

EXHAUST

EX(DOHC TURBO)

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GENERAL DESCRIPTION

1. General Description

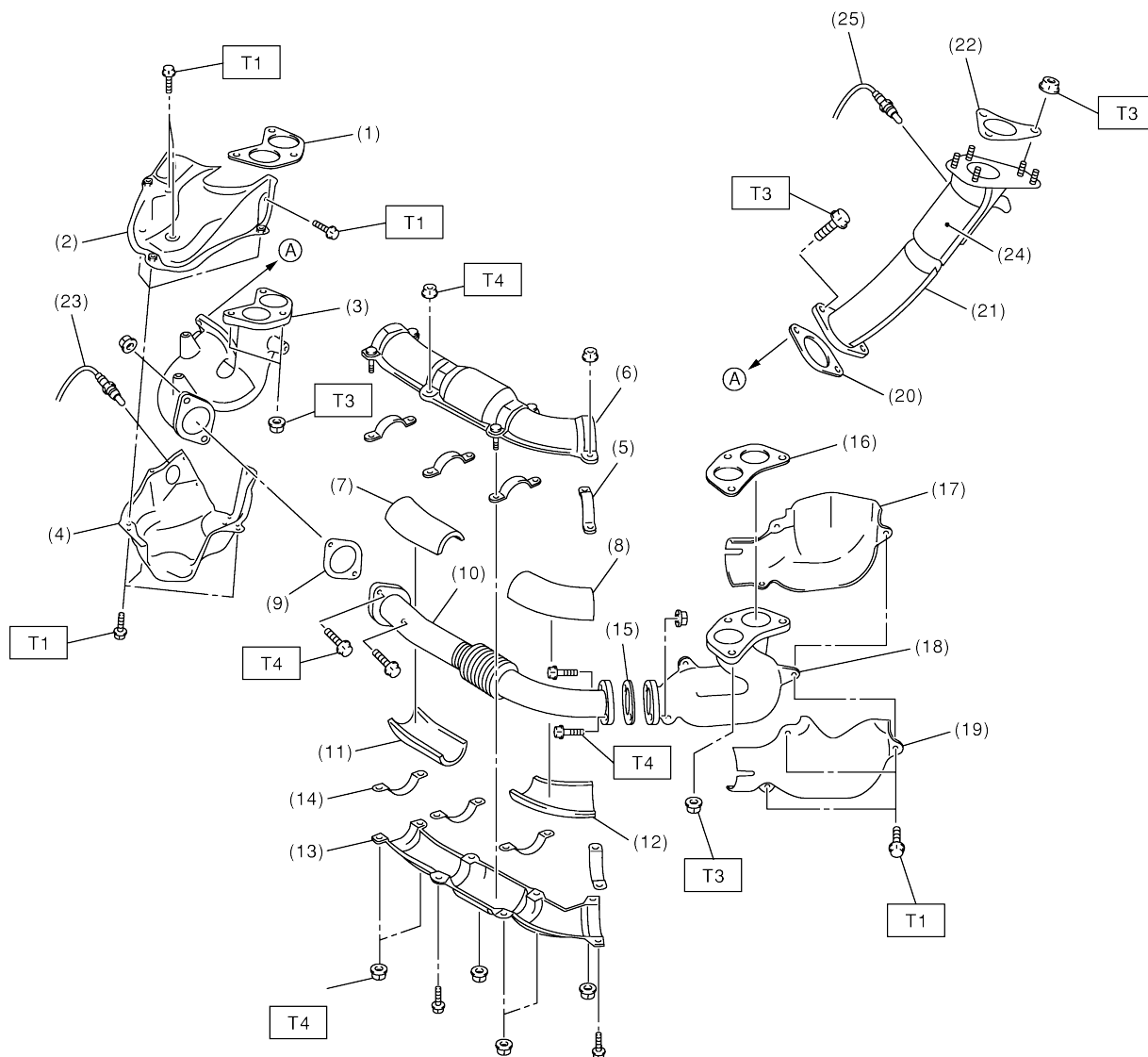
S182001

A: COMPONENT

S182001A05

1. FRONT EXHAUST PIPE

S182001A0501



S2M2237A

EX(DOHC TURBO)-2

GENERAL DESCRIPTION

Exhaust

- (1) Gasket
- (2) Upper exhaust manifold cover (RH)
- (3) Exhaust manifold (RH)
- (4) Lower exhaust manifold cover (RH)
- (5) Front exhaust pipe upper clamp
- (6) Front exhaust pipe upper cover
- (7) Front exhaust pipe upper insulator (RH)
- (8) Front exhaust pipe upper insulator (LH)
- (9) Gasket
- (10) Front exhaust pipe

- (11) Front exhaust pipe lower insulator (RH)
- (12) Front exhaust pipe lower insulator (LH)
- (13) Front exhaust pipe lower cover
- (14) Front exhaust pipe lower clamp
- (15) Gasket
- (16) Gasket
- (17) Upper exhaust manifold cover (LH)
- (18) Exhaust manifold (LH)
- (19) Lower exhaust manifold cover (LH)
- (20) Gasket

- (21) Turbocharger joint pipe
- (22) Gasket
- (23) Front oxygen (A/F) sensor
- (24) Precatalytic converter
- (25) Exhaust temperature sensor

Tightening torque: N·m (kgf-m, ft-lb)

T1: 18.6 (1.9, 13.7)

T2: 25 (2.5, 18.1)

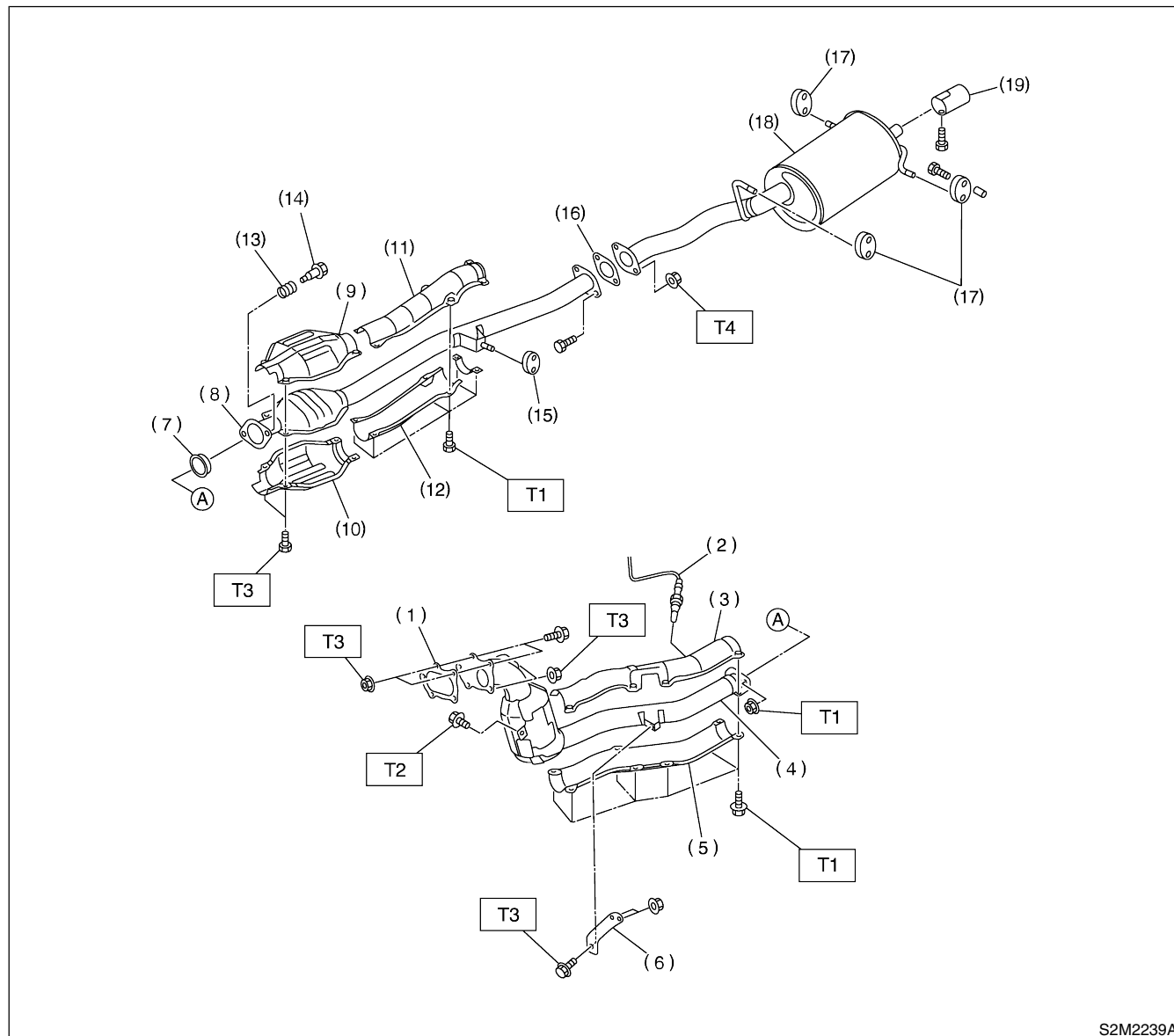
T3: 35 (3.6, 26.0)

T4: 39 (4, 28.9)

GENERAL DESCRIPTION

2. CENTER AND REAR EXHAUST PIPE, AND MUFFLER S182001A0502

● AUSTRALIA SPEC. VEHICLES



S2M2239A

- (1) Gasket
- (2) Rear oxygen converter
- (3) Upper center pipe cover
- (4) Center exhaust pipe
- (5) Lower center pipe cover
- (6) Bracket (MT)
- (7) Gasket
- (8) Rear exhaust pipe
- (9) Upper cover

- (10) Lower cover
- (11) Upper cover A
- (12) Lower cover A
- (13) Spring
- (14) Bolt
- (15) Cushion
- (16) Gasket
- (17) Cushion
- (18) Muffler

- (19) Muffler cutter

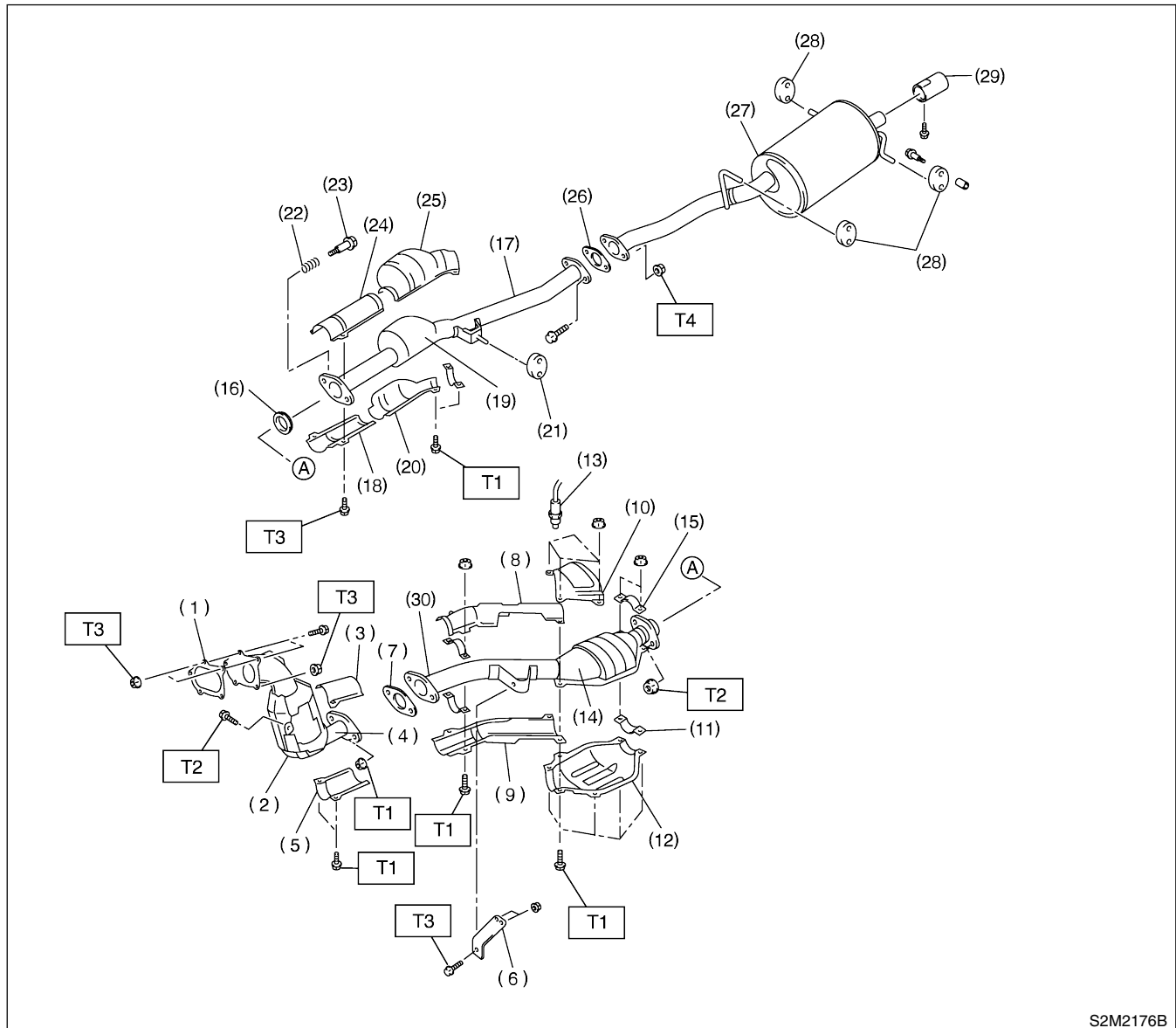
Tightening torque: N·m (kgf-m, ft-lb)
T1: 18 (1.8, 13.0)**T2: 30 (3.1, 22.4)****T3: 35 (3.6, 26.0)****T4: 48 (4.9, 35.4)**

EX(DOHC TURBO)-4

GENERAL DESCRIPTION

Exhaust

● EXCEPT AUSTRALIA SPEC. VEHICLES



S2M2176B

- | | | |
|---|--|---|
| (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: 18 (1.8, 13.0)

T2: 30 (3.1, 22.4)

T3: 35 (3.6, 26.0)

T4: 48 (4.9, 35.4)

EX(DOHC TURBO)-5

GENERAL DESCRIPTION

B: CAUTION S182001A03

- 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 negative terminal from battery.

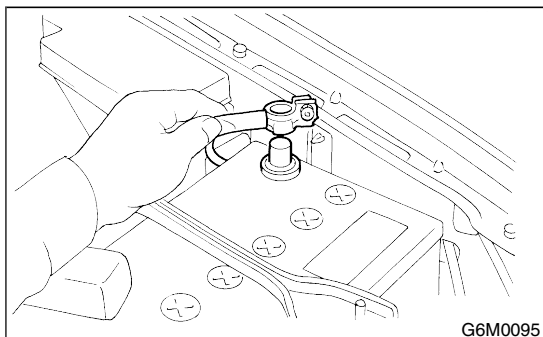
FRONT EXHAUST PIPE

Exhaust

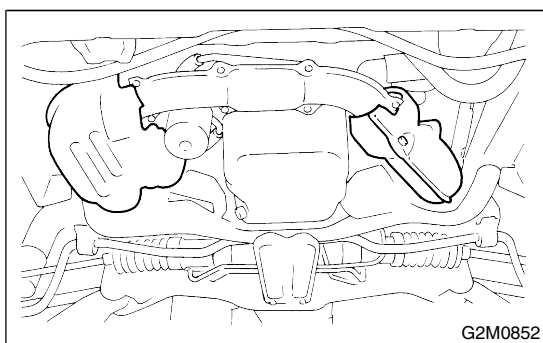
2. Front Exhaust Pipe S182065

A: REMOVAL S182065A18

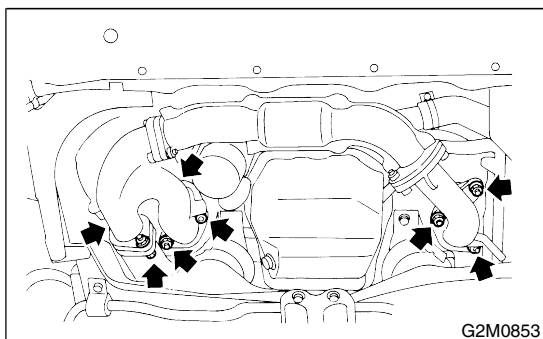
- 1) Disconnect battery ground cable.



- 2) Remove front oxygen (A/F) sensor. <Ref. to FU(DOHC TURBO)-42, REMOVAL, Front Oxygen (A/F) Sensor.>
- 3) Remove under cover.
- 4) Remove lower exhaust manifold cover (RH).
- 5) Remove lower and upper exhaust manifold covers (LH).

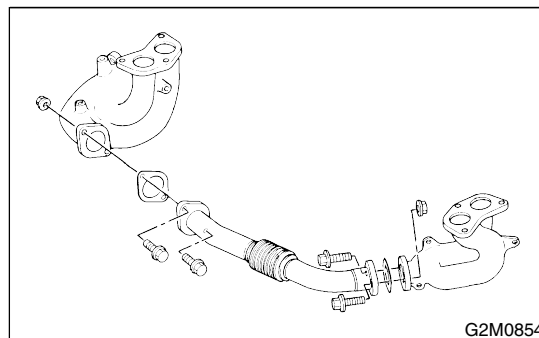


- 6) Remove bolts and nuts which hold front exhaust pipe assembly to turbocharger joint pipe.
- 7) While holding front exhaust pipe assembly with one hand, remove nuts which hold front exhaust pipe assembly to cylinder head exhaust port.



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

- 10) Separate front exhaust pipe from exhaust manifolds.

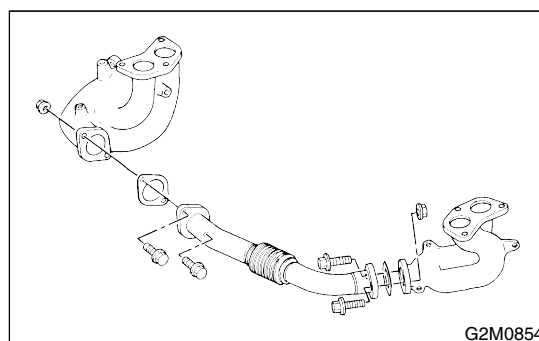


B: INSTALLATION S182065A11

CAUTION:
Replace gaskets with new ones.

- 1) Assemble front exhaust pipe and exhaust manifolds.

Tightening torque:
39 N·m (4 kgf-m, 28.9 ft-lb)



- 2) Install front exhaust pipe covers.

Tightening torque:
25 N·m (2.5 kgf-m, 18.1 ft-lb)

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

Tightening torque:
18.6 N·m (1.9 kgf-m, 13.7 ft-lb)

- 4) Install front exhaust pipe assembly.

Tightening torque:
35 N·m (3.6 kgf-m, 26.0 ft-lb)

EX(DOHC TURBO)-7

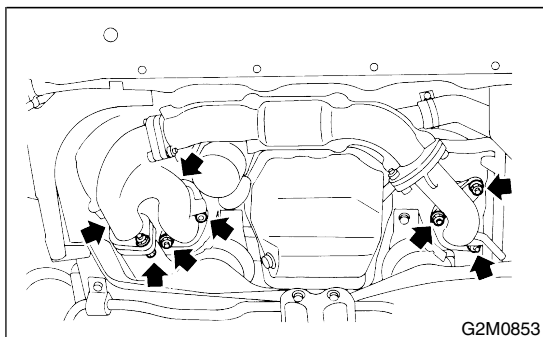
FRONT EXHAUST PIPE

Exhaust

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

Tightening torque:

35 N·m (3.6 kgf-m, 26.0 ft-lb)



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

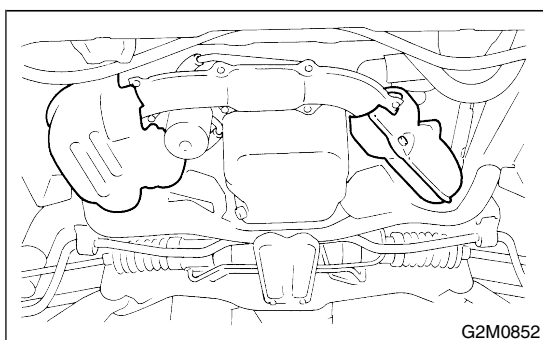
Tightening torque:

18.6 N·m (1.9 kgf-m, 13.7 ft-lb)

7) Install lower exhaust manifold cover (RH).

Tightening torque:

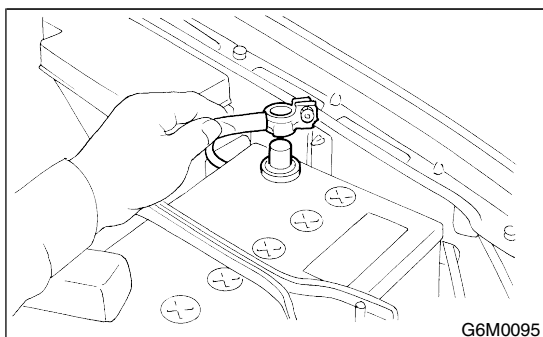
18.6 N·m (1.9 kgf-m, 13.7 ft-lb)



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

9) Install under cover.

10) Connect battery ground cable.



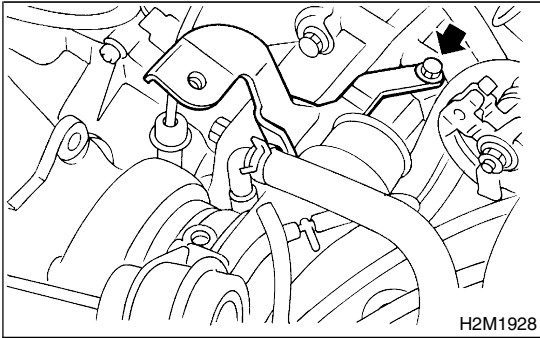
3. Center Exhaust Pipe

S182067

A: REMOVAL

S182067A18

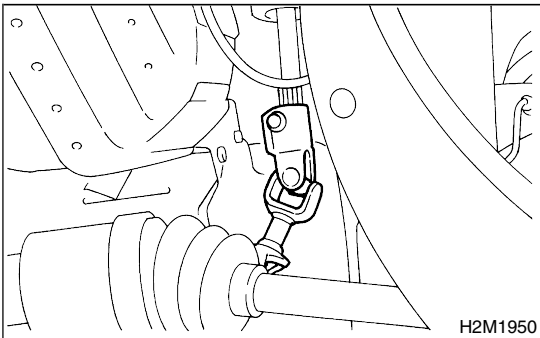
- 1) Set the vehicle on the lift.
- 2) Disconnect battery ground cable.
- 3) Remove intercooler. <Ref. to IN(DOHC TURBO)-10, REMOVAL, Intercooler.>
- 4) Remove intercooler bracket.



- 5) Lift-up the vehicle.
- 6) Remove under cover.
- 7) Remove universal joint bolts and then remove universal joint (RHD model only).

CAUTION:

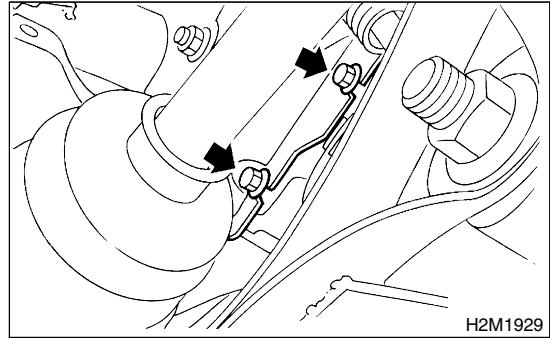
Scribe alignment marks on universal joint so that it can be reassembled at the original ser-
ration.



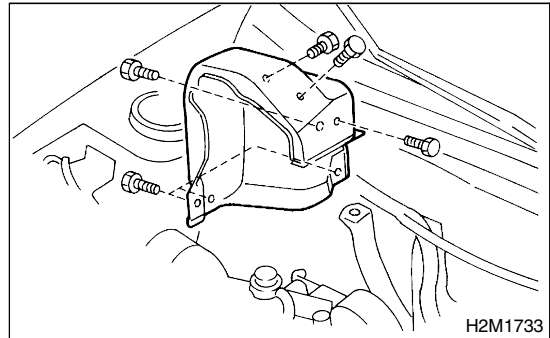
- 8) Remove bolts which install the lower side of turbocharger upper cover.

CAUTION:

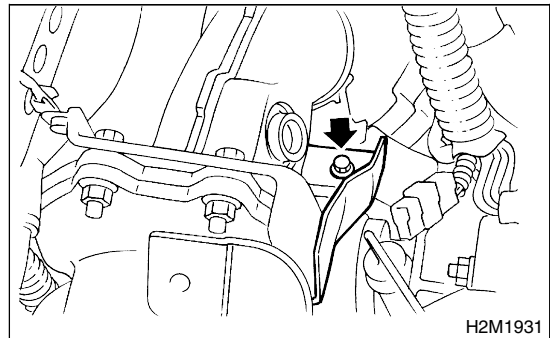
Be careful, turbocharger and exhaust pipe are hot.



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

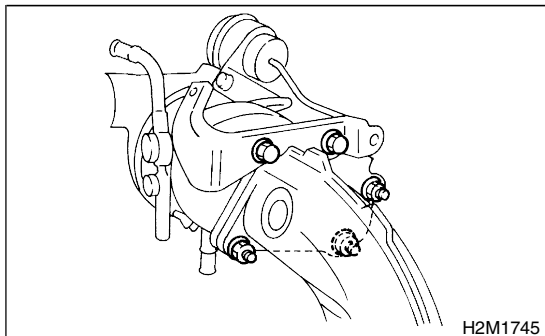


- 11) Remove bolts which install the upper side of turbocharger lower cover, and remove it.



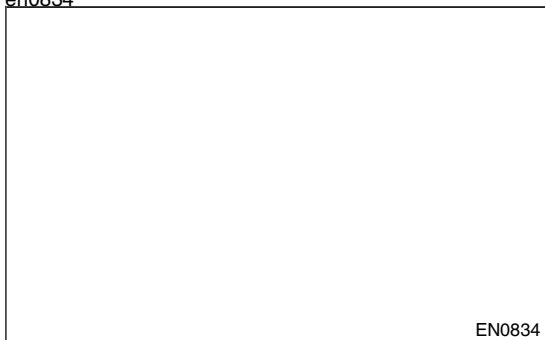
CENTER EXHAUST PIPE

- 12) Separate center exhaust pipe from turbo-charger.

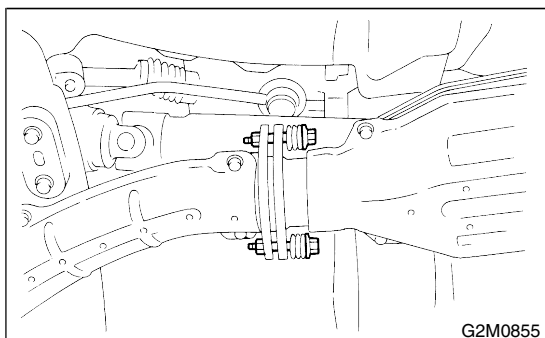


- 13) Lift-up the vehicle.
14) Disconnect connector from rear oxygen sensor.

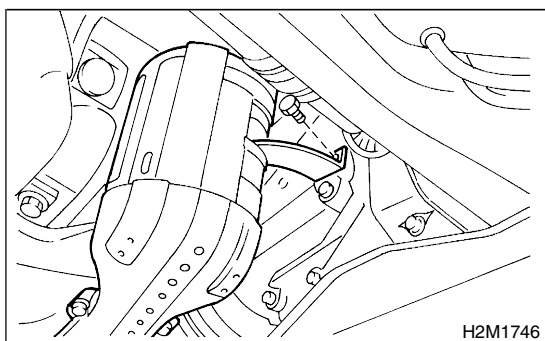
en0834



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

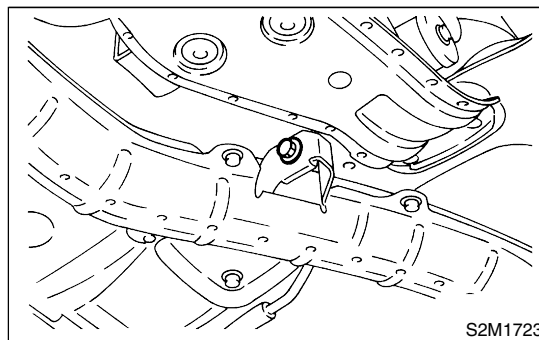


- 16) Remove bolt which holds center exhaust pipe bracket to transmission.

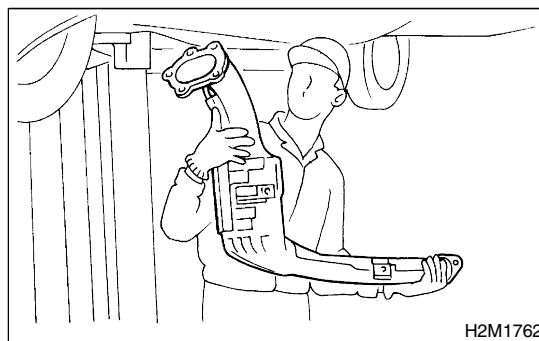


- 17) Remove intercooler bracket.
18) Remove bolt which holds center exhaust pipe to hanger bracket.

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



- 19) Remove center exhaust pipe.

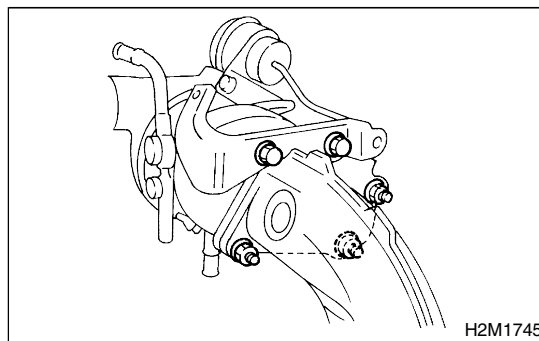


B: INSTALLATION S182067A11

CAUTION:
Replace gaskets with new ones.

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

Tightening torque:
35 N·m (3.6 kgf-m, 26.0 ft-lb)



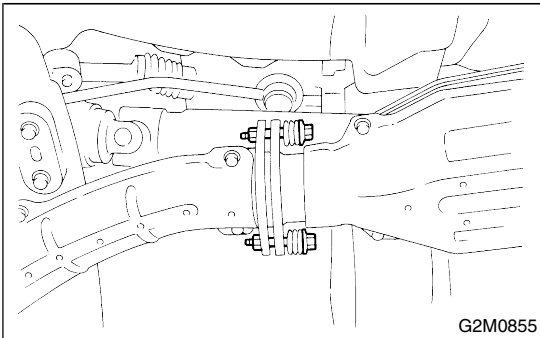
CENTER EXHAUST PIPE

Exhaust

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

Tightening torque:

18 N·m (1.8 kgf-m, 13.0 ft-lb)



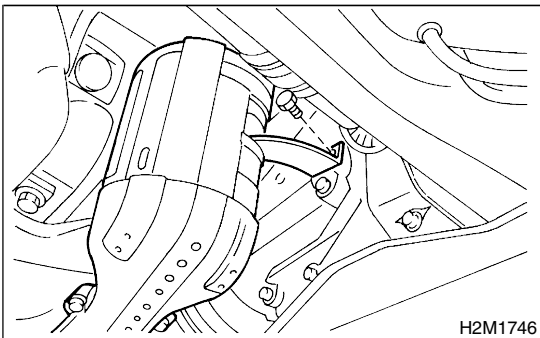
- 5) Connect connector to rear oxygen sensor.
en0834



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

Tightening torque:

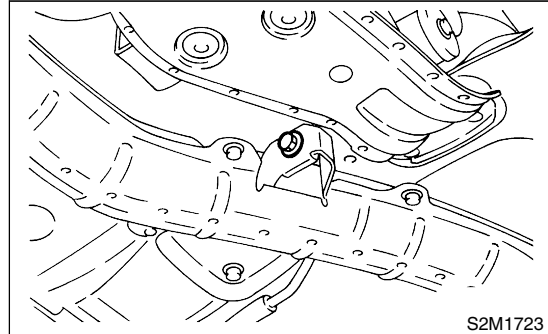
30 N·m (3.1 kgf-m, 22.4 ft-lb)



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

Tightening torque:

35 N·m (3.6 kgf-m, 26 ft-lb)



- 8) Tighten bolts which hold intercooler bracket.

Tightening torque:

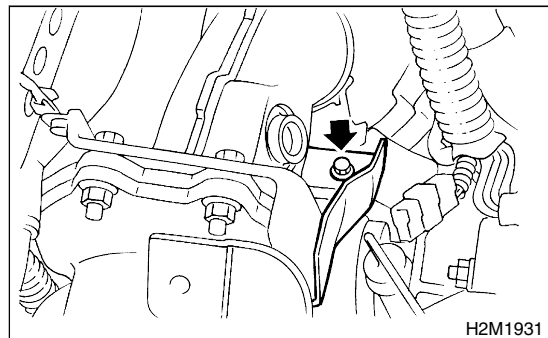
35 N·m (3.6 kgf-m, 26.0 ft-lb)

- 9) Lower the vehicle.

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

Tightening torque:

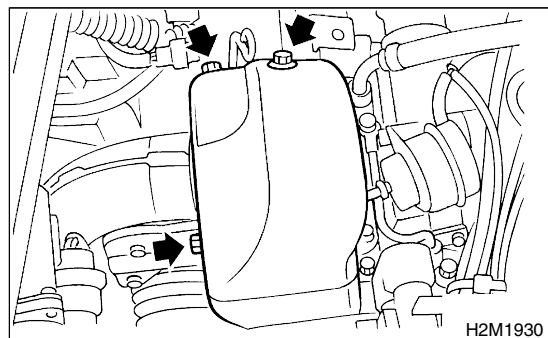
7.4 N·m (0.75 kgf-m, 5.4 ft-lb)



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

Tightening torque:

7.4 N·m (0.75 kgf-m, 5.4 ft-lb)



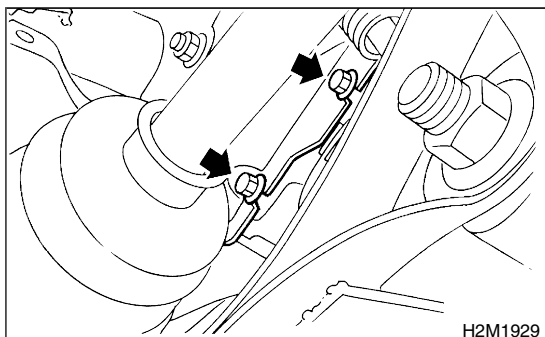
- 12) Lift-up the vehicle.

CENTER EXHAUST PIPE

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

Tightening torque:

7.4 N·m (0.75 kgf-m, 5.4 ft-lb)



14) Install universal joint (RHD model only).

(1) Align bolt hole on the long yoke side of universal joint with the cutout at the serrated section of shaft end, and insert universal joint.

(2) Align bolt hole on the short yoke side of universal joint with the cutout at the serrated section of gearbox assembly. Lower universal joint completely.

(3) Temporarily tighten bolt on the short yoke side. Raise universal joint to make sure the bolt is properly passing through the cutout at the serrated section.

(4) Tighten bolt on the long yoke side, then that on the short yoke side.

Tightening torque:

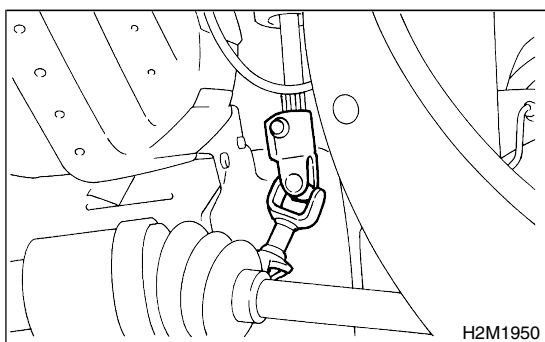
24 N·m (2.4 kgf-m, 17.4 ft-lb)

CAUTION:

- Make sure that universal joint bolts are tightened through notches in shaft serration.
- Excessively large tightening torque of universal joint bolts may lead to heavy steering wheel operation.

Standard clearance between gearbox to DOJ:

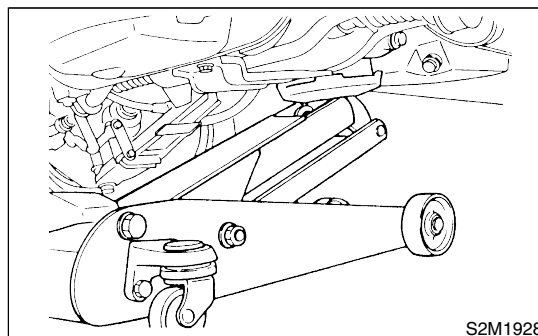
Over 15 mm (0.59 in)



15) Install under cover.

16) Lower the vehicle.

17) Install intercooler bracket.



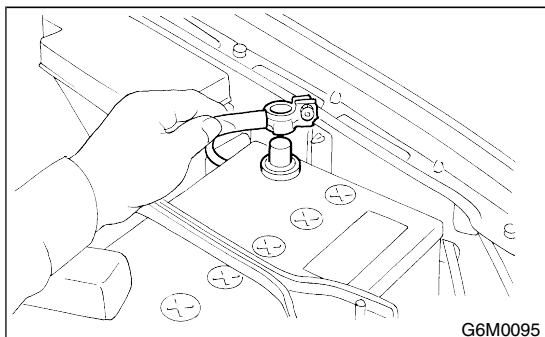
18) Install intercooler. <Ref. to IN(DOHC TURBO)-10, INSTALLATION, Intercooler.>

19) Align center of roll connector. (With airbag model) <Ref. to AB-11, ROLL CONNECTOR, INSPECTION, Inspection Locations After a Collision.>

4. Joint Pipe S182771

A: REMOVAL S182771A18

- 1) Disconnect battery ground cable.



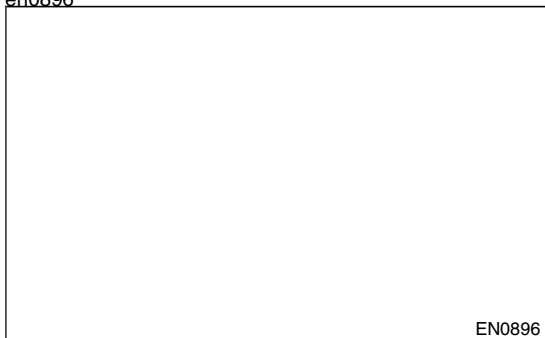
- 2) Remove solenoid valve cover.

en0828



- 3) Disconnect from exhaust temperature sensor connector.

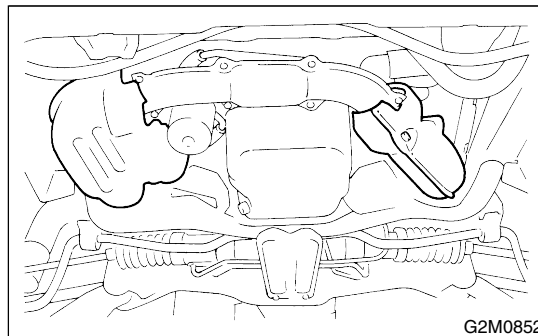
en0896



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

- 5) Remove under cover.

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



- 7) Remove nuts. Which hold front exhaust manifold to joint pipe.

en0917



- 8) Remove center exhaust pipe. <Ref. to EX(DOHC TURBO)-9, REMOVAL, Center Exhaust Pipe.>

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

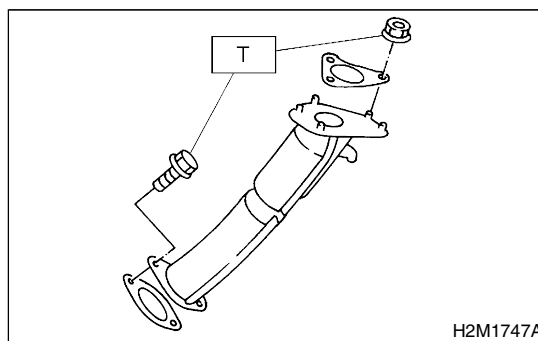
- 10) Take off joint pipe in the upward direction.

B: INSTALLATION S182771A11

Install in the reverse order of removal.

Tightening torque:

35 N·m (3.6 kgf-m, 26.0 ft-lb)



REAR EXHAUST PIPE

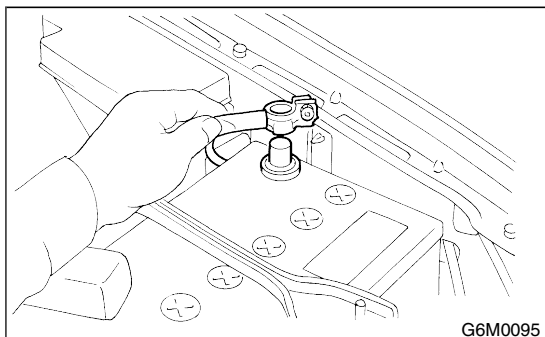
5. Rear Exhaust Pipe

S182068

A: REMOVAL

S182068A18

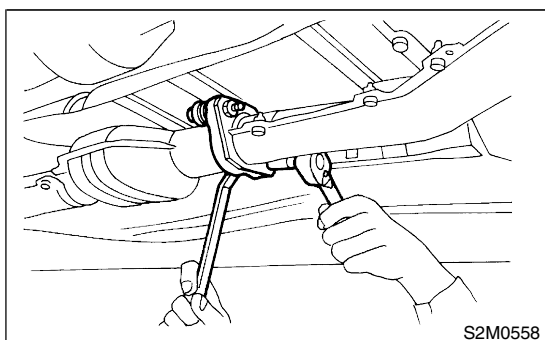
- 1) Disconnect battery ground cable.



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

CAUTION:

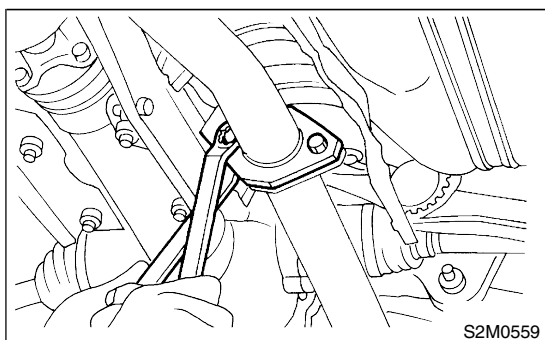
Be careful, exhaust pipe is hot.



- 4) Separate rear exhaust pipe from muffler.

CAUTION:

Be careful not to pull down rear exhaust pipe.



- 5) Remove rear exhaust pipe.

B: INSTALLATION

S182068A11

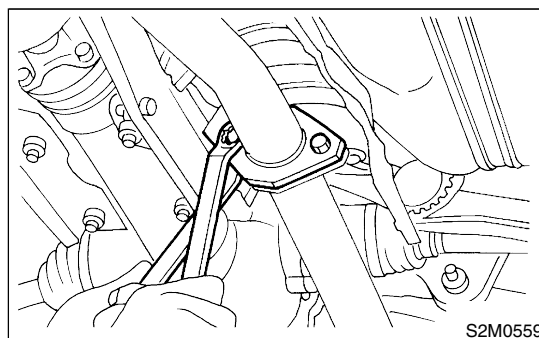
CAUTION:

Replace gaskets with new ones.

- 1) Install rear exhaust pipe to muffler.

Tightening torque:

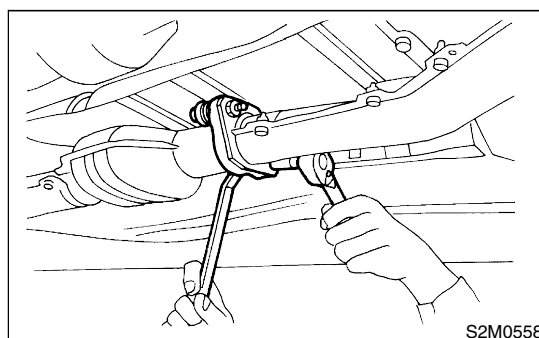
48 N·m (4.9 kgf-m, 35.4 ft-lb)



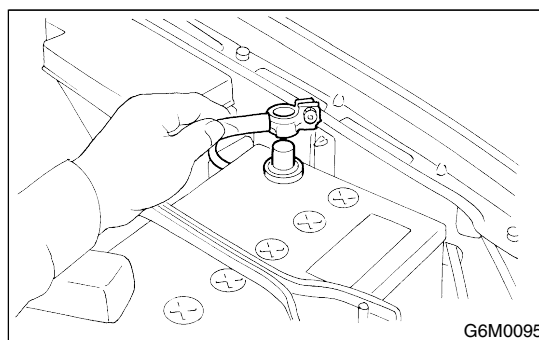
- 2) Install rear exhaust pipe to center exhaust pipe.

Tightening torque:

18 N·m (1.8 kgf-m, 13.0 ft-lb)



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



C: INSPECTION

S182068A10

- 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

S182066

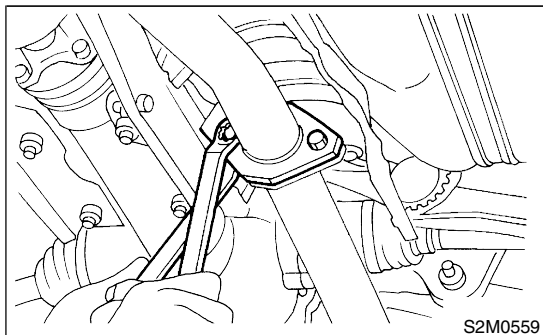
A: REMOVAL

S182066A18

- 1) Separate muffler from rear exhaust pipe.

CAUTION:

Be careful, exhaust pipe is hot.



S2M0559

- 2) Remove rubber cushions, and detach muffler.

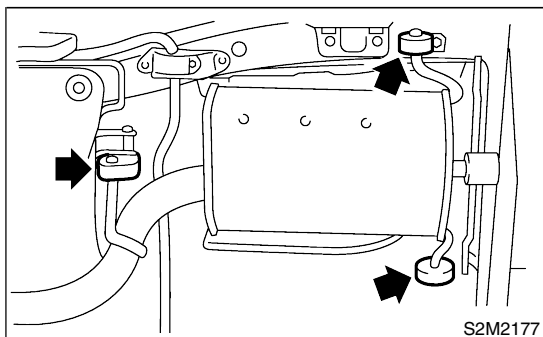
CAUTION:

Be careful not to drop the muffler during removal.

NOTE:

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

SUBARU CRC (Part No. 004301003)



S2M2177

B: INSTALLATION

S182066A11

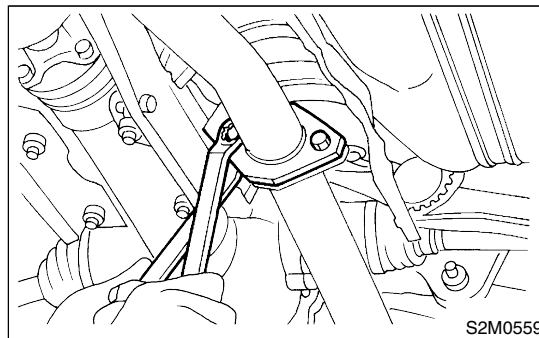
Install in the reverse order of removal.

CAUTION:

Replace gasket with a new one.

Tightening torque:

48 N·m (4.9 kgf-m, 35.4 ft-lb)



S2M0559

C: INSPECTION

S182066A10

- 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

MEMO:

EX(DOHC TURBO)-16