

SECTION EX

EXHAUST SYSTEM

CONTENTS

MR20DD	PREPARATION	10	F
PRECAUTION	Special Service Tools	10	
	Commercial Service Tools	10	
PRECAUTIONS	PERIODIC MAINTENANCE	11	G
Removal and Installation	EXHAUST SYSTEM	11	
Precautions for Removing Battery Terminal	Inspection	11	H
PREPARATION	REMOVAL AND INSTALLATION	12	
PREPARATION	EXHAUST SYSTEM	12	I
Special Service Tools	Exploded View	12	
Commercial Service Tools	Removal and Installation	12	
PERIODIC MAINTENANCE	Inspection	13	J
EXHAUST SYSTEM	R9M		
Inspection	PRECAUTION	14	K
REMOVAL AND INSTALLATION	PRECAUTIONS	14	
EXHAUST SYSTEM	Removal and Installation	14	
Exploded View	Precautions for Removing Battery Terminal	14	L
Removal and Installation	PERIODIC MAINTENANCE	16	
Inspection	EXHAUST SYSTEM	16	M
QR25DE	Inspection	16	
PRECAUTION	REMOVAL AND INSTALLATION	17	N
PRECAUTIONS	EXHAUST SYSTEM	17	
Removal and Installation	Exploded View	17	
Precautions for Removing Battery Terminal	Removal and Installation	18	O
PREPARATION	Inspection	19	

PRECAUTION

PRECAUTIONS

Removal and Installation

INFOID:0000000010782879

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.
- Never use silicon-containing products (e.g. oil) to prevent malfunctions such as the interference with the conduction of electricity and the occurrence of noise in the radio.
- Prevent rust preventives from adhering to the sensor body.

Precautions for Removing Battery Terminal

INFOID:0000000010782919

- With the adoption of Auto ACC function, ACC power is automatically supplied by operating the intelligent key or remote keyless entry or by opening/closing the driver side door. In addition, ACC power is supplied even after the ignition switch is turned to the OFF position, i.e. ACC power is supplied for a certain fixed time.
- When disconnecting the 12V battery terminal, turn off the ACC power before disconnecting the 12V battery terminal, observing "How to disconnect 12V battery terminal" described below.

NOTE:

Some ECUs operate for a certain fixed time even after ignition switch is turned OFF and ignition power supply is stopped. If the battery terminal is disconnected before ECU stops, accidental DTC detection or ECU data damage may occur.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

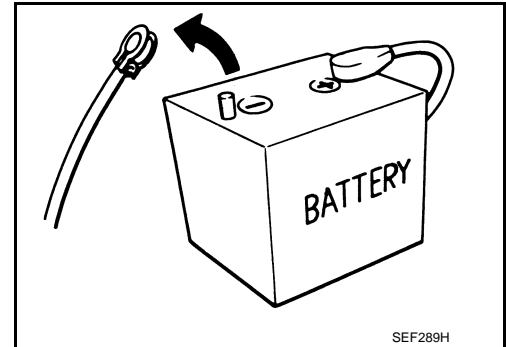
NOTE:

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

NOTE:

The removal of 12V battery may cause a DTC detection error.



SEF289H

HOW TO DISCONNECT 12V BATTERY TERMINAL

Disconnect 12V battery terminal according to Instruction 1 or Instruction 2 described below.

For vehicles parked by ignition switch OFF, refer to Instruction 2.

INSTRUCTION 1

1. Open the hood.
2. Turn key switch to the OFF position with the driver side door opened.
3. Get out of the vehicle and close the driver side door.
4. Wait at least 3 minutes. For vehicle with the engine listed below, remove the battery terminal after a lapse of the specified time.

D4D engine	: 20 minutes
HRA2DDT	: 12 minutes
K9K engine	: 4 minutes
M9R engine	: 4 minutes
R9M engine	: 4 minutes
V9X engine	: 4 minutes

CAUTION:

While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.

5. Remove 12V battery terminal.

PRECAUTIONS

< PRECAUTION >

[MR20DD]

CAUTION:

After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.

A

INSTRUCTION 2 (FOR VEHICLES PARKED BY IGNITION SWITCH OFF)

1. Unlock the door with intelligent key or remote keyless entry.

NOTE:

At this moment, ACC power is supplied.

EX

2. Open the driver side door.
3. Open the hood.
4. Close the driver side door.
5. Wait at least 3 minutes.

C

CAUTION:

While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.

D

6. Remove 12V battery terminal.

E

CAUTION:

After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.

F

G

H

I

J

K

L

M

N

O

P

PREPARATION

< PREPARATION >

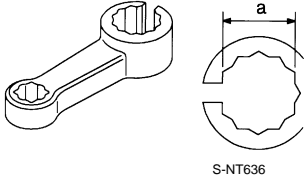
[MR20DD]

PREPARATION

PREPARATION

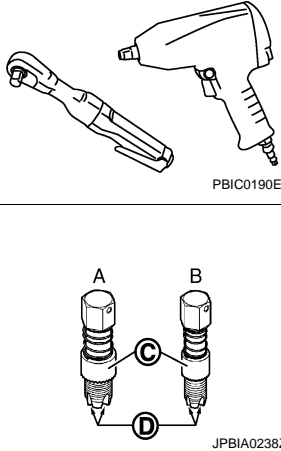
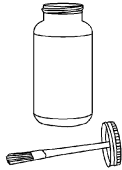
Special Service Tools

INFOID:0000000010782881

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

Commercial Service Tools

INFOID:0000000010782882

Tool name	Description
Power tool	Loosening nuts and bolts
 <p>PBIC0190E</p> <p>JPBIA0238ZZ</p>	
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: 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)	Lubricating heated oxygen sensor thread cleaner when reconditioning exhaust system threads
 <p>AEM489</p>	

PERIODIC MAINTENANCE

EXHAUST SYSTEM

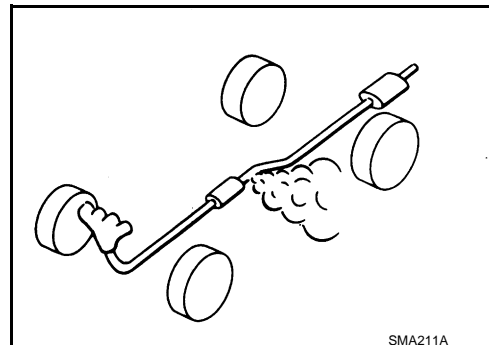
Inspection

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

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

INFOID:0000000010782883

EX



A

C

D

E

F

G

H

I

J

K

L

M

N

O

P

EXHAUST SYSTEM

< REMOVAL AND INSTALLATION >

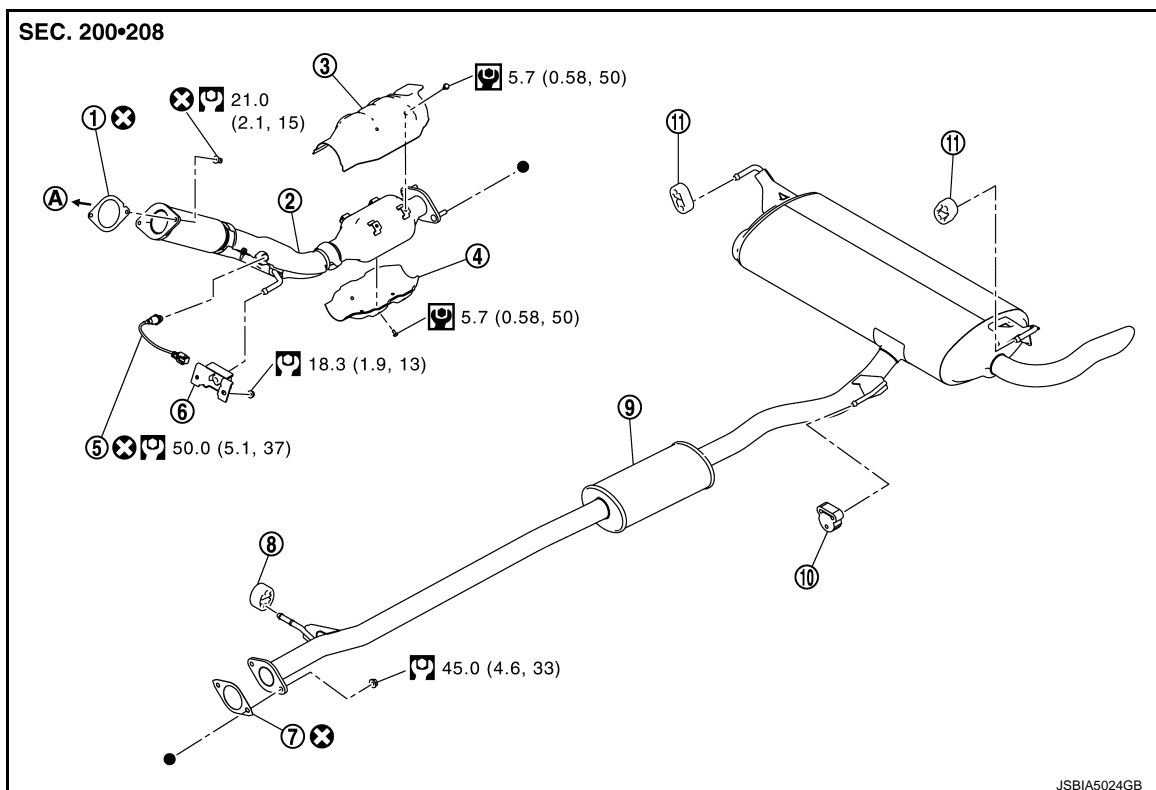
[MR20DD]

REMOVAL AND INSTALLATION

EXHAUST SYSTEM

Exploded View

INFOID:0000000010782884



- | | | |
|-----------------------------------|--------------------------|-------------------|
| ① Gasket | ② Exhaust front tube | ③ Heat insulator |
| ④ Heat insulator (Not applicable) | ⑤ Heated oxygen sensor 2 | ⑥ Mounting rubber |
| ⑦ Gasket | ⑧ Mounting rubber | ⑨ Main muffler |
| ⑩ Mounting rubber | ⑪ Mounting rubber | |

Ⓐ To exhaust manifold

⊗ : Always replace after every disassembly.

Ⓜ : N·m (kg-m, in-lb)

Ⓜ : N·m (kg-m, ft-lb)

● : Indicates that the part is connected at points with same symbol in actual vehicle.

Removal and Installation

INFOID:0000000010782885

REMOVAL

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

EXHAUST SYSTEM

[MR20DD]

< REMOVAL AND INSTALLATION >

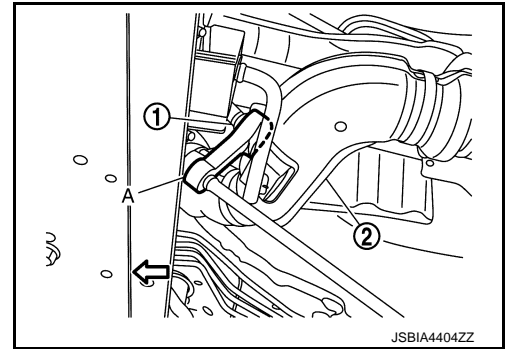
- Using heated oxygen sensor wrench [SST: KV10114400] (A), removal heated oxygen sensor 2 ①.

② : Exhaust front tube

← : Vehicle front

CAUTION:

Discard any sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; use a new one.



INSTALLATION

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

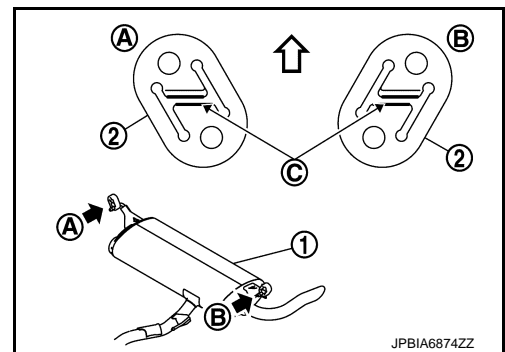
CAUTION:

- Always replace gaskets 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.
- 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.
- Install mounting rubber, refer to the following instructions,
- Install slit of the mounting rubber ③ is in a horizontal direction.

Ⓐ : RH

Ⓑ : LH

← : Vehicle upper



Inspection

INFOID:0000000010782886

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:0000000010782887

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.
- Never use silicon-containing products (e.g. oil) to prevent malfunctions such as the interference with the conduction of electricity and the occurrence of noise in the radio.
- Prevent rust preventives from adhering to the sensor body.

Precautions for Removing Battery Terminal

INFOID:0000000010782920

- With the adoption of Auto ACC function, ACC power is automatically supplied by operating the intelligent key or remote keyless entry or by opening/closing the driver side door. In addition, ACC power is supplied even after the ignition switch is turned to the OFF position, i.e. ACC power is supplied for a certain fixed time.
- When disconnecting the 12V battery terminal, turn off the ACC power before disconnecting the 12V battery terminal, observing "How to disconnect 12V battery terminal" described below.

NOTE:

Some ECUs operate for a certain fixed time even after ignition switch is turned OFF and ignition power supply is stopped. If the battery terminal is disconnected before ECU stops, accidental DTC detection or ECU data damage may occur.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

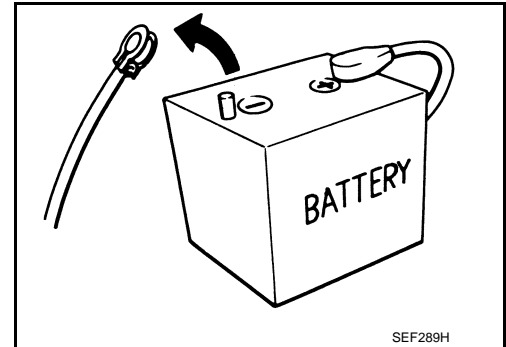
NOTE:

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

NOTE:

The removal of 12V battery may cause a DTC detection error.



SEF289H

HOW TO DISCONNECT 12V BATTERY TERMINAL

Disconnect 12V battery terminal according to Instruction 1 or Instruction 2 described below.

For vehicles parked by ignition switch OFF, refer to Instruction 2.

INSTRUCTION 1

1. Open the hood.
2. Turn key switch to the OFF position with the driver side door opened.
3. Get out of the vehicle and close the driver side door.
4. Wait at least 3 minutes. For vehicle with the engine listed below, remove the battery terminal after a lapse of the specified time.

D4D engine	: 20 minutes
HRA2DDT	: 12 minutes
K9K engine	: 4 minutes
M9R engine	: 4 minutes
R9M engine	: 4 minutes
V9X engine	: 4 minutes

CAUTION:

While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.

5. Remove 12V battery terminal.

PRECAUTIONS

< PRECAUTION >

[QR25DE]

CAUTION:

After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.

A

INSTRUCTION 2 (FOR VEHICLES PARKED BY IGNITION SWITCH OFF)

1. Unlock the door with intelligent key or remote keyless entry.

NOTE:

At this moment, ACC power is supplied.

EX

2. Open the driver side door.
3. Open the hood.
4. Close the driver side door.
5. Wait at least 3 minutes.

C

CAUTION:

While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.

D

6. Remove 12V battery terminal.

E

CAUTION:

After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.

F

G

H

I

J

K

L

M

N

O

P

PREPARATION

< PREPARATION >

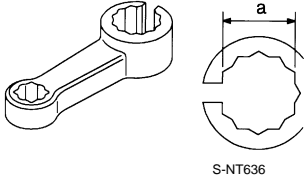
[QR25DE]

PREPARATION

PREPARATION

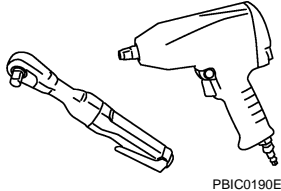
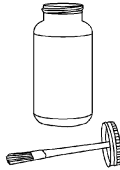
Special Service Tools

INFOID:0000000010782889

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

Commercial Service Tools

INFOID:0000000010782890

Tool name	Description
Power tool	Loosening nuts and bolts
 <p>PBIC0190E</p>	
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: 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)	Lubricating heated oxygen sensor thread cleaner when reconditioning exhaust system threads
 <p>AEM489</p>	

PERIODIC MAINTENANCE

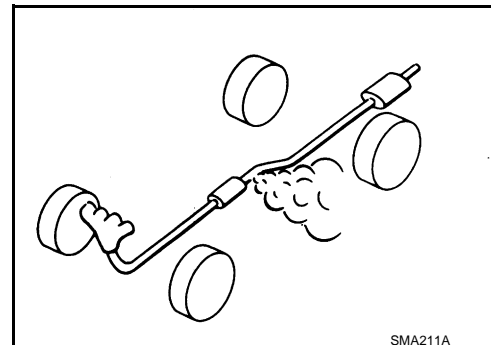
EXHAUST SYSTEM

Inspection

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

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

INFOID:0000000010782891



A

EX

C

D

E

F

G

H

I

J

K

L

M

N

O

P

EXHAUST SYSTEM

< REMOVAL AND INSTALLATION >

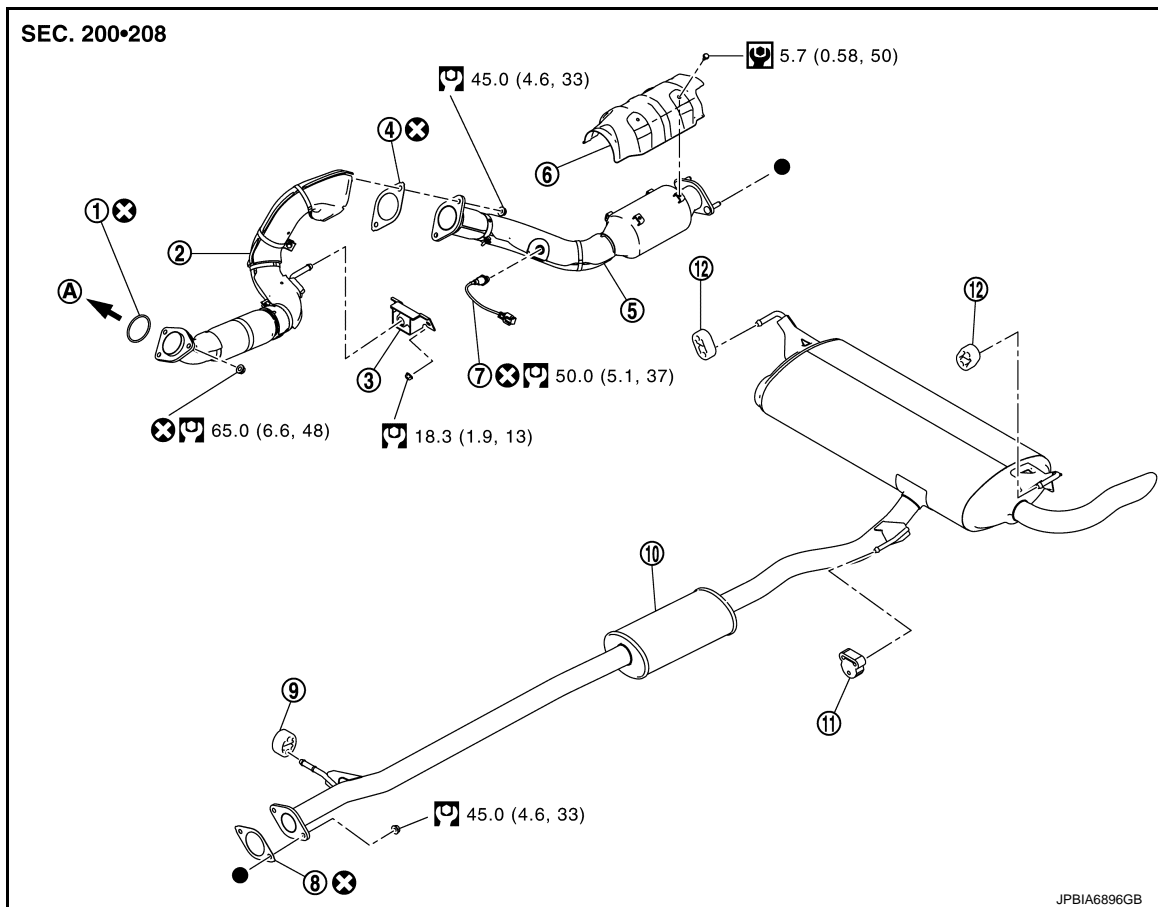
[QR25DE]

REMOVAL AND INSTALLATION

EXHAUST SYSTEM

Exploded View

INFOID:000000010782892



- | | | |
|--------------------------|------------------------|-------------------|
| ① Ring gasket | ② Exhaust front tube 1 | ③ Mounting rubber |
| ④ Gasket | ⑤ Exhaust front tube 2 | ⑥ Heat insulator |
| ⑦ Heated oxygen sensor 2 | ⑧ Gasket | ⑨ Mounting rubber |
| ⑩ Main muffler | ⑪ Mounting rubber | ⑫ Mounting rubber |

Ⓐ To exhaust manifold

⊗ : Always replace after every disassembly.

Ⓜ : N·m (kg·m, in·lb)

Ⓜ : N·m (kg·m, ft·lb)

● : Indicates that the part is connected at points with same symbol in actual vehicle.

Removal and Installation

INFOID:000000010782893

REMOVAL

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

EXHAUST SYSTEM

< REMOVAL AND INSTALLATION >

[QR25DE]

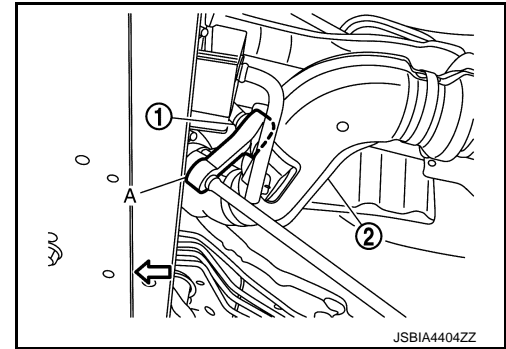
- Using heated oxygen sensor wrench [SST: KV10114400] (A), removal heated oxygen sensor 2 ①.

② : Exhaust front tube

← : Vehicle front

CAUTION:

Discard any sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; use a new one.



INSTALLATION

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

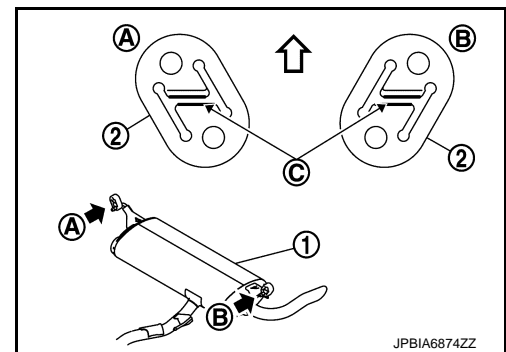
CAUTION:

- Always replace gaskets 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.
- 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.
- Install mounting rubber, refer to the following instructions,
- Install slit of the mounting rubber ③ is in a horizontal direction.

Ⓐ : RH

Ⓑ : LH

← : Vehicle upper



Inspection

INFOID:0000000010782894

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:000000010782896

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.
- Never use silicon-containing products (e.g. oil) to prevent malfunctions such as the interference with the conduction of electricity and the occurrence of noise in the radio.
- Prevent rust preventives from adhering to the sensor body.

Precautions for Removing Battery Terminal

INFOID:000000010782921

- With the adoption of Auto ACC function, ACC power is automatically supplied by operating the intelligent key or remote keyless entry or by opening/closing the driver side door. In addition, ACC power is supplied even after the ignition switch is turned to the OFF position, i.e. ACC power is supplied for a certain fixed time.
- When disconnecting the 12V battery terminal, turn off the ACC power before disconnecting the 12V battery terminal, observing "How to disconnect 12V battery terminal" described below.

NOTE:

Some ECUs operate for a certain fixed time even after ignition switch is turned OFF and ignition power supply is stopped. If the battery terminal is disconnected before ECU stops, accidental DTC detection or ECU data damage may occur.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

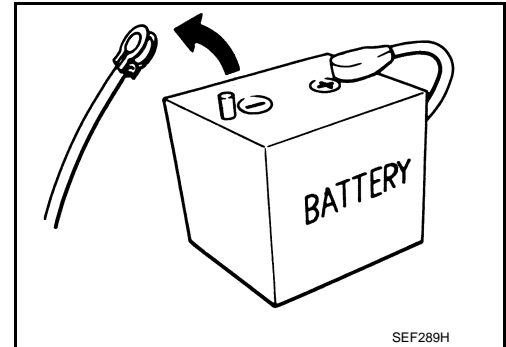
NOTE:

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

NOTE:

The removal of 12V battery may cause a DTC detection error.



SEF289H

HOW TO DISCONNECT 12V BATTERY TERMINAL

Disconnect 12V battery terminal according to Instruction 1 or Instruction 2 described below.

For vehicles parked by ignition switch OFF, refer to Instruction 2.

INSTRUCTION 1

1. Open the hood.
2. Turn key switch to the OFF position with the driver side door opened.
3. Get out of the vehicle and close the driver side door.
4. Wait at least 3 minutes. For vehicle with the engine listed below, remove the battery terminal after a lapse of the specified time.

D4D engine	: 20 minutes
HRA2DDT	: 12 minutes
K9K engine	: 4 minutes
M9R engine	: 4 minutes
R9M engine	: 4 minutes
V9X engine	: 4 minutes

CAUTION:

While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.

5. Remove 12V battery terminal.

PRECAUTIONS

< PRECAUTION >

[R9M]

CAUTION:

After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.

A

INSTRUCTION 2 (FOR VEHICLES PARKED BY IGNITION SWITCH OFF)

1. Unlock the door with intelligent key or remote keyless entry.

NOTE:

At this moment, ACC power is supplied.

EX

2. Open the driver side door.
3. Open the hood.
4. Close the driver side door.
5. Wait at least 3 minutes.

C

CAUTION:

While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.

D

6. Remove 12V battery terminal.

E

CAUTION:

After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.

F

G

H

I

J

K

L

M

N

O

P

PERIODIC MAINTENANCE

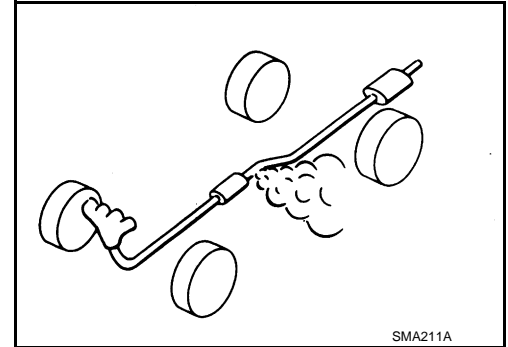
EXHAUST SYSTEM

Inspection

INFOID:0000000010782900

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

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



EXHAUST SYSTEM

< REMOVAL AND INSTALLATION >

[R9M]

REMOVAL AND INSTALLATION

EXHAUST SYSTEM

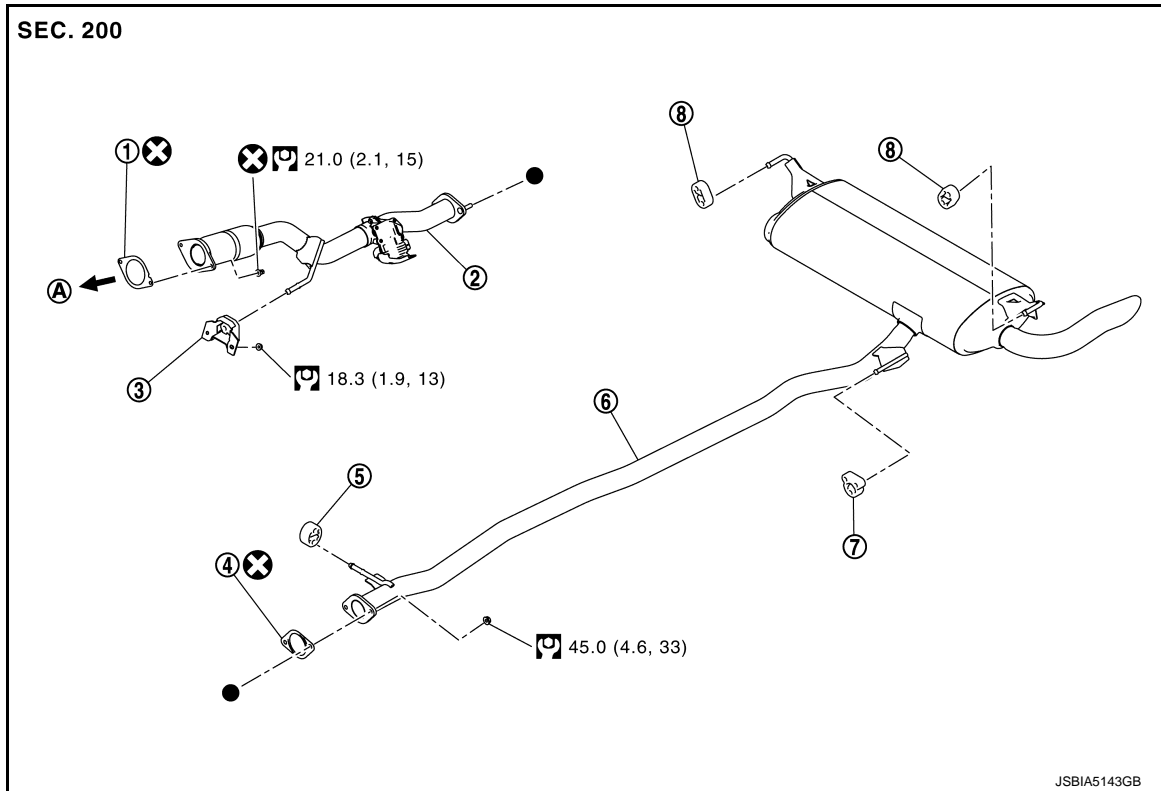
Exploded View

INFOID:0000000010782901

A

EX

2WD models



- | | | |
|-------------------|----------------------|-------------------|
| ① Gasket | ② Exhaust front tube | ③ Mounting rubber |
| ④ Gasket | ⑤ Mounting rubber | ⑥ Main muffler |
| ⑦ Mounting rubber | ⑧ Mounting rubber | |

Ⓐ To DPF (diesel particulate filter)

⊗ : Always replace after every disassembly.

Ⓜ : N·m (kg-m, ft-lb)

● : Indicates that the part is connected at points with same symbol in actual vehicle.

C

D

E

F

G

H

I

J

K

L

M

N

O

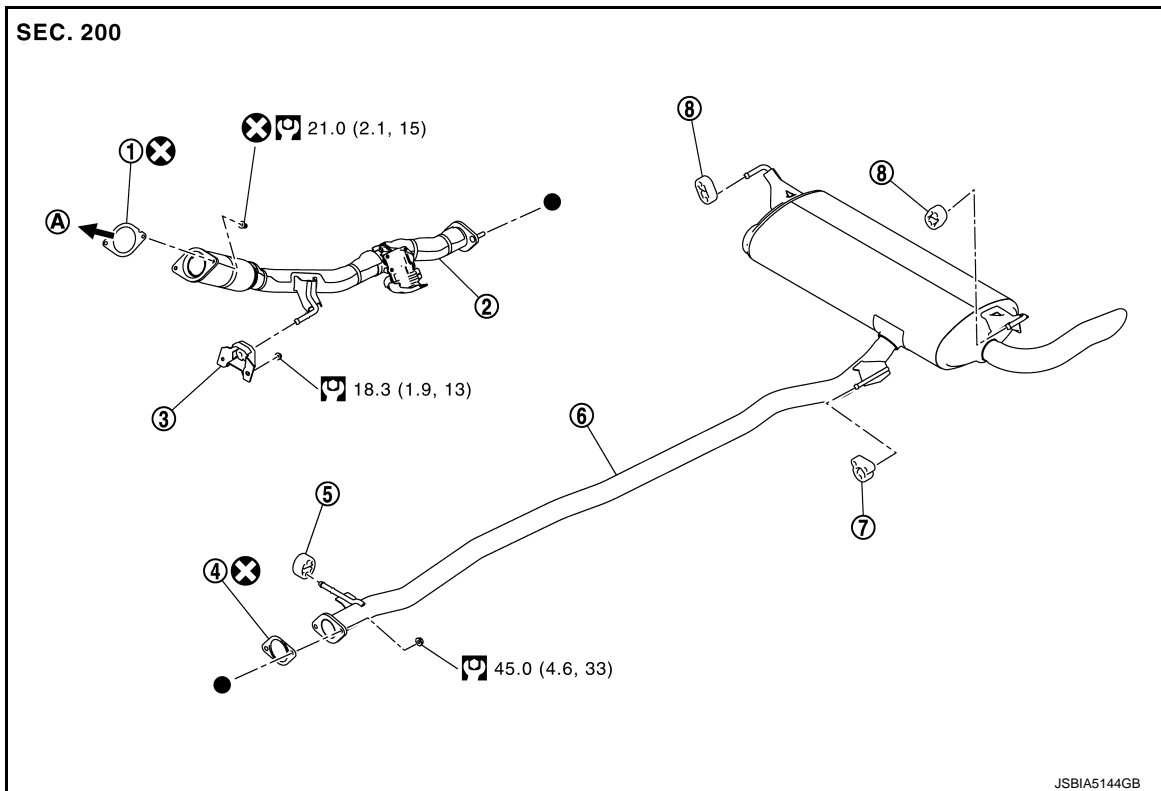
P

EXHAUST SYSTEM

< REMOVAL AND INSTALLATION >

[R9M]

4WD models



- | | | |
|-------------------|----------------------|-------------------|
| ① Gasket | ② Exhaust front tube | ③ Mounting rubber |
| ④ Gasket | ⑤ Mounting rubber | ⑥ Main muffler |
| ⑦ Mounting rubber | ⑧ Mounting rubber | |

(A) To DPF (diesel particulate filter)

✕ : Always replace after every disassembly.

⌘ : N·m (kg·m, ft·lb)

● : Indicates that the part is connected at points with same symbol in actual vehicle.

Removal and Installation

INFOID:0000000010782902

REMOVAL

- Disconnect each joint and mounting.

INSTALLATION

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

CAUTION:

- Always replace gaskets with new ones when reassembling.
- 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.
- 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.
- Install mounting rubber, refer to the following instructions,

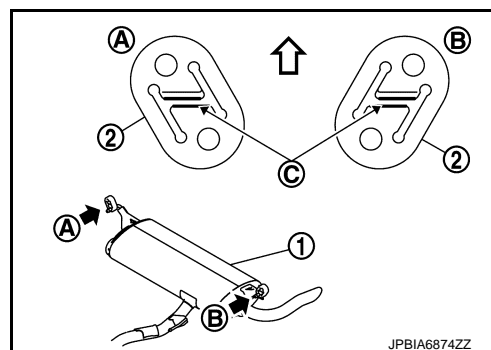
EXHAUST SYSTEM

< REMOVAL AND INSTALLATION >

[R9M]

- Install slit of the mounting rubber ② is in a horizontal direction.

- ① : RH
② : LH
⇐ : Vehicle upper



Inspection

INFOID:0000000010782903

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.