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SECTION EX

EX

EXHAUST SYSTEM

C

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PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

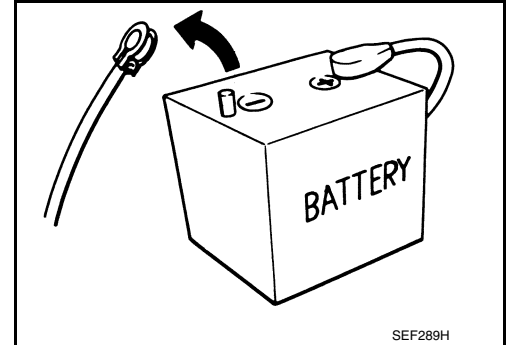
Precautions for Removing Battery Terminal

INFOID:000000013051295

When disconnecting the battery terminal, pay attention to the following.

- Always use a 12V battery as power source.
- Never disconnect battery terminal while engine is running.
- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
- For vehicles with the engine listed below, remove the battery terminal after a lapse of the specified time:

D4D engine	: 20 minutes	YS23DDT	: 4 minutes
HRA2DDT	: 12 minutes	YS23DDTT	: 4 minutes
K9K engine	: 4 minutes	ZD30DDTi	: 60 seconds
M9R engine	: 4 minutes	ZD30DDTT	: 60 seconds
R9M engine	: 4 minutes		
V9X engine	: 4 minutes		
YD25DDTi	: 2 minutes		



NOTE:

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- After high-load driving, if the vehicle is equipped with the V9X engine, turn the ignition switch OFF and wait for at least 15 minutes to remove the battery terminal.

NOTE:

- Turbocharger cooling pump may operate in a few minutes after the ignition switch is turned OFF.
- Example of high-load driving
 - Driving for 30 minutes or more at 140 km/h (86 MPH) or more.
 - Driving for 30 minutes or more on a steep slope.
- 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.

Removal and Installation

INFOID:000000012358055

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

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PREPARATION

PREPARATION

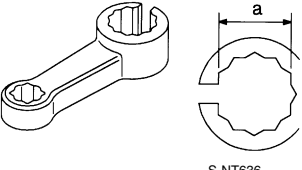
Special Service Tool

INFOID:0000000012358056

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The actual shapes of TechMate tools may differ from those of special service tools illustrated here.

Tool number (TechMate No.) Tool name	Description
KV10114400 (J-38365) Heated oxygen sensor wrench 	Loosening or tightening heated oxygen sensor 2 For 22 mm (0.87 in) (a) width hexagon nut

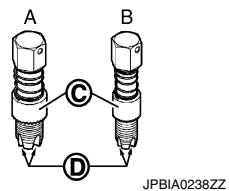
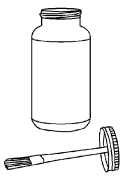
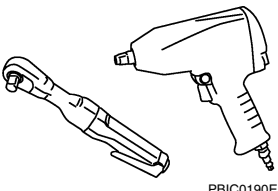
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Commercial Service Tool

INFOID:0000000012358057

(TechMate No.) Tool name	Description
A: (J-43897-18) B: (J-43897-12) 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
(—) Power tool 	Loosening bolts and nuts

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EXHAUST SYSTEM

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

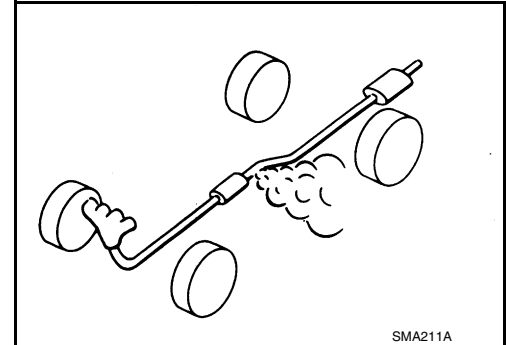
EXHAUST SYSTEM

Inspection

INFOID:000000012358058

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

< REMOVAL AND INSTALLATION >

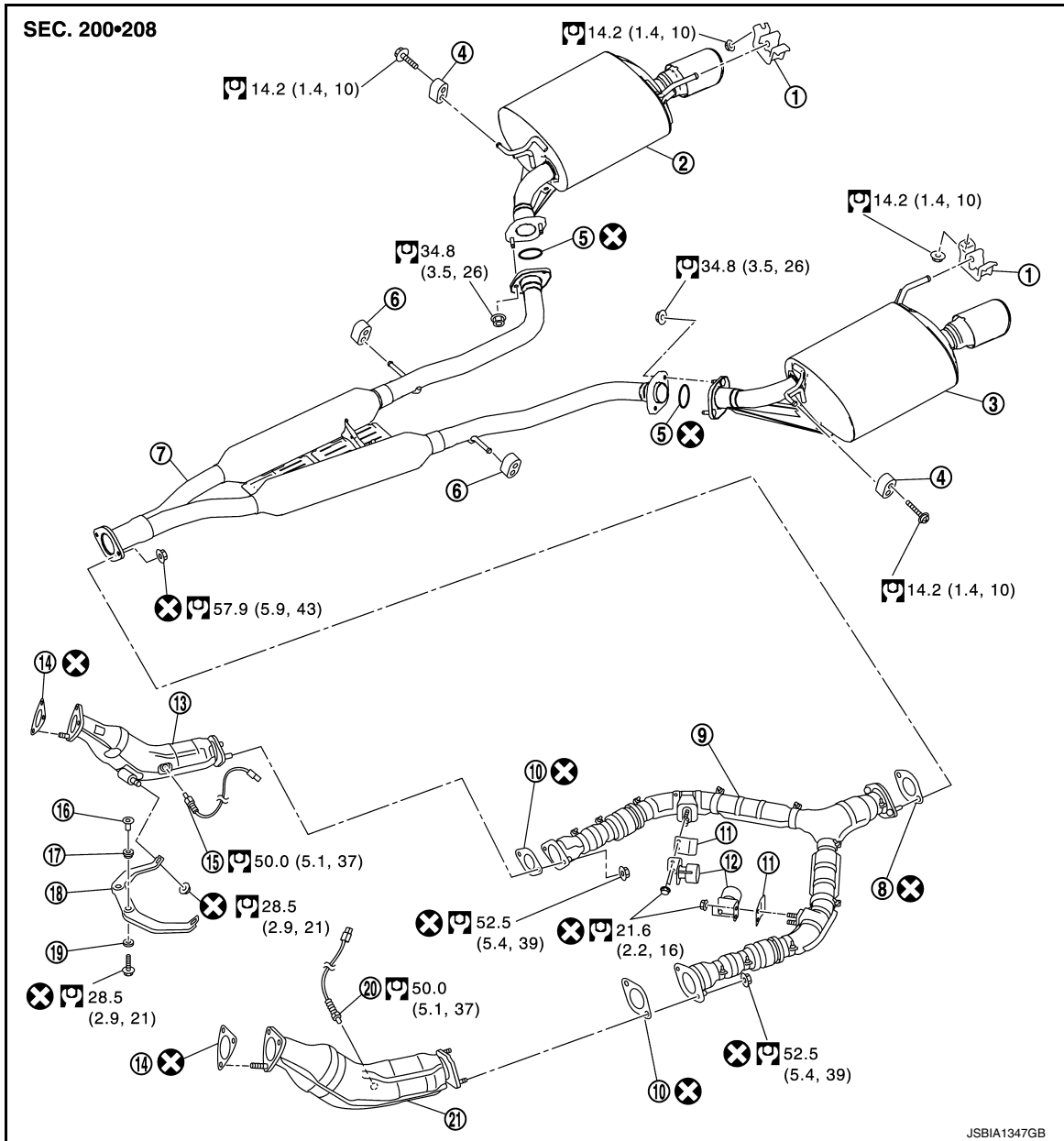
REMOVAL AND INSTALLATION

EXHAUST SYSTEM

VQ37VHR

VQ37VHR : Exploded View

INFOID:000000012358059



- | | | |
|---------------------------------|-------------------------------------|-------------------------------------|
| 1. Mounting rubber | 2. Main muffler (RH) | 3. Main muffler (LH) |
| 4. Mounting rubber | 5. Ring gasket | 6. Mounting rubber |
| 7. Center muffler | 8. Gasket | 9. Exhaust front tube |
| 10. Gasket | 11. Insulator | 12. Dynamic damper |
| 13. Three way catalyst (bank 1) | 14. Gasket | 15. Heated oxygen sensor 2 (bank 1) |
| 16. Collar | 17. Grommet | 18. Exhaust mounting bracket |
| 19. Grommet | 20. Heated oxygen sensor 2 (bank 2) | 21. Three way catalyst (bank 2) |

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

EXHAUST SYSTEM

< REMOVAL AND INSTALLATION >

VQ37VHR : Removal and Installation

INFOID:000000012358060

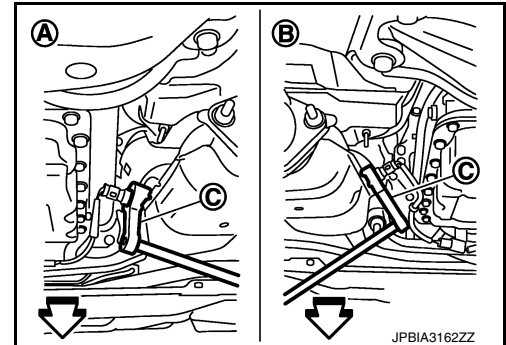
REMOVAL

- Disconnect each joint and mounting using power tool.
- Remove heated oxygen sensor 2 as follows:
 - Using heated oxygen sensor wrench [SST: KV10114400 (J-38365)] (C), removal heated oxygen sensor 2.

A : Bank 1

B : Bank 2

↔ : Vehicle front



CAUTION:

- Discard any heated oxygen 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.
- Before installing new heated oxygen sensor, clean exhaust system threads using Oxygen Sensor Thread Cleaner (commercial service tool) and approved Anti-seize lubricant (commercial servicetool).

INSTALLATION

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

- Check for deformation of the grommets (17 and 19 of Components).
- Insert the collar (16 of Components) vertically.
- Temporarily tighten nuts and bolts when installing exhaust pipe assembly. Tighten them to the specified torque when connecting the vehicle rear to the vehicle front.

CAUTION:

- Always replace exhaust tube 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 the anti-seize lubricant (commercial service tool).
- Never over torque heated oxygen sensor 2. Doing so may cause damage to heated oxygen sensor 2, resulting in the "MIL" coming on.
- Prevent rust preventives from adhering to the sensor body.
- 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 gases 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.

VQ37VHR : Inspection

INFOID:000000012358061

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.

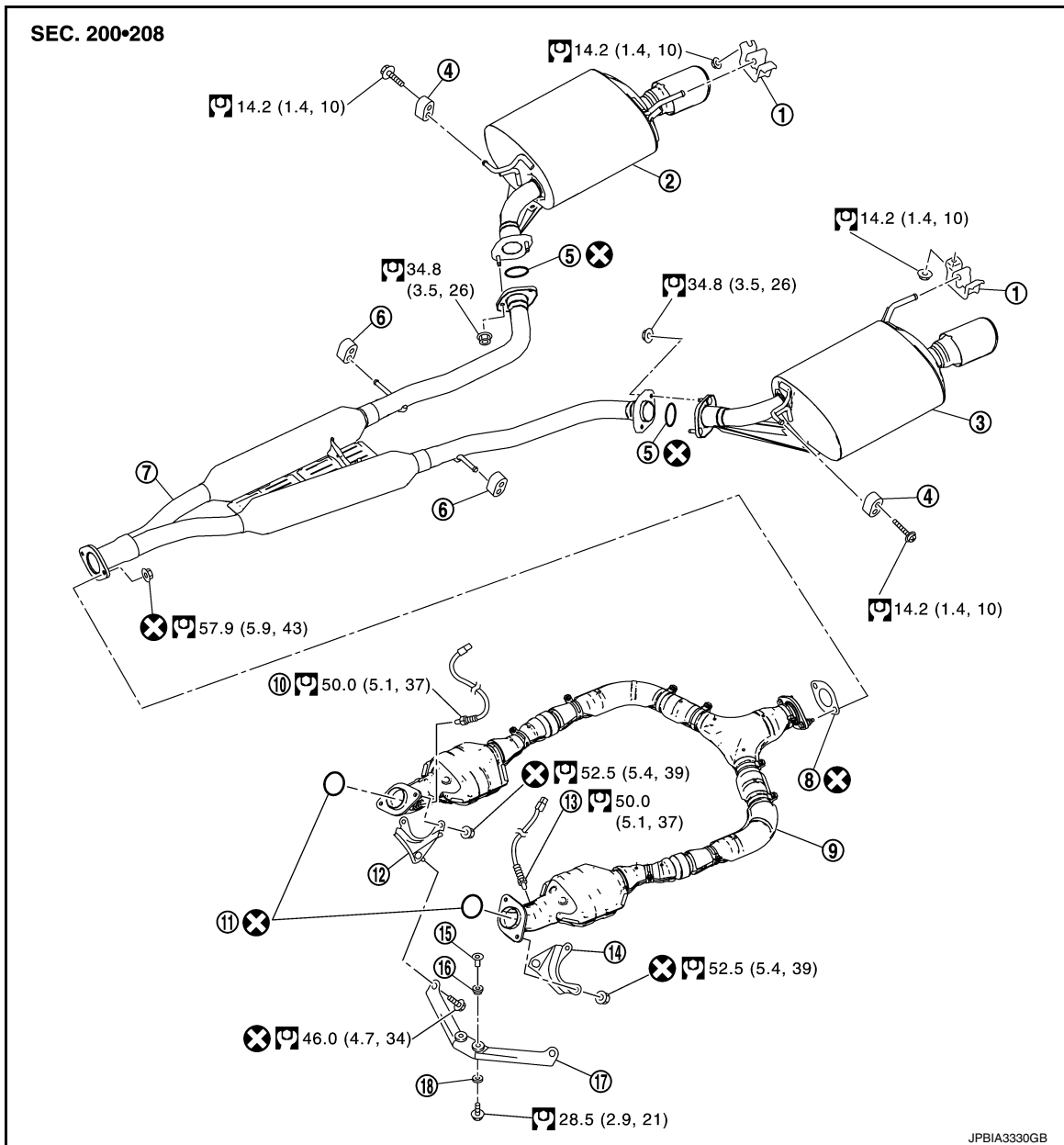
VK56VD

EXHAUST SYSTEM

< REMOVAL AND INSTALLATION >

VK56VD : Exploded View

INFOID:000000012358062



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|-------------------------------------|----------------------|-----------------------|
| 1. Mounting rubber | 2. Main muffler (RH) | 3. Main muffler (LH) |
| 4. Mounting rubber | 5. Ring gasket | 6. Mounting rubber |
| 7. Center muffler | 8. Gasket | 9. Exhaust front tube |
| 10. Heated oxygen sensor 2 (bank 2) | 11. Ring gasket | 12. Mounting bracket |
| 13. Heated oxygen sensor 2 (bank 1) | 14. Mounting bracket | 15. Collar |
| 16. Grommet | 17. Mounting bracket | 18. Grommet |

: N·m (kg·m, ft·lb)

: Always replace after every disassembly.

VK56VD : Removal and Installation

INFOID:000000012358063

REMOVAL

- Disconnect each joint and mounting using power tool.
- Remove heated oxygen sensor 2 as follows:

EXHAUST SYSTEM

< REMOVAL AND INSTALLATION >

- Using heated oxygen sensor wrench [SST: KV10114400 (J-38365)] (C), removal heated oxygen sensor 2.

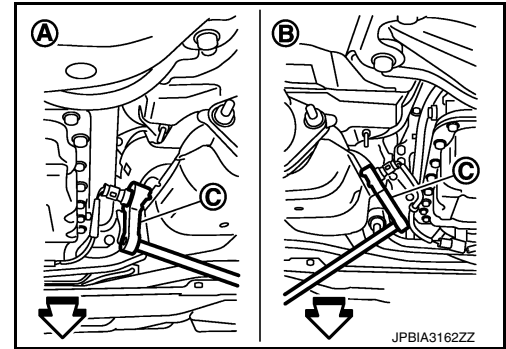
A : Bank 2

B : Bank 1

↔ : Vehicle front

CAUTION:

- Discard any heated oxygen 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.
- Before installing new heated oxygen sensor, clean exhaust system threads using Oxygen Sensor Thread Cleaner (commercial service tool) and approved Anti-seize lubricant (commercial servicetool).



INSTALLATION

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

- Check for deformation of the grommets (16 and 18 of Components).
- Insert the collar (15 of Components) vertically.
- Temporarily tighten nuts and bolts when installing exhaust pipe assembly. Tighten them to the specified torque when connecting the vehicle rear to the vehicle front.

CAUTION:

- Always replace exhaust tube 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 the anti-seize lubricant (commercial service tool).
- Never over torque heated oxygen sensor 2. Doing so may cause damage to heated oxygen sensor 2, resulting in the “MIL” coming on.
- Prevent rust preventives from adhering to the sensor body.
- 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 gases 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.

VK56VD : Inspection

INFOID:000000012358064

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.