



EN1183

EX(DOHC TURBO)-2

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GENERAL DESCRIPTION

EXHAUST

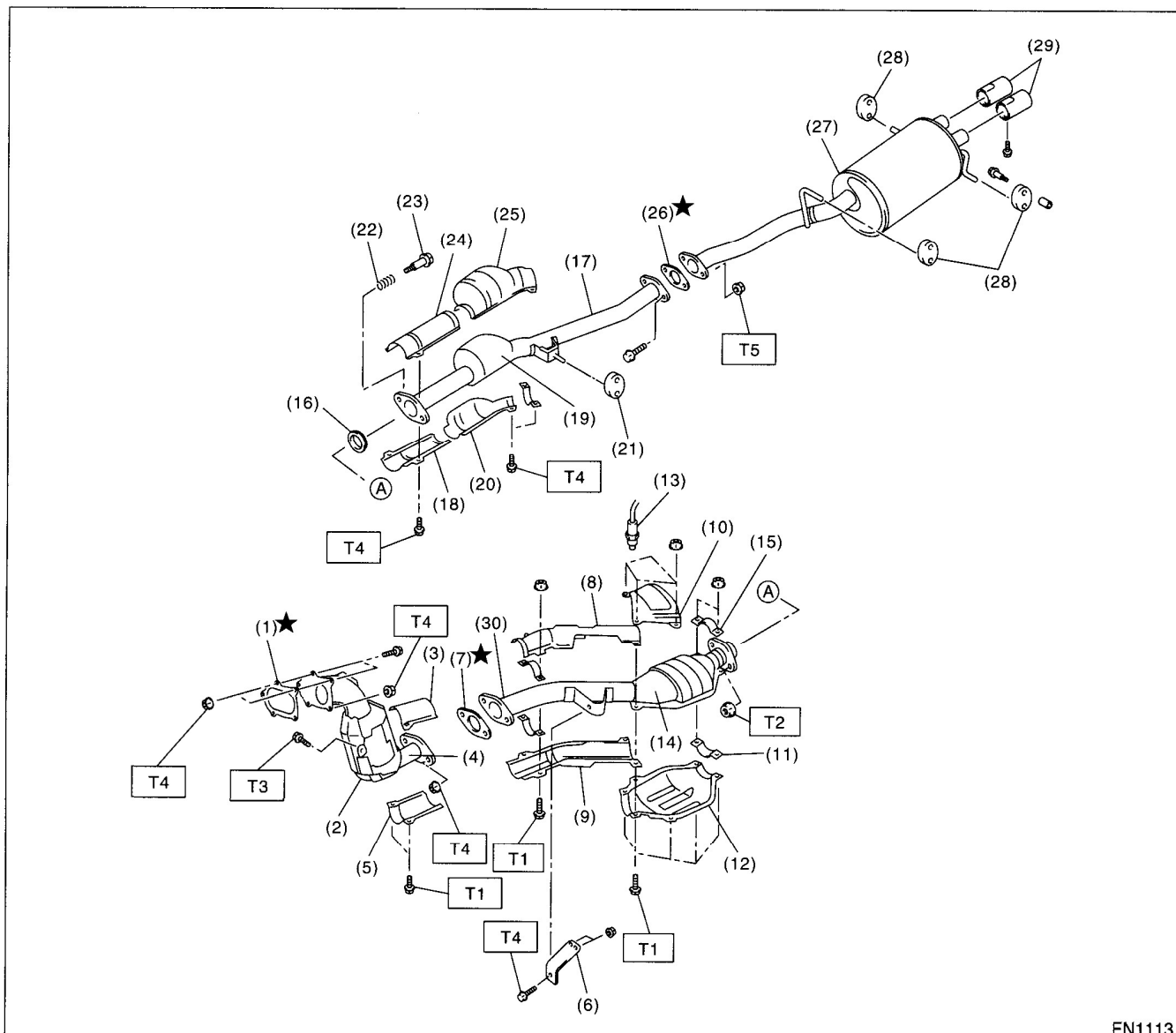
(1) Gasket	(11) Front exhaust pipe lower insulator (RH)	(21) Turbocharger joint pipe
(2) Upper exhaust manifold cover (RH)	(12) Front exhaust pipe lower insulator (LH)	(22) Gasket
(3) Exhaust manifold (RH)	(13) Front exhaust pipe lower cover	(23) Front oxygen (A/F) sensor
(4) Lower exhaust manifold cover (RH)	(14) Front exhaust pipe lower clamp	(24) Precatalytic converter
(5) Front exhaust pipe upper clamp	(15) Gasket	(25) Exhaust temperature sensor
(6) Front exhaust pipe upper cover	(16) Gasket	
(7) Front exhaust pipe upper insulator (RH)	(17) Upper exhaust manifold cover (LH)	
(8) Front exhaust pipe upper insulator (LH)	(18) Exhaust manifold (LH)	
(9) Gasket	(19) Lower exhaust manifold cover (LH)	
(10) Front exhaust pipe	(20) Gasket	

Tightening torque: N·m (kgf-m, ft-lb)**T1: 19 (1.9, 13.7)****T2: 25 (2.5, 18.1)****T3: 35 (3.6, 26.0)****T4: 40 (4, 28.9)**

GENERAL DESCRIPTION

EXHAUST

2. CENTER AND REAR EXHAUST PIPE, AND MUFFLER



EN1113

(1) Gasket	(14) Rear catalytic converter	(25) Upper rear exhaust pipe cover (Rear)
(2) Front catalytic converter	(15) Upper clamp	(26) Gasket
(3) Upper center pipe cover (Front)	(16) Gasket	(27) Muffler
(4) Center exhaust pipe (Front)	(17) Rear exhaust pipe	(28) Cushion
(5) Lower center pipe cover (Front)	(18) Lower rear exhaust pipe cover (Front)	(29) Muffler cutter
(6) Bracket	(19) Chamber	(30) Center exhaust pipe (Rear)
(7) Gasket	(20) Lower rear exhaust pipe cover (Rear)	
(8) Upper center pipe cover (Rear)	(21) Cushion	
(9) Lower center pipe cover (Rear)	(22) Spring	
(10) Upper rear catalytic converter cover	(23) Bolt	
(11) Lower clamp	(24) Upper rear exhaust pipe cover (Front)	
(12) Lower rear catalytic converter cover		
(13) Rear oxygen sensor		

Tightening torque: N·m (kgf-m, ft-lb)

T1: 13 (1.3, 9.6)

T2: 18 (1.8, 13.0)

T3: 30 (3.1, 22.4)

T4: 35 (3.6, 26.0)

T5: 48 (4.9, 35.4)

EX(DOHC TURBO)-4

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B: CAUTION

- Wear working 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 or 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 safety stands at the specified points.
- Before disconnecting electrical connectors of sensors or units, be sure to disconnect the negative terminal from battery.

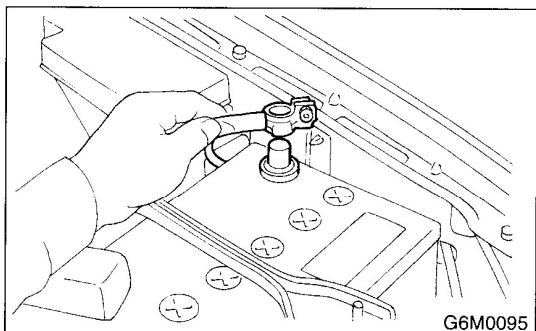
FRONT EXHAUST PIPE

EXHAUST

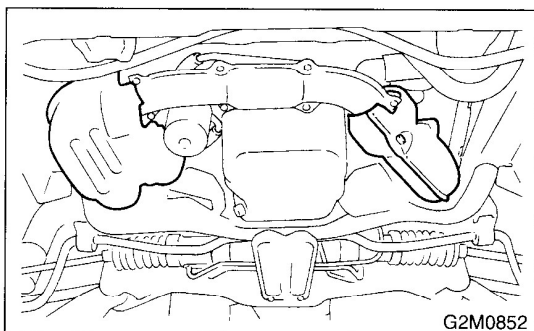
2. Front Exhaust Pipe

A: REMOVAL

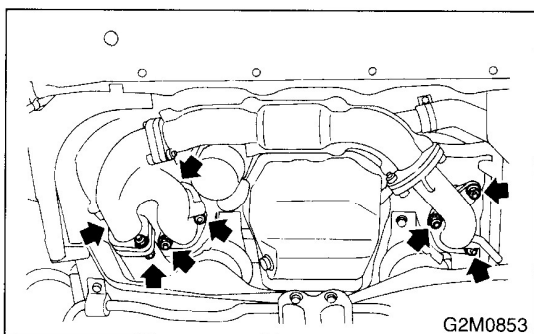
- 1) Disconnect the ground terminal from battery.



- 2) Remove the front oxygen (A/F) sensor. <Ref. to FU(DOHC TURBO)-42, 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).

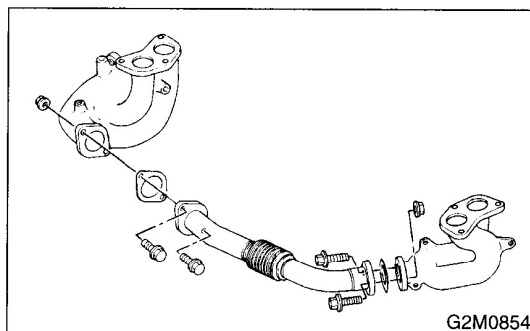


- 6) Remove the bolts and nuts which hold the front exhaust pipe assembly to turbocharger joint pipe.
- 7) While holding the front exhaust pipe assembly with one hand, remove the nuts which hold the front exhaust pipe assembly to cylinder head exhaust port.



- 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

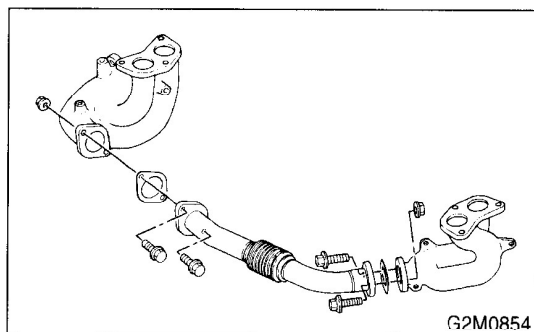
CAUTION:

Replace the gaskets with new ones.

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

Tightening torque:

35 N·m (3.6 kgf-m, 26.0 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.

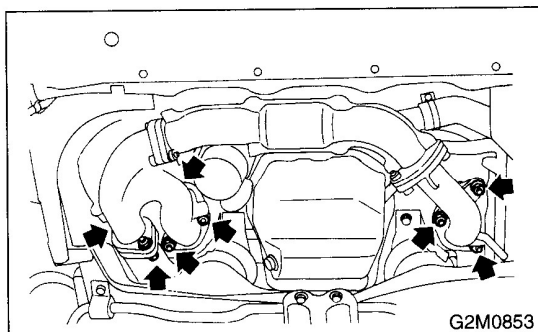
Tightening torque:

35 N·m (3.6 kgf-m, 26.0 ft-lb)

5) Connect the exhaust manifold (RH) to turbo-charger joint pipe.

Tightening torque:

35 N·m (3.6 kgf-m, 26.0 ft-lb)



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

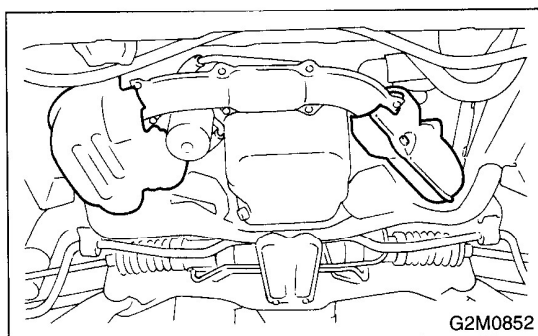
Tightening torque:

19 N·m (1.9 kgf-m, 13.7 ft-lb)

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

Tightening torque:

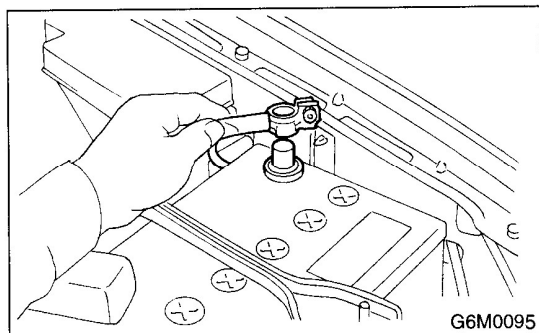
19 N·m (1.9 kgf-m, 13.7 ft-lb)



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

9) Install the under cover.

10) Connect the battery ground terminal to battery.



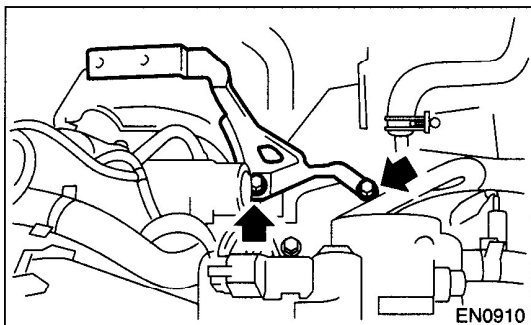
CENTER EXHAUST PIPE

EXHAUST

3. Center Exhaust Pipe

A: REMOVAL

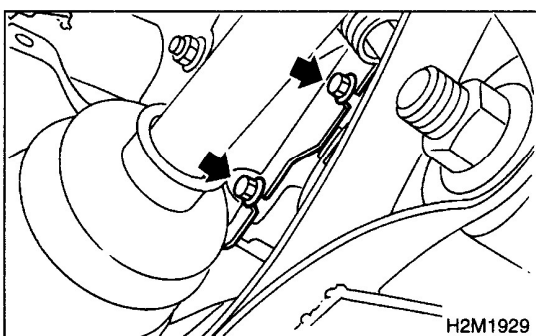
- 1) Set the vehicle on the lift.
- 2) Disconnect the ground terminal from battery.
- 3) Remove the intercooler. <Ref. to IN(DOHC TURBO)-10, REMOVAL, Intercooler.>
- 4) Remove the intercooler bracket.



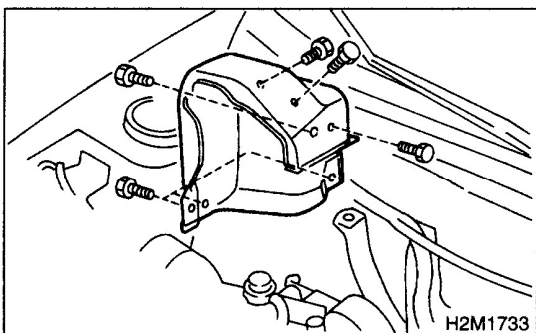
- 5) Lift-up the vehicle.
- 6) Remove the under cover.
- 7) Remove the bolts which install the lower side of turbocharger upper cover.

CAUTION:

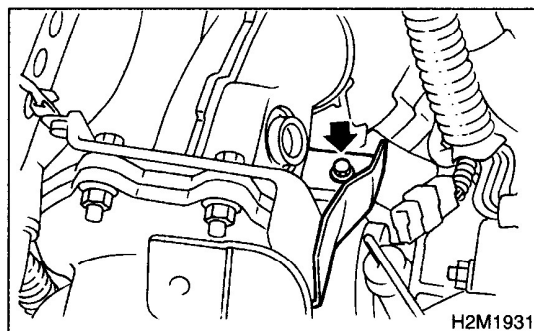
Be careful, the turbocharger and exhaust pipe are hot.



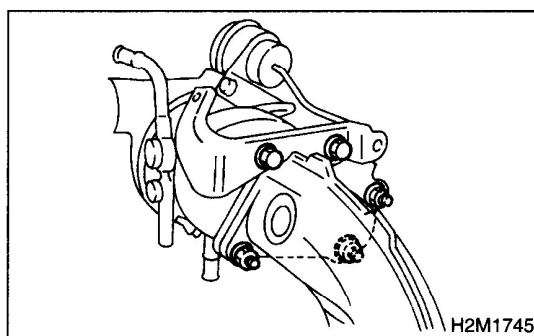
- 8) Lower the vehicle.
- 9) Remove the turbocharger upper cover.



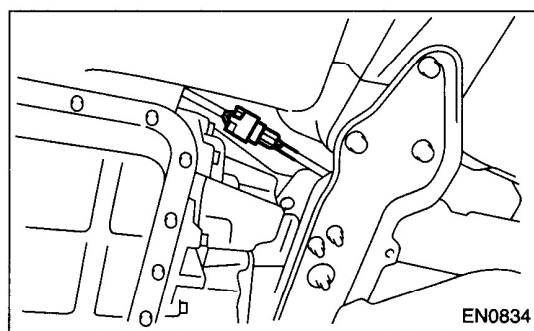
- 10) Remove the bolts which install the lower upper side of turbocharger upper cover, and remove it.



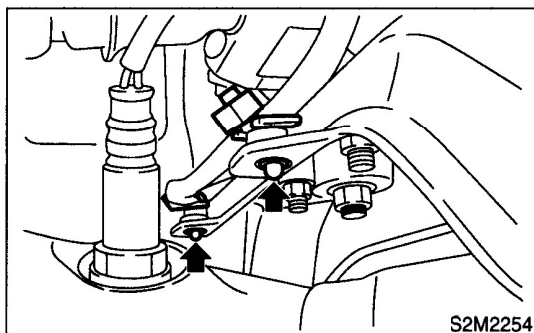
- 11) Separate the center exhaust pipe from turbocharger.



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



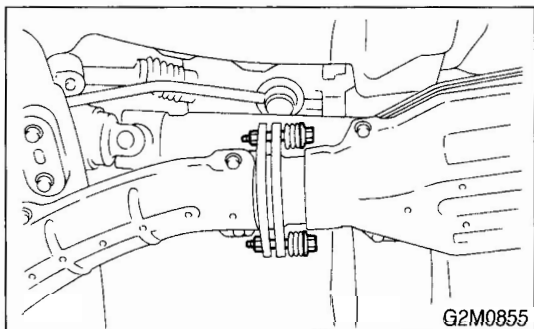
- 14) Vertically draw out clip from crossmember.



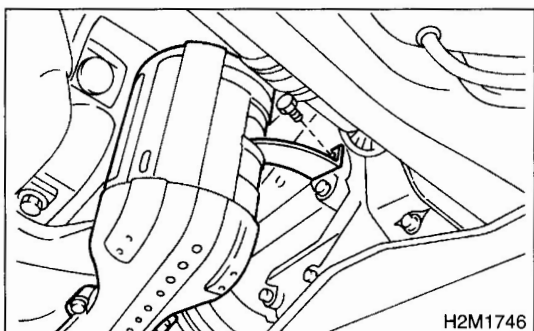
CENTER EXHAUST PIPE

EXHAUST

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



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

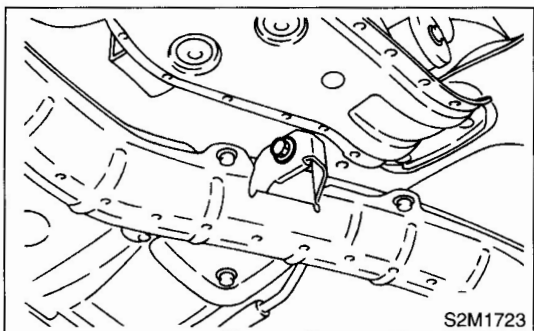


17) Remove the intercooler bracket.

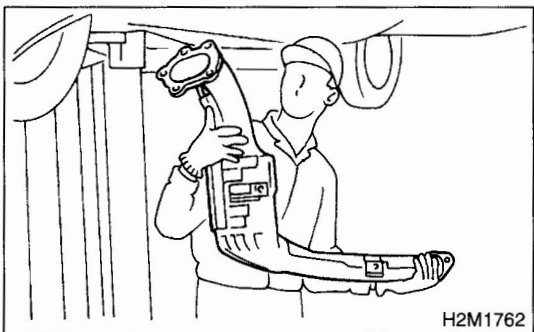
18) Remove the bolt which holds center exhaust pipe to hanger bracket.

CAUTION:

Be careful not to pull down the center exhaust pipe.



19) Remove the center exhaust pipe.



B: INSTALLATION

CAUTION:

Replace the gaskets with new ones.

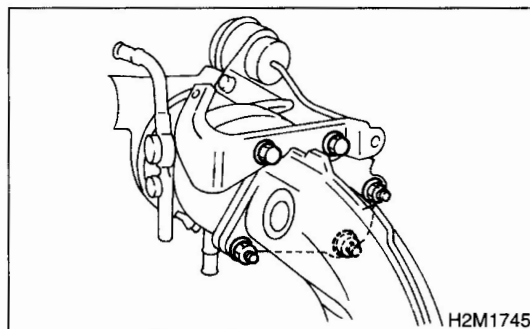
1) Install the center exhaust pipe and temporarily tighten the bolt which holds center exhaust pipe to hanger bracket.

2) Temporarily tighten the bolt which holds the center pipe to transmission.

3) Connect the center exhaust pipe to turbocharger.

Tightening torque:

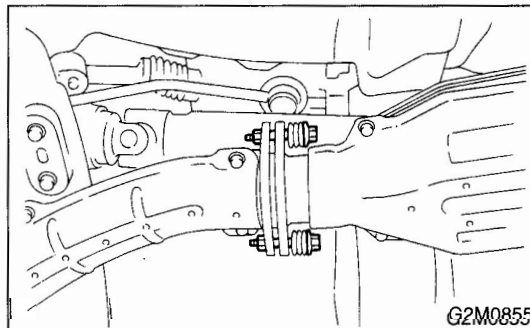
35 N·m (3.6 kgf-m, 26.0 ft-lb)



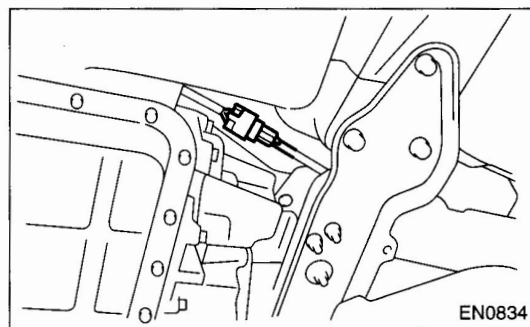
4) Install the center exhaust pipe to rear exhaust pipe.

Tightening torque:

18 N·m (1.8 kgf-m, 13.0 ft-lb)



5) Connect the connector to rear oxygen sensor.



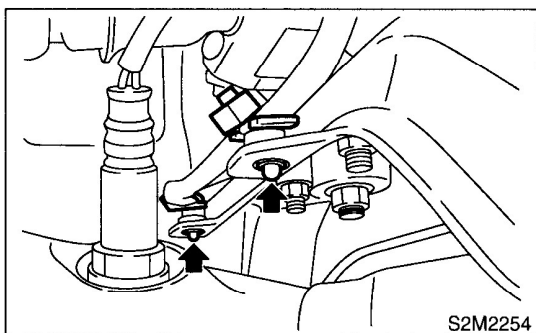
EX(DOHC TURBO)-9

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CENTER EXHAUST PIPE

EXHAUST

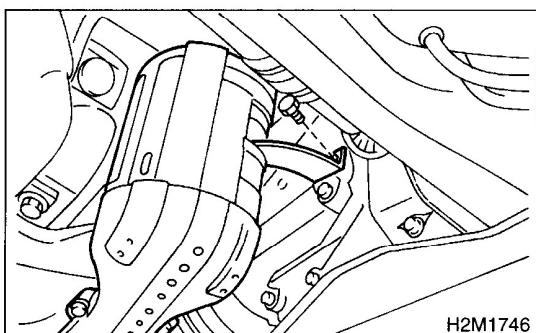
- 6) Secure clip on the crossmember.



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

Tightening torque:

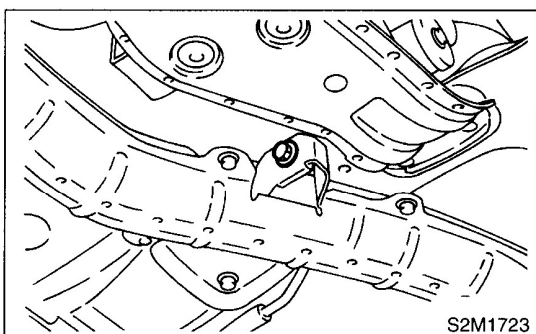
30 N·m (3.1 kgf-m, 22.4 ft-lb)



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

Tightening torque:

35 N·m (3.6 kgf-m, 26.0 ft-lb)



- 9) Tighten the bolts which hold the intercooler bracket.

Tightening torque:

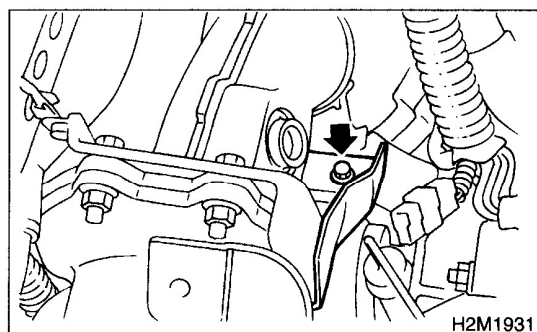
35 N·m (3.6 kgf-m, 26.0 ft-lb)

- 10) Lower the vehicle.

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

Tightening torque:

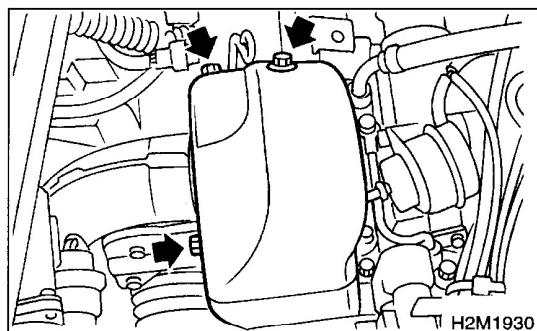
7.4 N·m (0.75 kgf-m, 5.4 ft-lb)



- 12) 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)

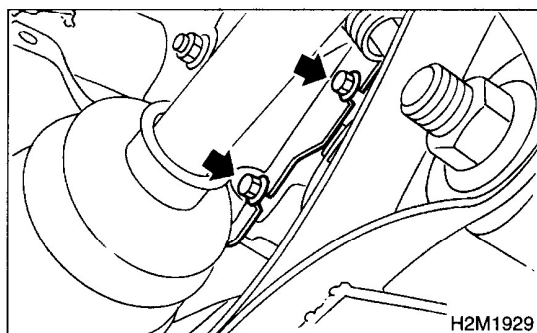


- 13) Lift-up the vehicle.

- 14) Tighten the bolts which install the under side of turbocharger upper cover.

Tightening torque:

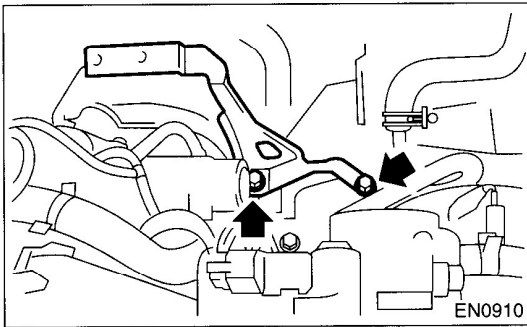
7.4 N·m (0.75 kgf-m, 5.4 ft-lb)



- 15) Install the under cover.

- 16) Lower the vehicle.

17) Install the intercooler bracket.



18) Install the intercooler. <Ref. to IN(DOHC TURBO)-11, INSTALLATION, Intercooler.>

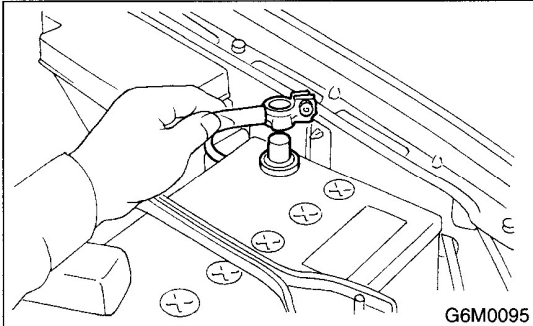
JOINT PIPE

EXHAUST

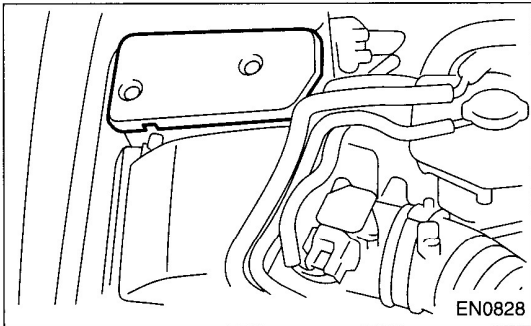
4. Joint Pipe

A: REMOVAL

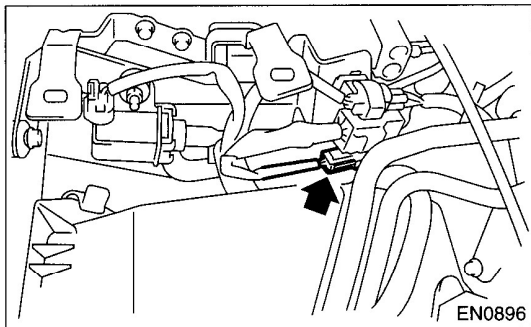
1) Disconnect the ground terminal from battery.



2) Remove the solenoid valve cover.



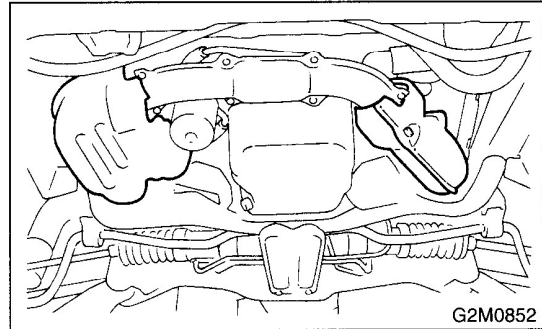
3) Disconnect the exhaust temperature sensor connector.



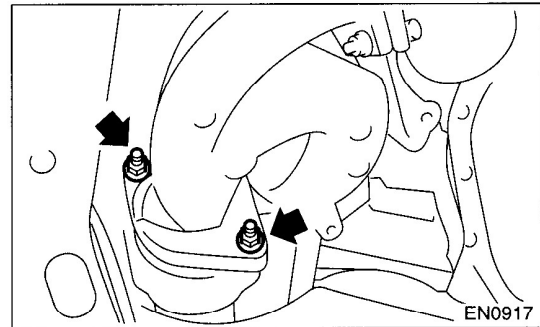
4) Remove the front oxygen (A/F) sensor. <Ref. to FU(DOHC TURBO)-42, REMOVAL, Front Oxygen (A/F) Sensor.>

5) Remove the under cover.

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



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



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

9) Remove the turbocharger. <Ref. to IN(DOHC TURBO)-12, REMOVAL, Turbocharger.>

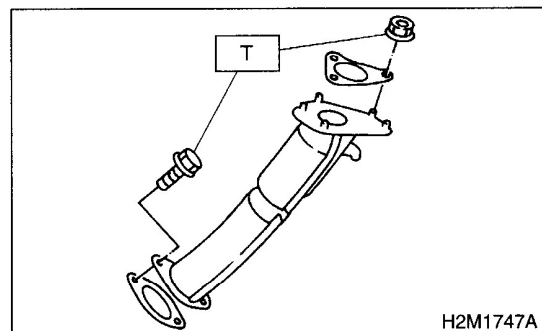
10) Take off the joint pipe in the upward direction.

B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

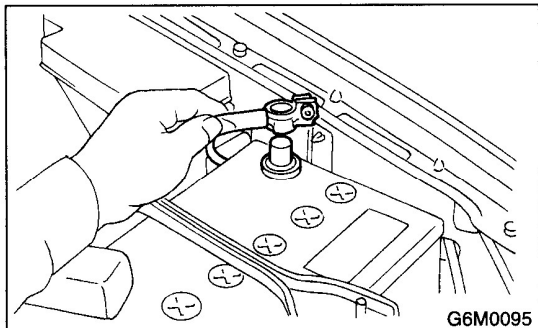
T: 35 N·m (3.6 kgf-m, 26.0 ft-lb)



5. Rear Exhaust Pipe

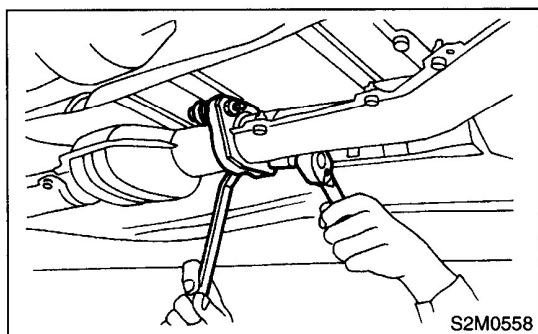
A: REMOVAL

- 1) Disconnect the ground terminal from battery.



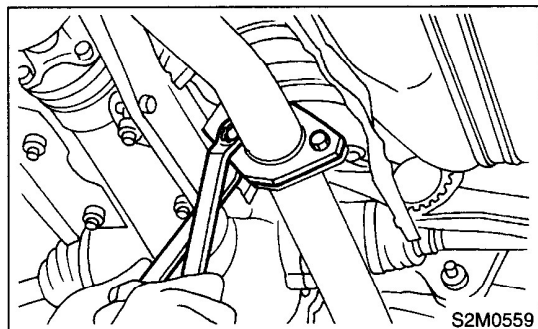
- 2) Lift up the vehicle.
- 3) Separate the rear exhaust pipe from center exhaust pipe.

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.

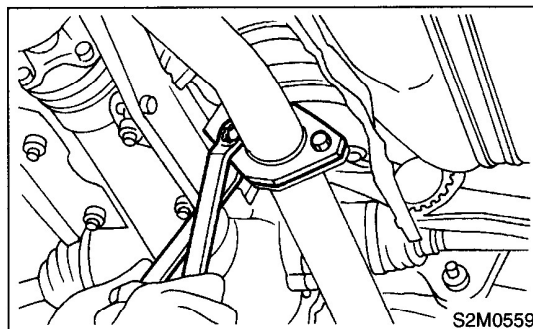


- 5) Remove the rear exhaust pipe.

B: INSTALLATION

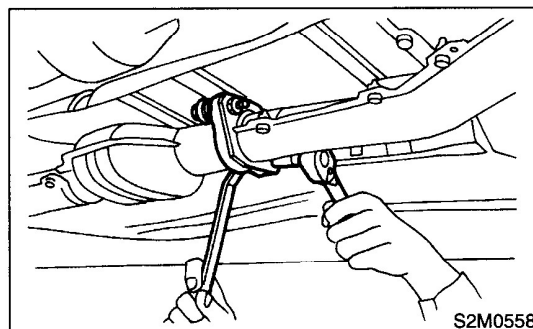
- CAUTION:**
Replace the gaskets with new ones.
- 1) Install the rear exhaust pipe to muffler.

Tightening torque:
48 N·m (4.9 kgf-m, 35.4 ft-lb)

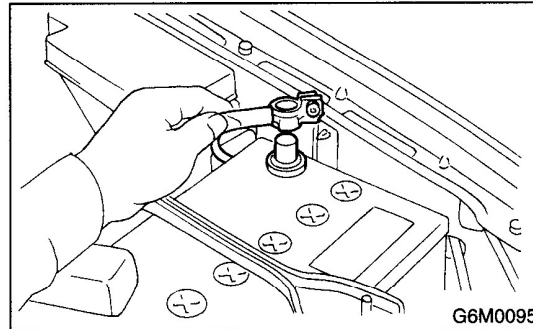


- 2) Install the rear exhaust pipe to center exhaust pipe.

Tightening torque:
18 N·m (1.8 kgf-m, 13.0 ft-lb)



- 3) Lower the vehicle.
- 4) Connect the battery ground terminal 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.

MUFFLER

EXHAUST

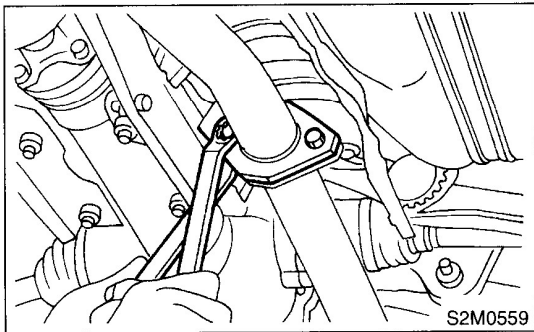
6. Muffler

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 muffler.

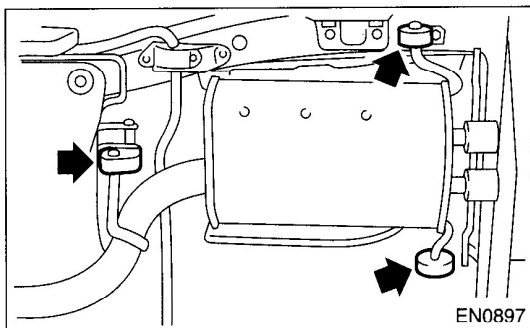
CAUTION:

Be careful not to drop the muffler during removal.

NOTE:

To facilitate removal, apply a coat of SUBARU CRC to the mating area of rubber cushions in advance.

SUBARU CRC (Part No. 004301003)



B: INSTALLATION

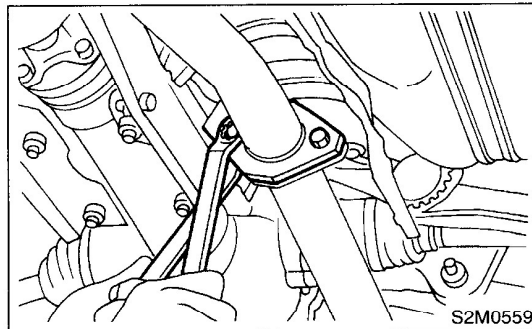
1) Install in the reverse order of removal.

CAUTION:

Replace the gasket 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.