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SECTION EX

EXHAUST SYSTEM

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PRECAUTION

PRECAUTIONS

Removal and Installation

INFOID:000000001179307

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 >

[HR16DE]

PREPARATION

PREPARATION

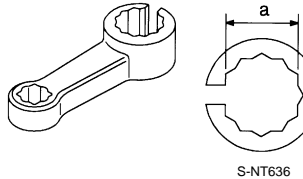
Special Service Tools

INFOID:000000001179308

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EX

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



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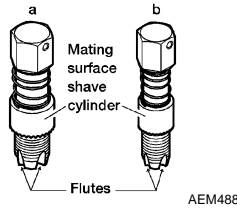
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Commercial Service Tools

INFOID:000000001179309

F

Tool name	Description
Heated oxygen sensor thread cleaner	Reconditioning the exhaust system threads before installing a new heated oxygen sensor (Use with anti-seize lubricant shown below.) a: 18 mm (0.71 in) dia. for zirconia heated oxygen sensor b: 12 mm (0.47 in) dia. for titania heated oxygen sensor
Anti-seize lubricant (Permatex 133AR or equivalent meeting MIL specification MIL-A-907)	Lubricating heated oxygen sensor thread cleaner when reconditioning exhaust system threads



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ON-VEHICLE MAINTENANCE

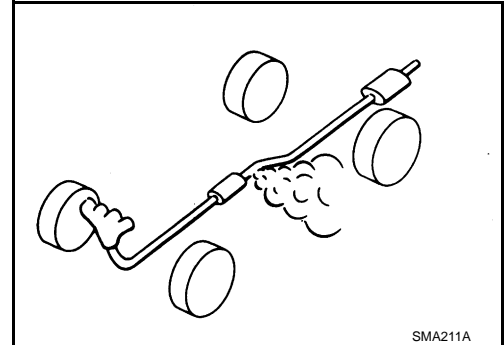
EXHAUST SYSTEM

Inspection

INFOID:000000001179310

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

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

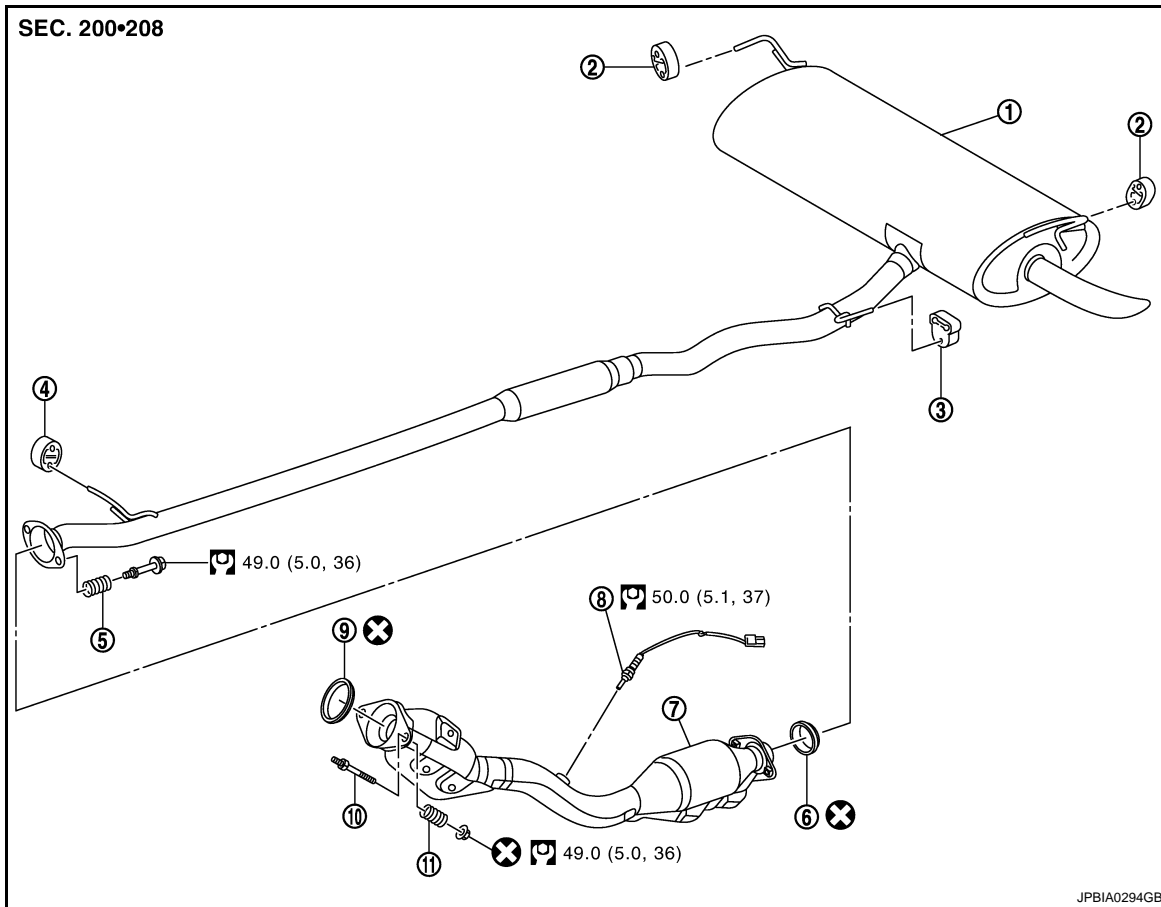


ON-VEHICLE REPAIR

EXHAUST SYSTEM

Exploded View

INFOID:000000001179311



- | | | |
|-----------------------|---------------------------|--------------------|
| 1. Main muffler | 2. Mounting rubber | 3. Mounting rubber |
| 4. Mounting rubber | 5. Spring | 6. Seal bearing |
| 7. Exhaust front tube | 8. Heated oxygen sensor 2 | 9. Seal bearing |
| 10. Stud bolt | 11. Spring | |

Refer to [GI-4, "Components"](#) for symbols in the figure.

Removal and Installation

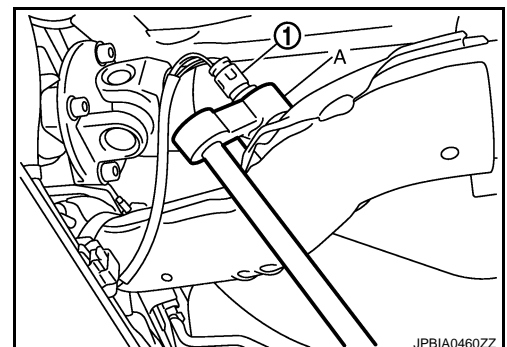
INFOID:000000001179312

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.



EXHAUST SYSTEM

[HR16DE]

< ON-VEHICLE REPAIR >

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 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 "MI" coming on.
- Remove deposits from the sealing surface of each connection. Connect them securely to avoid gas leakage.
- When installing each mounting rubber, avoid twisting or unusual extension in up/down and right/left directions.
- Temporarily tighten mounting nuts and bolts. Check each part for unusual interference, and then tighten them to the specified torque.

Exhaust Manifold to Exhaust Front Tube

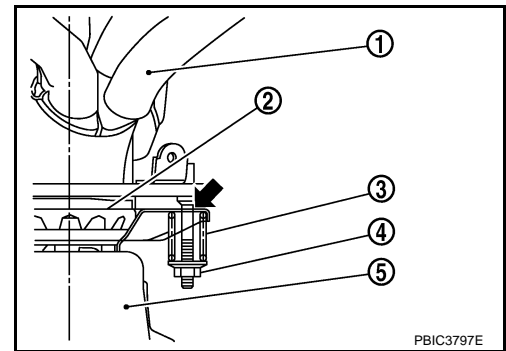
1. Securely insert seal bearing (2) into exhaust manifold (1) side in the direction shown in figure.

- 3 : Spring
- 4 : Mounting nut
- 5 : Exhaust front tube

CAUTION:

Be careful not to damage seal bearing surface when installing.

2. With spring, tighten mounting nut.
 - Be careful that mounting nut does not interfere with flanged area (←), and tighten it.



Exhaust Front Tube to Main Muffler

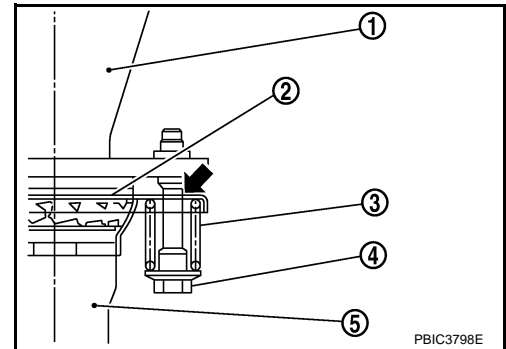
1. Securely insert seal bearing (2) into exhaust front tube (1) side in the direction shown in figure.

- 3 : Spring
- 4 : Mounting bolt
- 5 : Main muffler

CAUTION:

Be careful not to damage seal bearing surface when installing.

2. With spring, tighten mounting bolt.
 - Be careful that mounting bolt does not interfere with flanged area (←), and tighten it.



Inspection

INFOID:000000001179313

INSPECTION AFTER INSTALLATION

- Make sure clearance between tail tube and rear bumper is even.
- With engine running, check exhaust tube joints for gas leakage and unusual noises.
- 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:000000001179314

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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.

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PREPARATION

< PREPARATION >

[MR20DE]

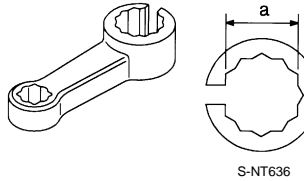
PREPARATION

PREPARATION

Special Service Tools

INFOID:000000001179315

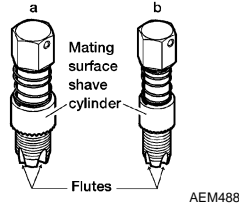
Tool number Tool name	Description
KV10114400 Heated oxygen sensor wrench	Loosening or tightening heated oxygen sensor 2 For 22 mm (0.87 in) width hexagon nut



Commercial Service Tools

INFOID:000000001179316

Tool name	Description
Heated oxygen sensor thread cleaner	Reconditioning the exhaust system threads before installing a new heated oxygen sensor (Use with anti-seize lubricant shown below.) a: 18 mm (0.71 in) dia. for zirconia heated oxygen sensor b: 12 mm (0.47 in) dia. for titania heated oxygen sensor
Anti-seize lubricant (Permatex 133AR or equivalent meeting MIL specification MIL-A-907)	Lubricating heated oxygen sensor thread cleaner when reconditioning exhaust system threads



ON-VEHICLE MAINTENANCE

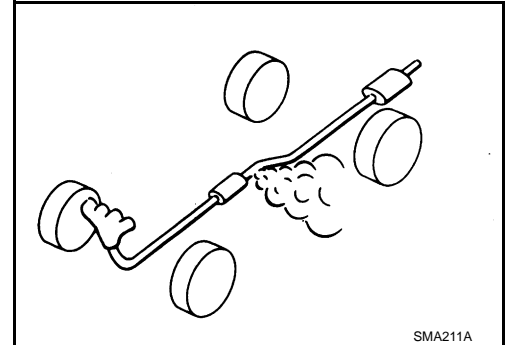
EXHAUST SYSTEM

Inspection

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

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

INFOID:000000001179317



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EXHAUST SYSTEM

< ON-VEHICLE REPAIR >

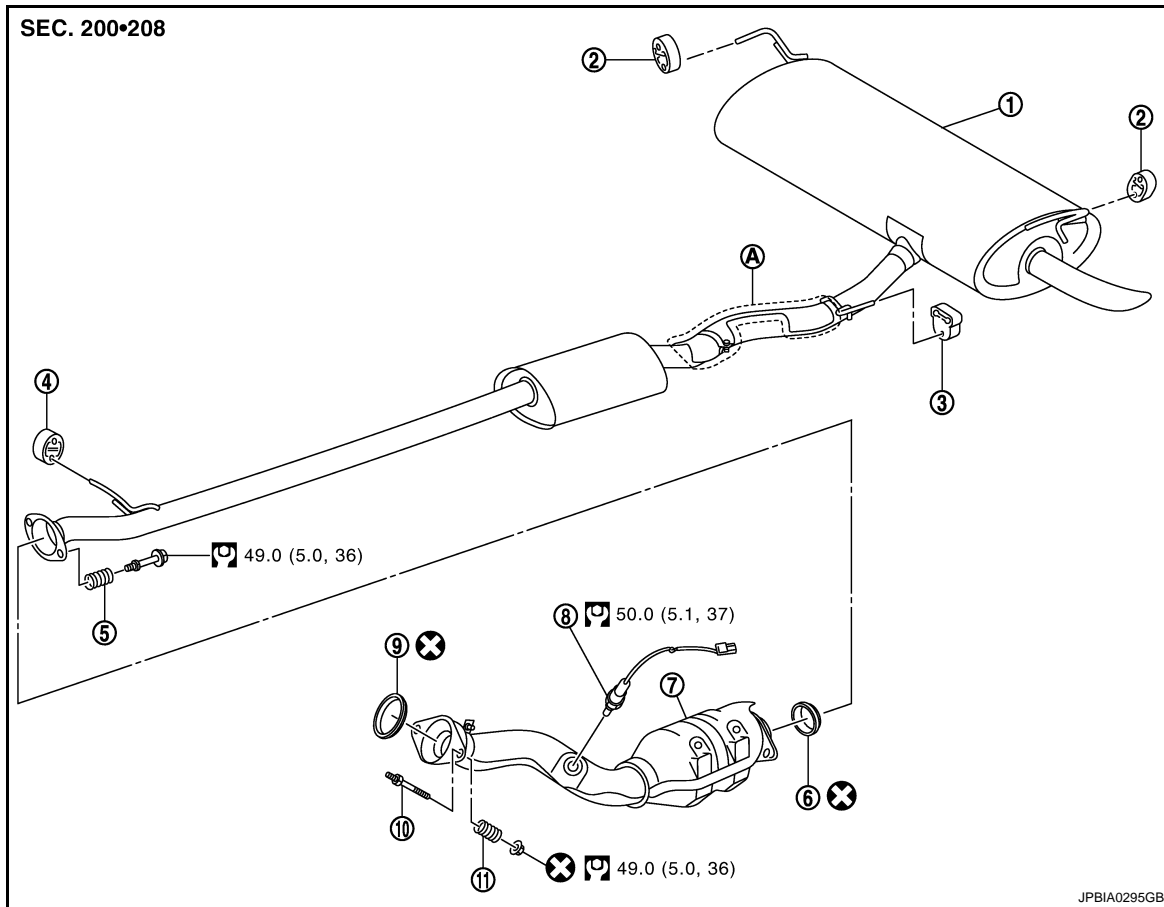
[MR20DE]

ON-VEHICLE REPAIR

EXHAUST SYSTEM

Exploded View

INFOID:000000001179318



- | | | |
|-----------------------|---------------------------|--------------------|
| 1. Main muffler | 2. Mounting rubber | 3. Mounting rubber |
| 4. Mounting rubber | 5. Spring | 6. Seal bearing |
| 7. Exhaust front tube | 8. Heated oxygen sensor 2 | 9. Seal bearing |
| 10. Stud bolt | 11. Spring | |
- A. Insulator (4WD models)

Refer to [GI-4. "Components"](#) for symbols in the figure.

Removal and Installation

INFOID:000000001179319

REMOVAL

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

EXHAUST SYSTEM

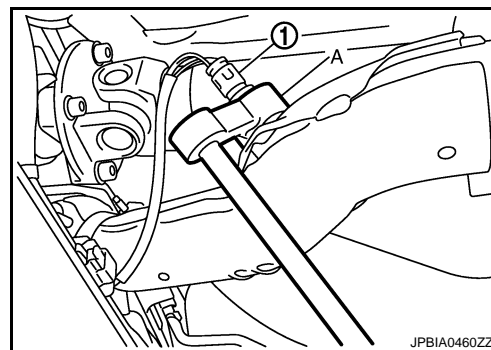
[MR20DE]

< ON-VEHICLE REPAIR >

- 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 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 "MI" coming on.
- Remove deposits from the sealing surface of each connection. Connect them securely to avoid gas leakage.
- Temporarily tighten mounting nuts and bolts. 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 Manifold to Exhaust Front Tube

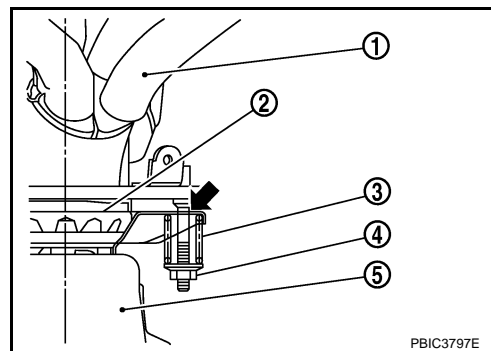
1. Securely insert seal bearing (2) into exhaust manifold (1) side in the direction shown in figure.

- 3 : Spring
- 4 : Mounting nut
- 5 : Exhaust front tube

CAUTION:

Be careful not to damage seal bearing surface when installing.

2. With spring, tighten mounting nut.
 - Be careful that mounting nut does not interfere with flanged area (←), and tighten it.



Exhaust Front Tube to Main Muffler

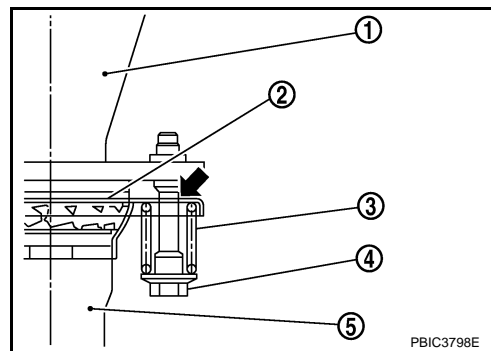
1. Securely insert seal bearing (2) into exhaust front tube (1) side in the direction shown in figure.

- 3 : Spring
- 4 : Mounting bolt
- 5 : Main muffler

CAUTION:

Be careful not to damage seal bearing surface when installing.

2. With spring, tighten mounting bolt.
 - Be careful that mounting bolt does not interfere with flanged area (←), and tighten it.



Inspection

INFOID:000000001179320

INSPECTION AFTER INSTALLATION

- Make sure 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:000000001179321

A

EX

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.

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ON-VEHICLE MAINTENANCE

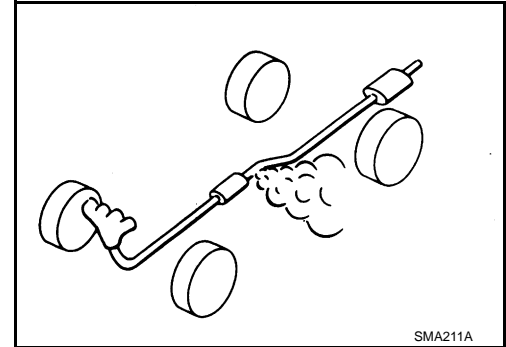
EXHAUST SYSTEM

Inspection

INFOID:000000001179322

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

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

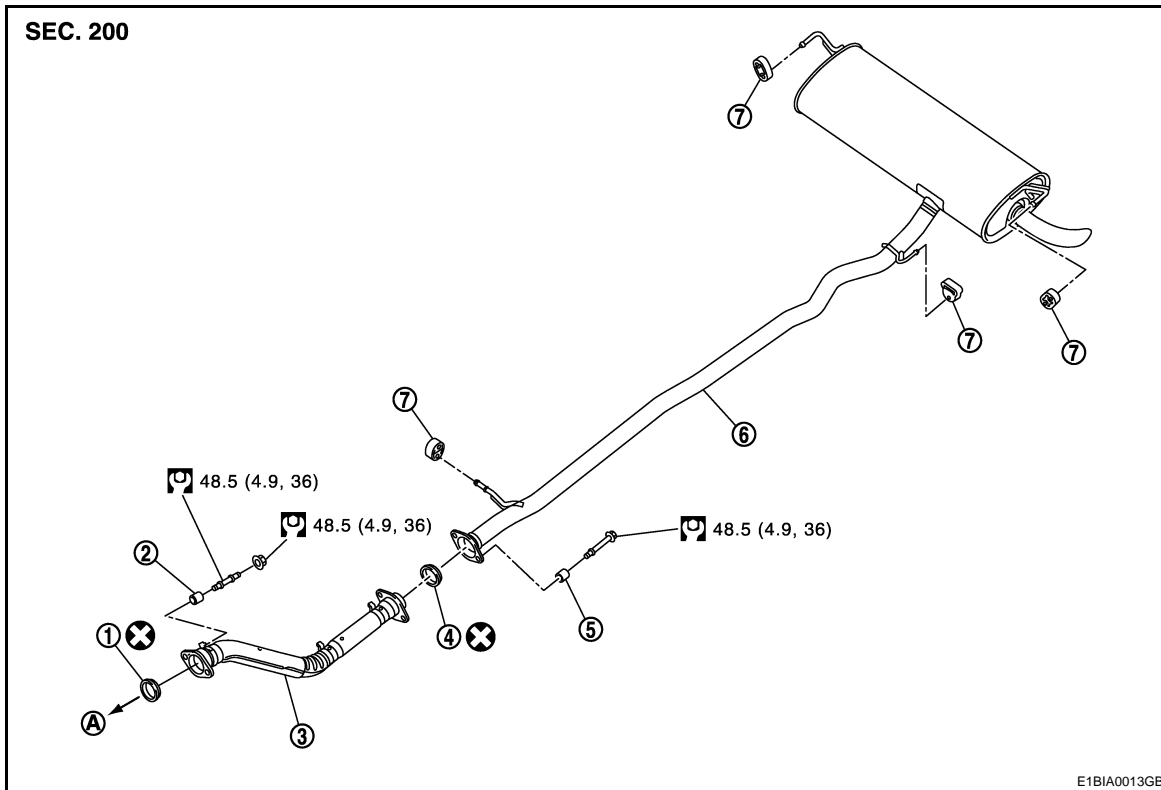


ON-VEHICLE REPAIR

EXHAUST SYSTEM

Exploded View

INFOID:000000001179323



- | | | |
|--------------------|-----------|-----------------------|
| 1. Seal bearing | 2. Spring | 3. Exhaust front tube |
| 4. Seal bearing | 5. Spring | 6. Muffler |
| 7. Mounting rubber | | |
| A. To catalyst | | |

Refer to [GI-4. "Components"](#) for symbols not described on the above.

Removal and Installation

INFOID:000000001179324

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

- Disconnect each joint and mounting.

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.

EXHAUST SYSTEM

[K9K]

< ON-VEHICLE REPAIR >

- 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 Manifold to Exhaust Front Tube

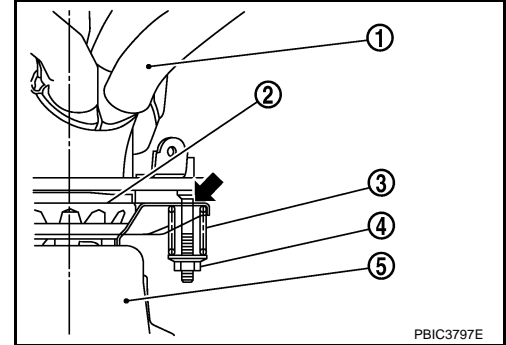
1. Securely insert seal bearing (2) into exhaust manifold (1) side in the direction shown in figure.

- 3 : Spring
- 4 : Mounting nut
- 5 : Exhaust front tube

CAUTION:

Be careful not to damage seal bearing surface when installing.

2. With spring, tighten mounting nut.
 - Be careful that mounting nut does not interfere with flanged area (➡), and tighten it.



Exhaust Front Tube to Main Muffler

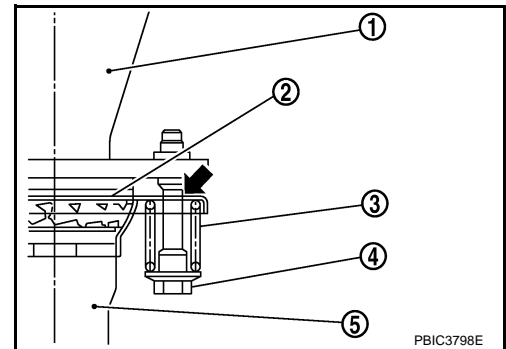
1. Securely insert seal bearing (2) into exhaust front tube (1) side in the direction shown in figure.

- 3 : Spring
- 4 : Mounting bolt
- 5 : Main muffler

CAUTION:

Be careful not to damage seal bearing surface when installing.

2. With spring, tighten mounting bolt.
 - Be careful that mounting bolt does not interfere with flanged area (➡), and tighten it.



Inspection

INFOID:000000001179325

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.

PRECAUTION

PRECAUTIONS

Removal and Installation

INFOID:000000001366214

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EX

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.

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ON-VEHICLE MAINTENANCE

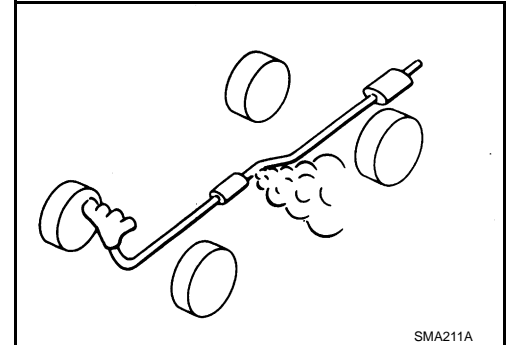
EXHAUST SYSTEM

Inspection

INFOID:000000001366215

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

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



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EXHAUST SYSTEM

< ON-VEHICLE REPAIR >

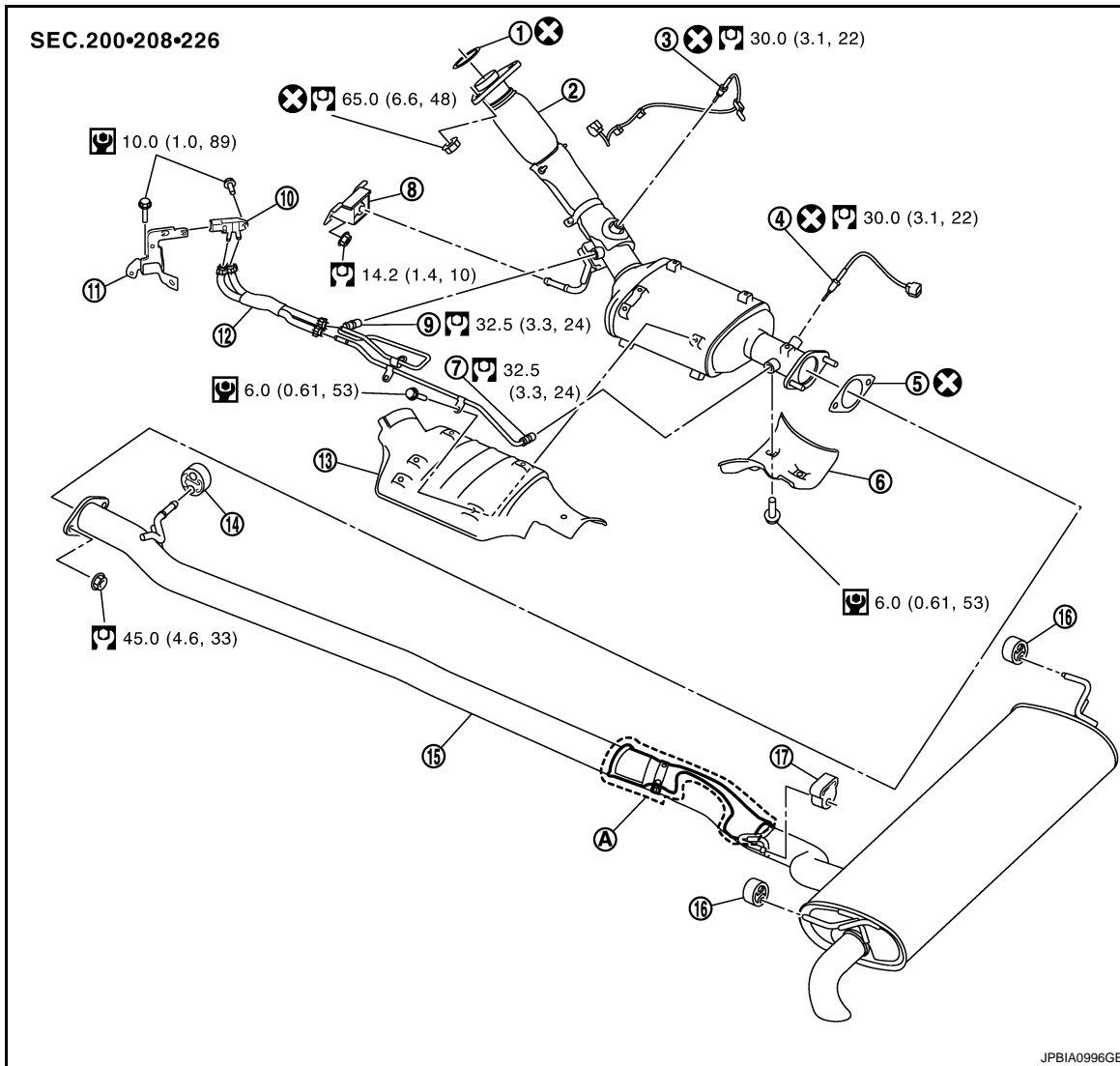
[M9R]

ON-VEHICLE REPAIR

EXHAUST SYSTEM

Exploded View

INFOID:000000001366216



- | | | |
|--|--|---|
| 1. Gasket | 2. Exhaust front tube | 3. Exhaust gas temperature sensor 2 |
| 4. Exhaust gas temperature sensor 3 | 5. Gasket | 6. Insulator |
| 7. Differential exhaust pressure sensor tube | 8. Mounting rubber | 9. Differential exhaust pressure sensor tube |
| 10. Differential exhaust pressure sensor | 11. Differential exhaust pressure sensor bracket | 12. Differential exhaust pressure sensor hose |
| 13. Insulator | 14. Mounting rubber | 15. Main muffler |
| 16. Mounting rubber | 17. Mounting rubber | |
- A. Insulator (4WD models)

Refer to [GI-4, "Components"](#) for symbols in the figure.

Removal and Installation

INFOID:000000001366217

REMOVAL

1. Remove main muffler.

EXHAUST SYSTEM

[M9R]

< ON-VEHICLE REPAIR >

2. Disconnect exhaust gas temperature sensor harness connectors.
3. Disconnect differential exhaust pressure sensor hoses from exhaust front tube.
4. Remove exhaust front tube.
5. Remove differential exhaust pressure sensor tubes and differential exhaust pressure sensor.

CAUTION:

Never deform differential exhaust pressure sensor tubes.

6. Remove exhaust gas temperature sensors, if necessary.

CAUTION:

Never remove exhaust gas temperature sensors except for replacing with new parts.

INSTALLATION

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

Exhaust Gas Temperature Sensor

- Install exhaust gas temperature sensor in the original position.

CAUTION:

- **Before installing a new exhaust gas temperature sensor, clean front tube thread.**
- **Be careful not to impact or damage exhaust gas temperature sensors.**
- **When installing, never use such tools as an air impact wrench.**

Differential Exhaust Pressure Sensor

CAUTION:

- **Never deform differential exhaust pressure sensor tubes.**
- **Clamp shall not run aground on bulge.**

Exhaust Front Tube and Main Muffler

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.**
- **If it is difficult to install mounting rubber, use mild detergent for smooth installation.**
- **When installing each mounting rubber, avoid twisting or unusual extension in up/down and right/left directions.**
- **Temporarily tighten mounting nuts. Check each part for unusual interference, and then tighten them to the specified torque.**

Inspection

INFOID:000000001366218

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.