SECTION EX
EXHAUST SYSTEM

CONTENTS

PRECAUTION

PRECAUTIONS

Removal and Installation

INFOID:0000000006356452

CAUTION:

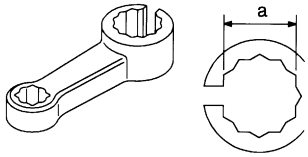
- **Be sure to use genuine exhaust system parts or equivalents which are specially designed for heat resistance, corrosion resistance, and shape.**
- **Perform the operation with the exhaust system fully cooled down because the system will be hot just after engine stops.**
- **Be careful not to cut your hand on the heat insulator edge.**

PREPARATION

PREPARATION

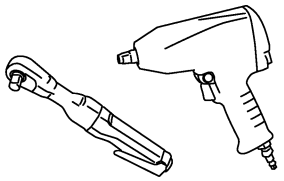
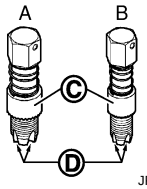
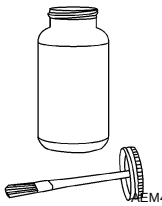
Special Service Tools

INFOID:0000000006356453

Tool number Tool name	Description
KV10114400 Heated oxygen sensor wrench  S-NT636	Loosening or tightening heated oxygen sensor 2 **a: For 22 mm (0.87 in) width hexagon nut**

Commercial Service Tools

INFOID:0000000006356454

Tool name	Description
Power tool  PBIC0190E	Loosening nuts and bolts
Heated oxygen sensor thread cleaner  JPBIA0238ZZ	Reconditioning the exhaust system threads before installing a new heated oxygen sensor (Use with anti-seize lubricant shown below.) **A: J-43897-18 [18 mm (0.71 in) dia.] for zirconia heated oxygen sensor** **B: J-43897-12 [12 mm (0.47 in) dia.] for titania heated oxygen sensor** **C: Mating surface shave cylinder** **D: Flutes**
Anti-seize lubricant (Permatex 133AR or equivalent meeting MIL specification MIL-A-907)  AEM489	Lubricating heated oxygen sensor thread cleaner when reconditioning exhaust system threads

PERIODIC MAINTENANCE

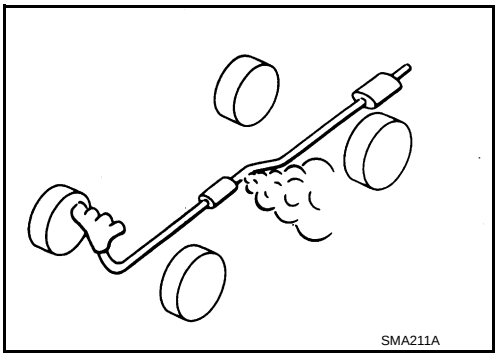
EXHAUST SYSTEM

Inspection

INFOID:0000000006356455

Check exhaust pipes, muffler, and mounting for improper attachment, leakage, cracks, damage or deterioration.

- If anything is found, repair or replace damaged parts.



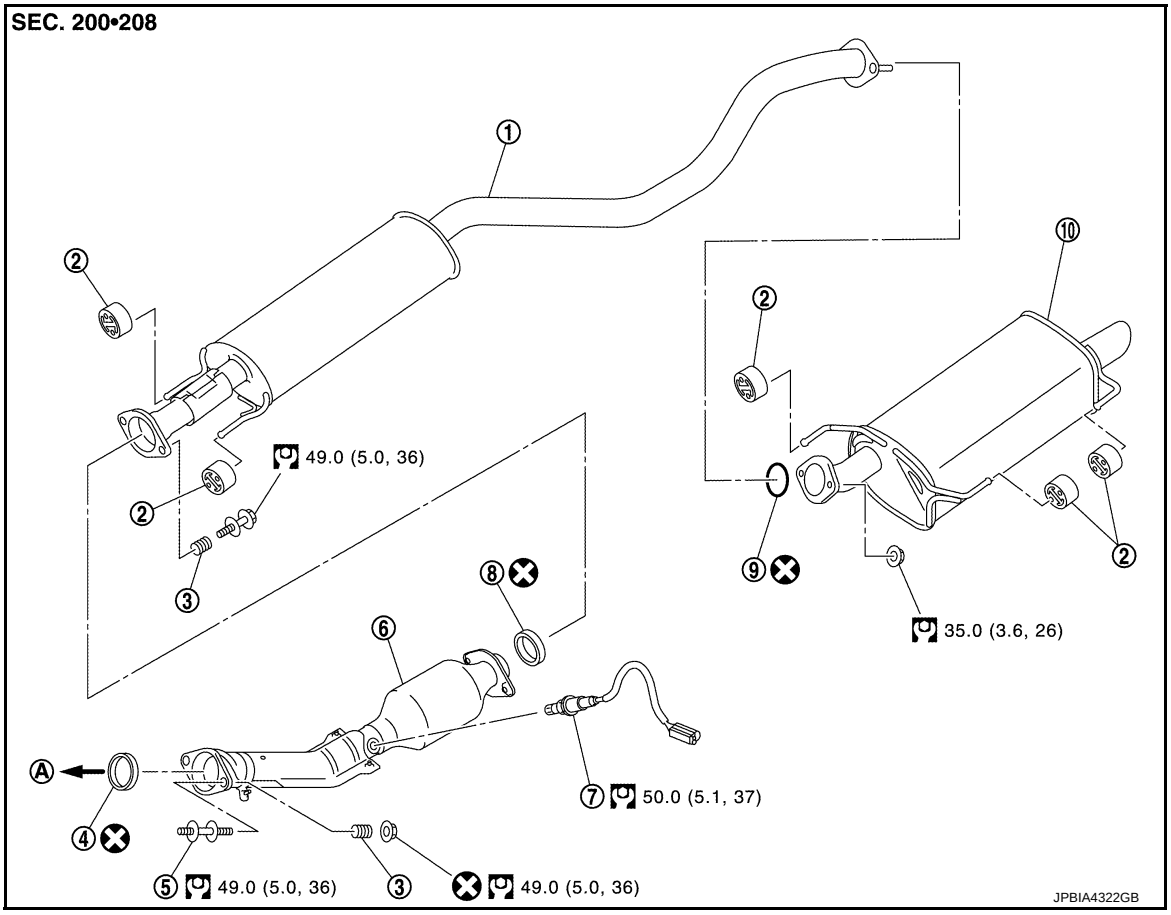
REMOVAL AND INSTALLATION

EXHAUST SYSTEM

Exploded View

INFOID:0000000006356456

2WD

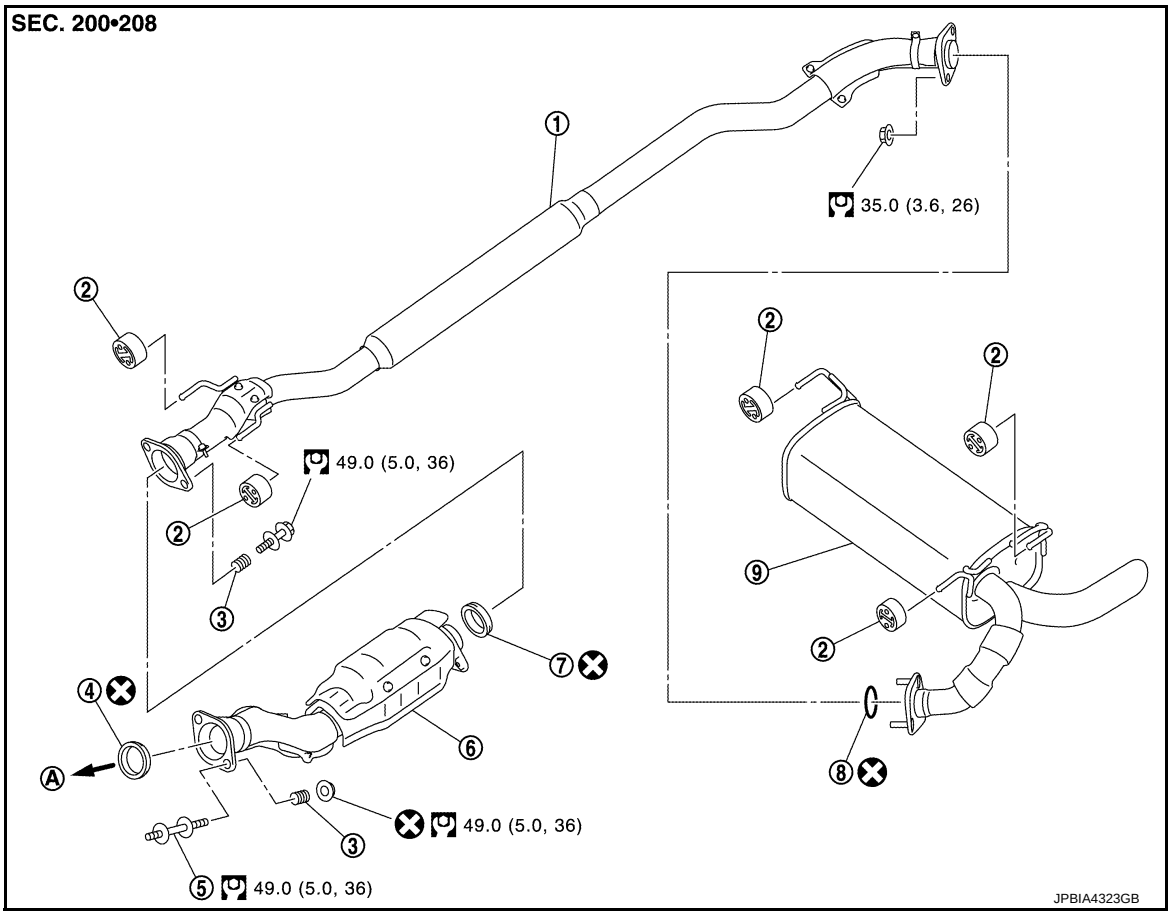


1. Center muffler
2. Mounting rubber
3. Spring
4. Seal bearing
5. Stud bolt
6. Three way catalyst
7. Heated oxygen sensor 2
8. Seal bearing
9. Ring gasket
10. Main muffler
A. To catalyst convertor

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

4WD



1. Center pipe
2. Mounting rubber
3. Spring
4. Seal bearing
5. Stud bolt
6. Three way catalyst
7. Seal bearing
8. Ring gasket
9. Main muffler
A. To catalyst convertor

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

Removal and Installation

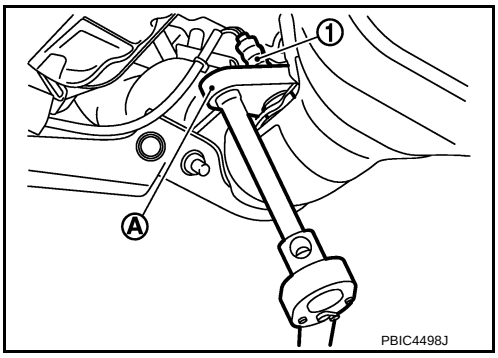
INFOID:0000000006356457

REMOVAL

- Disconnect each joint and mounting.
- Remove heated oxygen sensor 2 with following procedure:

- Using heated oxygen sensor wrench [SST: KV10114400] (A), removal heated oxygen sensor 2 (1).

2 : Exhaust front tube



CAUTION:
Be careful not to damage heated oxygen sensor 2.

INSTALLATION

Note the following, and install in the reverse order of removal.

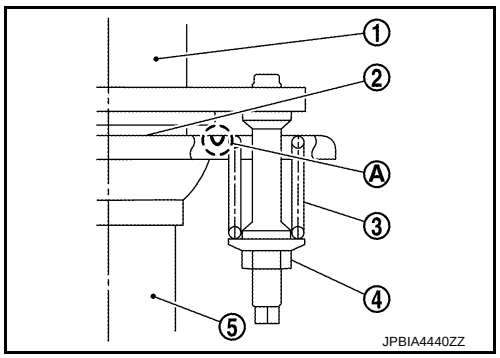
CAUTION:

- **Always replace seal bearings with new ones when reassembling.**

- **Discard any heated oxygen sensor 2 which has been dropped onto a hard surface such as a concrete floor. Use a new one.**
- **Before installing a new heated oxygen sensor 2, clean exhaust system threads using the heated oxygen sensor thread cleaner [commercial service tool: J-43897-18 or J-43897-12] and apply anti-seize lubricant (commercial service tool).**
- **Never over torque heated oxygen sensor 2. Doing so may cause damage to the heated oxygen sensor 2, resulting in the "MIL" coming on.**
- **If heat insulator is badly deformed, repair or replace it. If deposits such as mud pile up on the heat insulator, remove them.**
- **When installing heat insulator avoid large gaps or interference between heat insulator and each exhaust pipe.**
- **Remove deposits from the sealing surface of each connection. Connect them securely to avoid gas leakage.**
- **When installing each mounting rubber, use silicon oil to avoid twisting.**
- **Temporarily tighten mounting nuts and bolts. Check each part for unusual interference and mounting rubber interference, and then tighten them to the specified torque.**
- **When installing each mounting rubber, avoid twisting or unusual extension in up/down, front/rear and right/left directions.**

Catalyst convertor to Exhaust Front Tube

1. Securely insert seal bearing (2) into catalyst convertor (1).



3 : Spring
4 : Nut
5 : Exhaust front tube

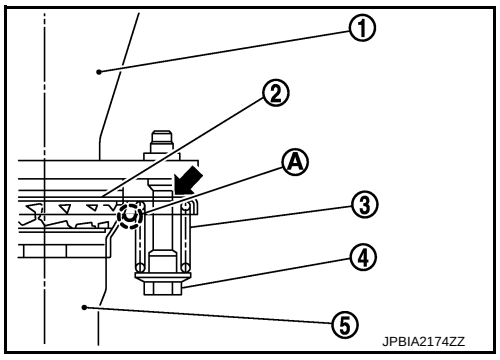
CAUTION:
Be careful not to damage seal bearing surface when installing.

2. With spring, tighten nut.
CAUTION:
- **Fasten stud bolts to the flange of exhaust manifold side to the specified torque before fastening mounting nuts.**
- **Ensure springs are seated correctly on the flange and not sitting on (A).**
- **Be careful that stud bolt does not interfere with mounting hole of exhaust front tube (⬅).**

3. After installing, check that stud bolt does not interfere with mounting hole of exhaust front tube.

Exhaust Front Tube to Center Muffler

1. Securely insert seal bearing (2) into exhaust front tube (1) side in the direction shown in the figure.



3 : Spring
4 : Bolt
5 : Center muffler

CAUTION:
Be careful not to damage seal bearing surface when installing.

2. With spring, tighten bolt.
CAUTION:
- **Ensure springs are seated correctly on the flange and not sitting on (A).**
- **Be careful that bolt does not interfere with mounting hole of center muffler (⬅).**

3. After installing, check that bolt does not interfere with mounting hole of center muffler.

Inspection

INFOID:0000000006356458

INSPECTION AFTER INSTALLATION

- Check clearance between tail tube and rear bumper is even.
- With engine running, check exhaust tube joints for gas leakage and unusual noises.

- Check to ensure that mounting brackets and mounting rubbers are installed properly and free from undue stress. Improper installation could result in excessive noise and vibration.

PRECAUTION

PRECAUTIONS

Removal and Installation

INFOID:0000000006502093

CAUTION:

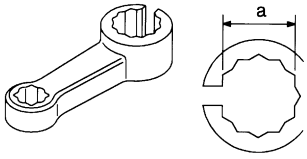
- **Be sure to use genuine exhaust system parts or equivalents which are specially designed for heat resistance, corrosion resistance, and shape.**
- **Perform the operation with the exhaust system fully cooled down because the system will be hot just after engine stops.**
- **Be careful not to cut your hand on the heat insulator edge.**

PREPARATION

PREPARATION

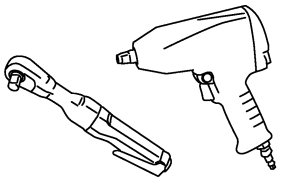
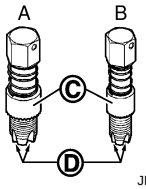
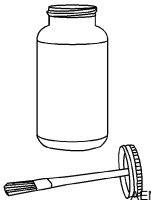
Special Service Tools

INFOID:0000000006502094

Tool number Tool name	Description
KV10114400 Heated oxygen sensor wrench  S-NT636	Loosening or tightening heated oxygen sensor 2 **a: For 22 mm (0.87 in) width hexagon nut**

Commercial Service Tools

INFOID:0000000006502095

Tool name	Description
Power tool  PBIC0190E	Loosening nuts and bolts
Heated oxygen sensor thread cleaner  JPBIA0238ZZ	Reconditioning the exhaust system threads before installing a new heated oxygen sensor (Use with anti-seize lubricant shown below.) **A: J-43897-18 [18 mm (0.71 in) dia.] for zirconia heated oxygen sensor** **B: J-43897-12 [12 mm (0.47 in) dia.] for titania heated oxygen sensor** **C: Mating surface shave cylinder** **D: Flutes**
Anti-seize lubricant (Permatex 133AR or equivalent meeting MIL specification MIL-A-907)  AEM489	Lubricating heated oxygen sensor thread cleaner when reconditioning exhaust system threads

PERIODIC MAINTENANCE

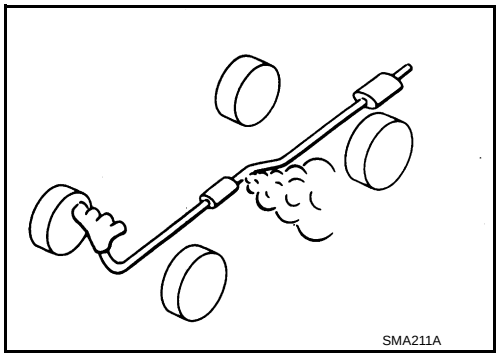
EXHAUST SYSTEM

Inspection

INFOID:0000000006502096

Check exhaust pipes, muffler, and mounting for improper attachment, leakage, cracks, damage or deterioration.

- If anything is found, repair or replace damaged parts.

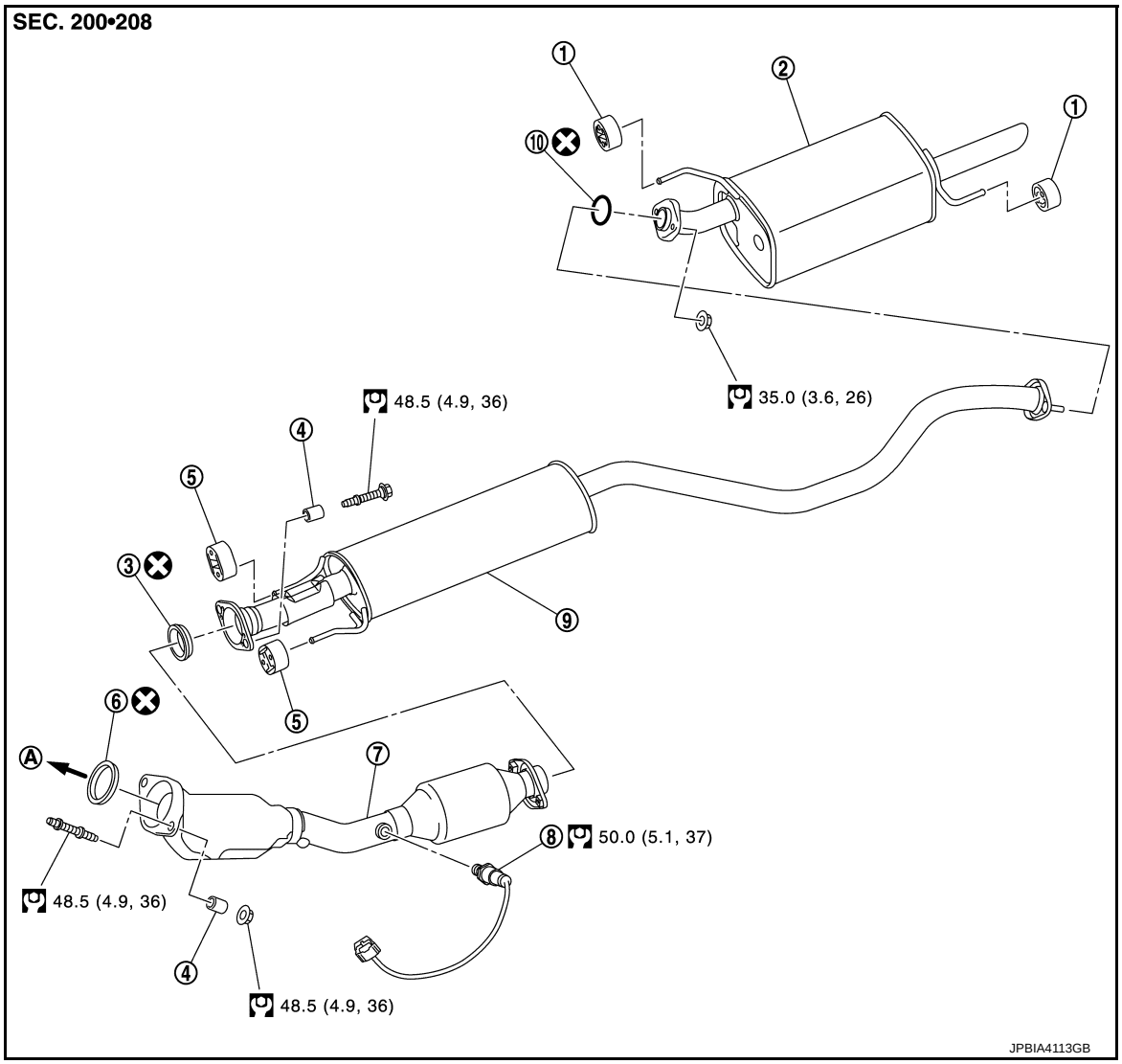


REMOVAL AND INSTALLATION

EXHAUST SYSTEM

Exploded View

INFOID:0000000006502097



1. Mounting rubber
2. Main muffler
3. Seal bearing
4. Spring
5. Mounting rubber
6. Seal bearing
7. Exhaust front tube
8. Heated oxygen sensor 2
9. Sub muffler
10. Gasket

: Always replace after every disassembly.

: N·m (kg-m, ft-lb)

Removal and Installation

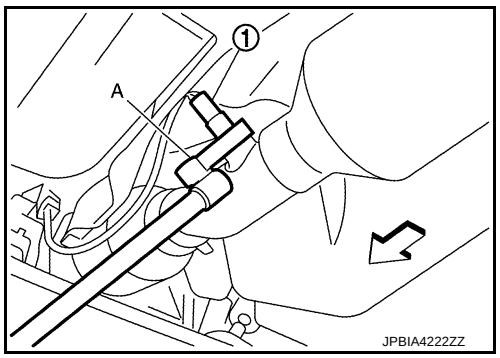
INFOID:0000000006502098

REMOVAL

- Disconnect each joint and mounting.
- Remove heated oxygen sensor 2 with following procedure:

- Using heated oxygen sensor wrench [SST: KV10114400] (A), removal heated oxygen sensor 2 (1).

CAUTION:
Be careful not to damage heated oxygen sensor 2.



INSTALLATION

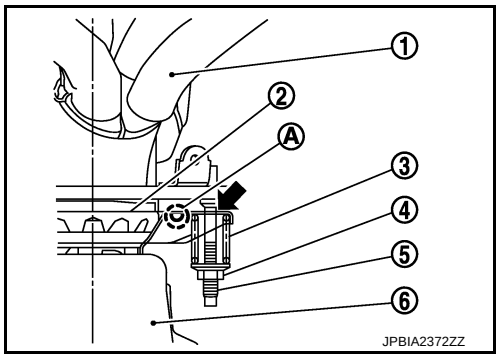
Note the following, and install in the reverse order of removal.

CAUTION:

- **Always replace seal bearings with new ones when reassembling.**
- **Discard any heated oxygen sensor 2 which has been dropped onto a hard surface such as a concrete floor. Use a new one.**
- **Before installing a new heated oxygen sensor 2, clean exhaust system threads using the heated oxygen sensor thread cleaner [commercial service tool: J-43897-18 or J-43897-12] and apply anti-seize lubricant (commercial service tool).**
- **Never over torque heated oxygen sensor 2. Doing so may cause damage to the heated oxygen sensor 2, resulting in the "MIL" coming on.**
- **If heat insulator is badly deformed, repair or replace it. If deposits such as mud pile up on the heat insulator, remove them.**
- **When installing heat insulator avoid large gaps or interference between heat insulator and each exhaust pipe.**
- **Remove deposits from the sealing surface of each connection. Connect them securely to avoid gas leakage.**
- **When installing each mounting rubber, use silicon oil to avoid twisting.**
- **Temporarily tighten mounting nuts and bolts. Check each part for unusual interference and mounting rubber interference, and then tighten them to the specified torque.**
- **When installing each mounting rubber, avoid twisting or unusual extension in up/down, front/rear and right/left directions.**

Exhaust Manifold to Exhaust Front Tube

1. Securely insert seal bearing (2) into exhaust manifold (1) side in the direction shown in the figure.



3 : Spring
4 : Nut
5 : Stud bolt
6 : Exhaust front tube

CAUTION:
Be careful not to damage seal bearing surface when installing.

2. With spring, tighten nut.

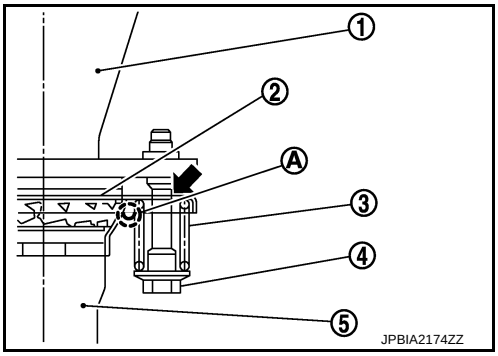
CAUTION:

- **Fasten stud bolts to the flange of exhaust manifold side to the specified torque before fastening mounting nuts.**
- **Ensure springs are seated correctly on the flange and not sitting on (A).**
- **Be careful that stud bolt does not interfere with mounting hole of exhaust front tube (⬅).**

3. After installing, check that stud bolt does not interfere with mounting hole of exhaust front tube.

Exhaust Front Tube to Center Muffler

1. Securely insert seal bearing (2) into exhaust front tube (1) side in the direction shown in the figure.



   3 : Spring
   4 : Bolt
   5 : Center muffler

   CAUTION:
   Be careful not to damage seal bearing surface when installing.
2. With spring, tighten bolt.
   CAUTION:
   - **Ensure springs are seated correctly on the flange and not sitting on (A).**
   - **Be careful that bolt does not interfere with mounting hole of center muffler (⬅).**
3. After installing, check that bolt does not interfere with mounting hole of center muffler.

Inspection

INFOID:0000000006502099

INSPECTION AFTER INSTALLATION

- Check clearance between tail tube and rear bumper is even.
- With engine running, check exhaust tube joints for gas leakage and unusual noises.
- Check to ensure that mounting brackets and mounting rubbers are installed properly and free from undue stress. Improper installation could result in excessive noise and vibration.

PRECAUTION

PRECAUTIONS

Removal and Installation

INFOID:0000000006502100

CAUTION:

- **Be sure to use genuine exhaust system parts or equivalents which are specially designed for heat resistance, corrosion resistance, and shape.**
- **Perform the operation with the exhaust system fully cooled down because the system will be hot just after engine stops.**
- **Be careful not to cut your hand on the heat insulator edge.**

PERIODIC MAINTENANCE

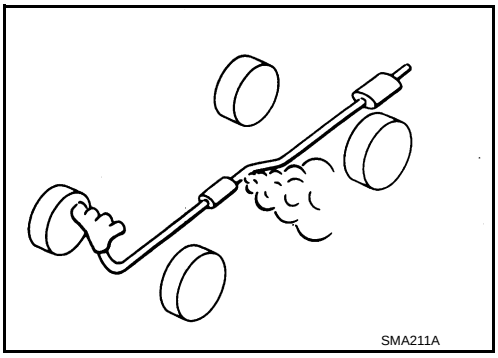
EXHAUST SYSTEM

Inspection

INFOID:0000000006502101

Check exhaust pipes, muffler and mounting for improper attachment, leaks, cracks, damage or deterioration.

- If anything is found, repair or replace damaged parts.

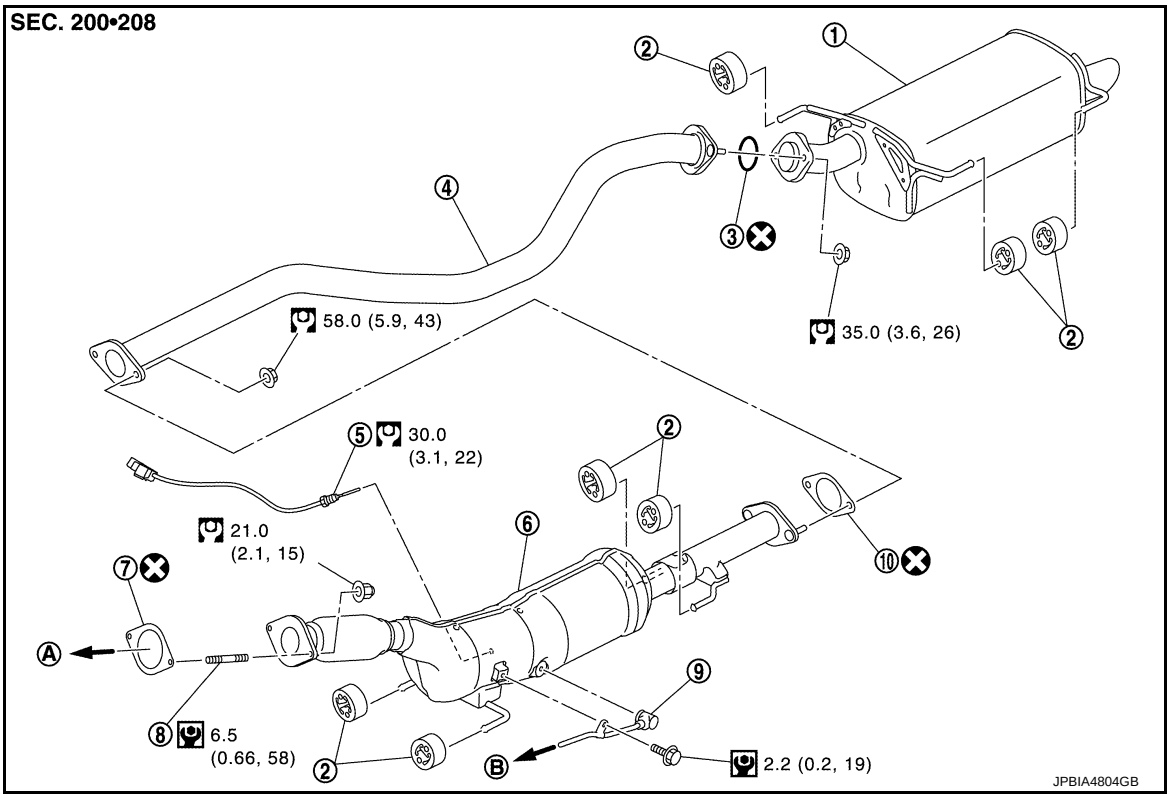


REMOVAL AND INSTALLATION

EXHAUST SYSTEM

Exploded View

INFOID:0000000006502102



1.	Main muffler	2.	Mounting rubber	3.	Ring gasket
4.	Center tube	5.	Exhaust gas temperature sensor 2	6.	Diesel particulate filter assembly
7.	Gasket	8.	Stud bolt	9.	Diesel particulate filter inlet tube
10.	Gasket				
A.	To exhaust manifold	B.	To pressure hose		

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

Removal and Installation

INFOID:0000000006502103

CAUTION:

- **Be sure to use genuine exhaust system parts or equivalents which are specially designed for heat resistance, corrosion resistance and shape.**
- **Perform the operation with the exhaust system fully cooled down because the system is still hot just after the engine stops.**
- **Be careful not to cut your hand on the insulator edge.**

REMOVAL

1. Remove Diesel particulate filter assembly.
2. Remove exhaust center tube and muffler from rubber mounting.
3. Remove exhaust center tube.
4. Remove main muffler.

Exhaust Pressure Sensor

REMOVAL

WARNING:
- **Any intervention on system during product life cycle is prohibited. If an intervention is required, the system will need to be entirely replaced.**
- **The pressure measurement circuit must never be opened except at the adapters on the exhaust pipe.**
- **Any intervention (excluding assembly) on system and more specifically, on the connection between stainless steel preformed tube and rubber hose is prohibited (sealing of the system would no longer be guaranteed). For example, intervention on screw, clamp, sensor, etc..**

1. Remove engine under cover.
2. Disconnect exhaust pressure sensor harness connector.
3. Remove exhaust pressure sensor fixing bolt.
4. Remove exhaust pressure hose.

INSTALLATION
- Install in the reverse order of removal.

CAUTION:
- **Always replace exhaust gaskets with new ones when reassembling.**
- **If the insulator is badly deformed, repair or replace it. If deposits such as mud pile up on the insulator, remove them.**
- **When installing the insulator avoid large gaps or interference between the insulator and each exhaust pipe.**
- **Remove deposits from the sealing surface of each connection. Connect them securely to avoid gas leakage.**
- **Temporarily tighten mounting nuts on the exhaust manifold side and mounting bolts on the vehicle side. Check each part for unusual interference, and then tighten them to the specified torque.**
- **When installing each mounting rubber, avoid twisting or unusual extension in up/down and right/left directions.**

Exhaust Pressure sensor

CAUTION:
- **In case clamp has been damaged or broken, it is necessary to charge the differential assembly itself, in order to avoid any leakage. it is not possible to replace just the clamp.**
- **In case it would be necessary to change the washer of the coupling nut, then the coupling nut must be replaced itself as these two parts are an assembly part.**
- **Any contact of the hose with products likely to damage them should be avoided.**
- **The screw of the stainless steel preformed tube can only be tightened once (re-use is prohibited)**
- **During any handling operation of the Diesel Particulate Filter pressure measurement hoses (handling, storage, assembly, etc.), the parts should never be folded or submitted to tension.**

Installation is basically the reverse order of the removal.

Inspection

INFOID:0000000006502104

INSPECTION AFTER INSTALLATION
- With the engine running, check exhaust tube joints for gas leakage and unusual noises.
- Check to ensure that mounting brackets and mounting insulators are installed properly and free from undue stress. Improper installation could result in excessive noise and vibration.