

GROUP 15

INTAKE AND EXHAUST

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GENERAL INFORMATION

The exhaust pipe is divided into three parts.

M1151000100468

SERVICE SPECIFICATIONS

M1151000300569

Item	Standard value	Limit
Turbocharger supercharging pressure (waste gate solenoid valve not operating) kPa	84 – 112	–
Initial activation pressure of waste gate actuator (at the stroke of approximately 1 mm) kPa	Approximately 80	–
Waste gate solenoid valve coil resistance (at 20°C) Ω	29 – 35	–
Initial activation pressure of air bypass valve kPa	Approximately 53	–
Manifold distortion of the installation surface mm	0.15 or less	0.20

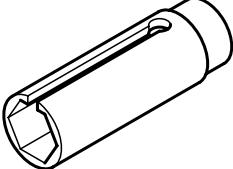
SEALANT

M1151000500217

Item	Specified sealant
Thermostat case	MITSUBISHI GENUINE Part No.MD970389 or equivalent
Thermostat case assembly bolt	3M Stud Locking 4170 or equivalent

SPECIAL TOOL

M1151000600441

Tool	Number	Name	Use
	MD998770	Oxygen sensor wrench	Removal and installation of oxygen sensor

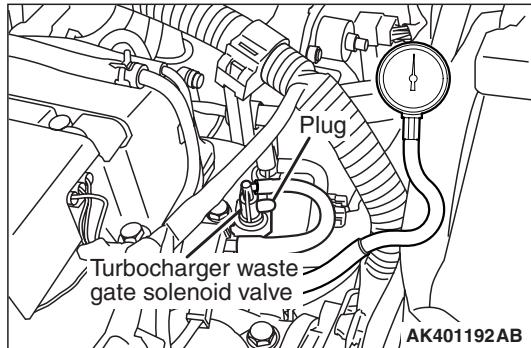
ON-VEHICLE SERVICE

TURBOCHARGER SUPERCHARGING
PRESSURE CHECK <Turbo>

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CAUTION

Two persons should be in the vehicle when the test is conducted; the person in the passenger seat should read the indications shown by the pressure meter.



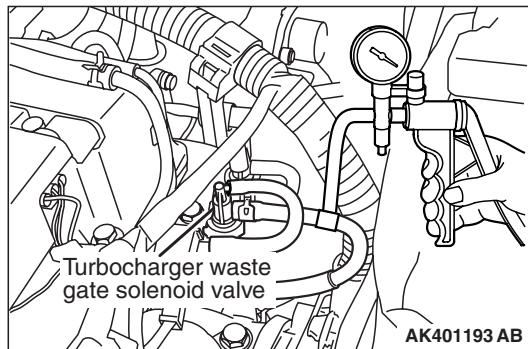
1. Disconnect the hose (black) from the turbocharger waste gate solenoid valve, and connect the pressure gauge to the hose. Plug the nipple of the solenoid valve from which the hose (black) has been disconnected.
2. Drive at full-throttle acceleration in L range and then measure the supercharging pressure when the engine speed is about 3,000 r/min.

Standard value: 84 – 112 kPa

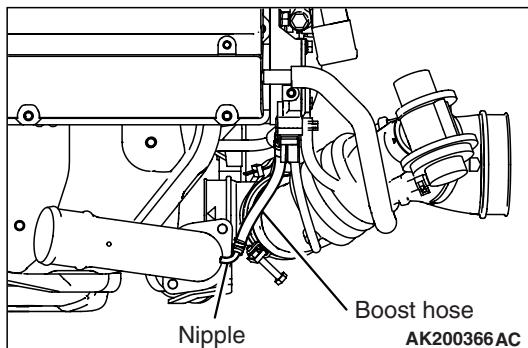
3. If the supercharging pressure deviates from the standard value, check the following items for possible cause.
 - Malfunction of the waste gate actuator
 - Leakage of supercharging pressure
 - Malfunction of the turbocharger
4. When the indicated supercharging is more than standard value, supercharging control may be faulty, therefore check the followings.
 - Malfunction of the waste gate actuator
 - Malfunction of waste gate valve
 - Disconnection or cracks of the waste gate actuator rubber hose

SUPERCHARGING PRESSURE
CONTROL SYSTEM CHECK <Turbo>

M1151001100193



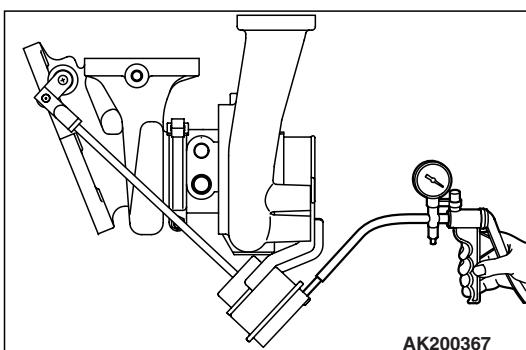
1. Disconnect the hose (black) from the turbocharger waste gate solenoid valve and connect a three-way joint between the hose and the solenoid valve.
2. Connect a hand vacuum pump to the three-way joint.



3. Disconnect the hose from the turbocharger waste gate actuator control boost nipple and plug the nipple.
4. Applying a negative pressure with the hand vacuum pump, check tightness both when the hose end is closed and when it is open.

Engine state	Hose end	Normal state
Stop (Ignition switch: ON)	Opened	Negative pressure leaks.
	Closed	Negative pressure is maintained.
Idling (after warm-up)		Negative pressure leaks.

NOTE: If this check indicates an abnormal condition; the turbocharger waste gate actuator, turbocharger waste gate solenoid or hose is broken.

WASTE GATE ACTUATOR CHECK
<Turbo>

M1151001200156

1. Connect a manual pump (pressure-application type) to nipple.

CAUTION

In order to avoid damage to the diaphragm, do not apply a pressure of 94 kPa or higher.

2. While gradually applying pressure, check the pressure that begins to activate (approximately 1 mm stroke) the waste gate actuator rod.

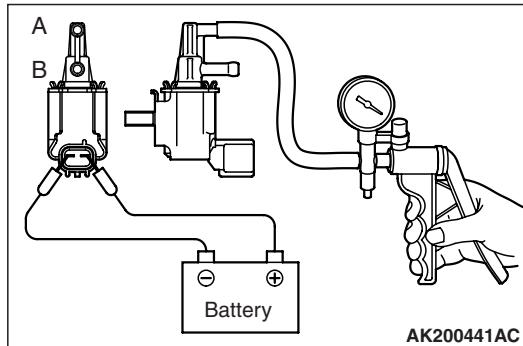
Standard value: Approximately 80 kPa

3. If there is a significant deviation from the standard value, check the actuator or the waste gate valve: replace actuator or turbocharger assembly if necessary.

WASTE GATE SOLENOID VALVE CHECK
<Turbo>

M1151001300142

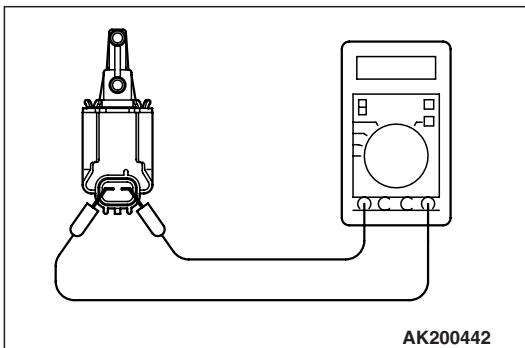
OPERATION CHECK



1. Connect a hand vacuum pump to the solenoid valve nipple A.
2. Using a jumper wire, connect between the solenoid valve terminal and battery terminal.
3. Connecting and disconnecting the jumper wire at the battery negative terminal to apply a negative pressure, check tightness.

Jumper wire	B nipple condition	Normal condition
Connected	Opened	Negative pressure leaks.
	Closed	Negative pressure is held.
Disconnected	Opened	Negative pressure is held.

COIL RESISTANCE CHECK

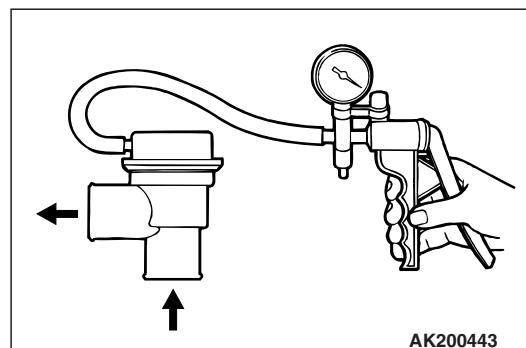


Measure the resistance between solenoid valve terminals

Standard value: 29 – 35 Ω (at 20°C)

AIR BY-PASS VALVE CHECK <Turbo>

M1151001600132



1. Remove the air bypass valve.
2. Connect the hand vacuum pump to the nipple of the air bypass valve.
3. Apply a negative pressure of approximately 93 kPa, and check that air tightness is maintained.
4. Also check operation of the valve.

Standard value:

Negative pressure	Valve operation
Approximately 53 kPa	It starts opening

INTAKE MANIFOLD VACUUM CHECK
<Turbo>

M1151001800211

Refer to GROUP 11C – On-vehicle Service
P.11C-14.

AIR CLEANER

REMOVAL AND INSTALLATION

<4G63-NON-TURBO>

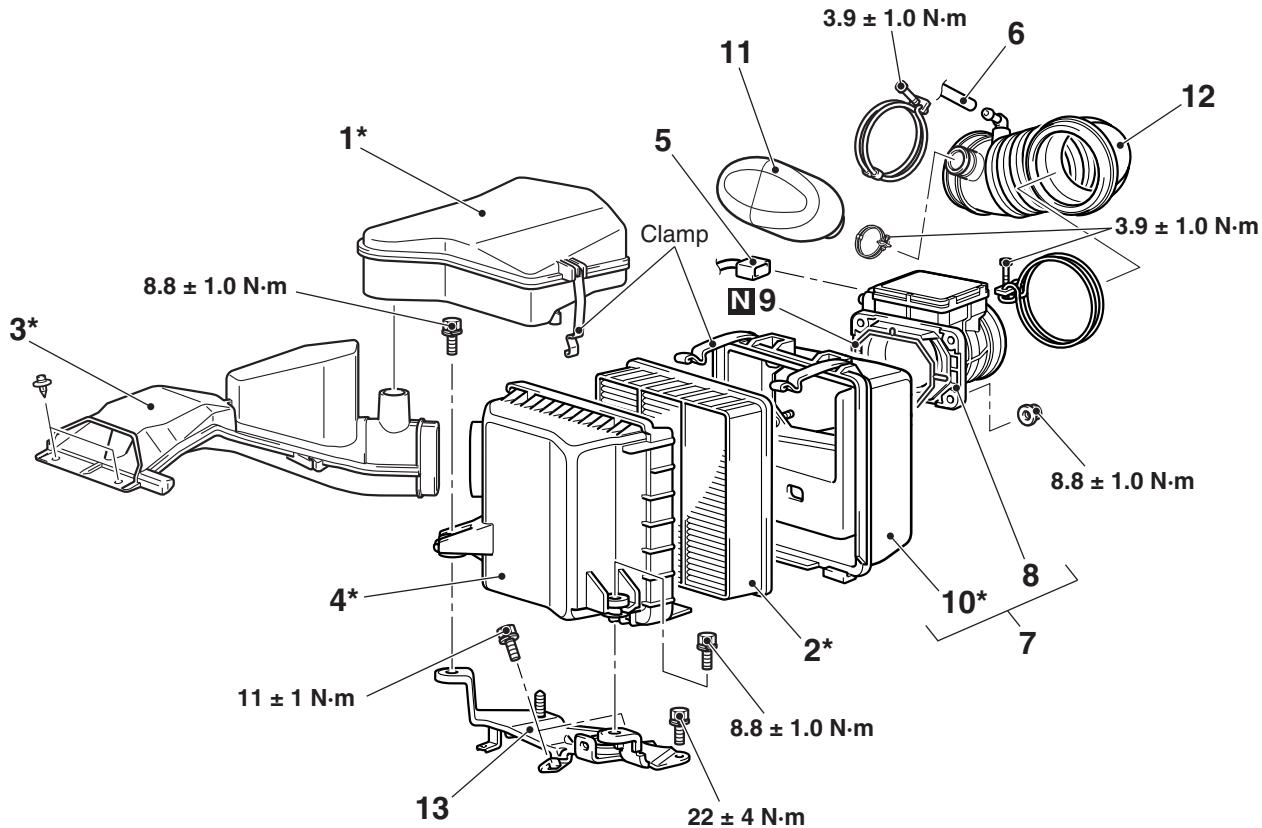
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△ CAUTION

Parts marked by * are made of recycled-paper mixed plastic material, so observe the following precautions.

- Avoid any shock or load to these parts when removing and installing them.
- When installing, securely set the air cleaner cover and the resonator clamp to the air cleaner body.

NOTE: Parts marked by * are made of recycled-paper mixed plastic material. Dispose of according to state and local laws



AC203703AB

Removal steps

1. Resonator
2. Air cleaner element
3. Air duct
4. Air cleaner body
5. Air flow sensor connector
6. Breather hose connection
7. Air cleaner cover and air flow sensor assembly

Removal steps (Continued)

8. Air flow sensor assembly
9. Gasket
10. Air cleaner cover
11. Resonator
12. Air intake hose
13. Air cleaner bracket

REMOVAL AND INSTALLATION
<4G63-TURBO>

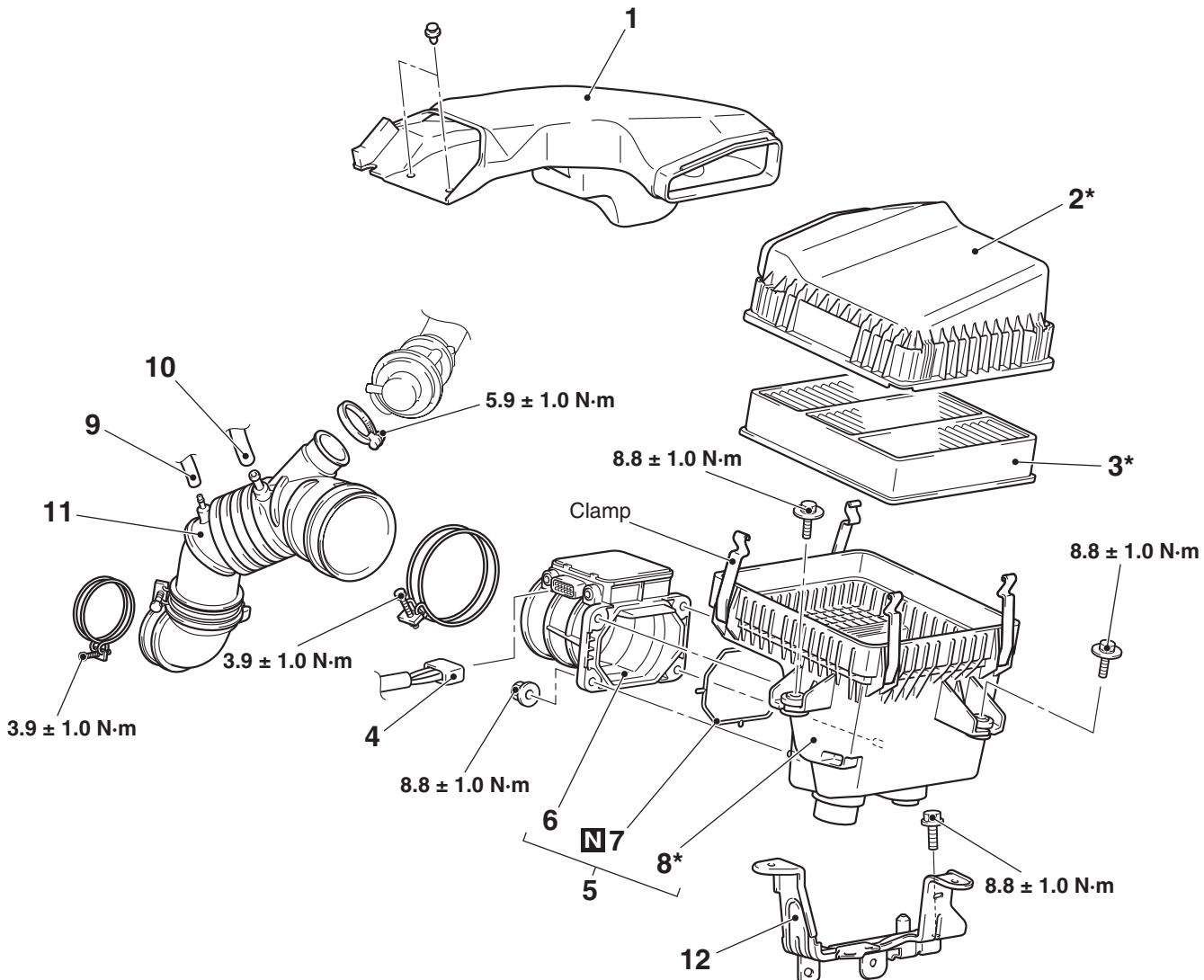
M1151002100691

CAUTION

Parts marked by * are made of recycled-paper mixed plastic material, so observe the following precautions.

- Avoid any shock or load to these parts when removing and installing them.
- When installing, securely set the air cleaner body assembly clamp to the air cleaner cover.

NOTE: Parts marked by * are made of recycled-paper mixed plastic material. Dispose of according to state and local laws



AC400870AB

Removal steps

1. Air duct
2. Air cleaner cover
3. Air cleaner element
4. Air flow sensor connector
5. Air cleaner body and air flow sensor assembly
6. Air flow sensor assembly
7. Gasket

Removal steps (Continued)

8. Air cleaner body assembly
 - Air by-pass valve and intercooler outlet air hose B assembly
9. Breather hose connection
10. Vacuum hose connection
11. Air intake hose
12. Air cleaner bracket

REMOVAL AND INSTALLATION <4G69>

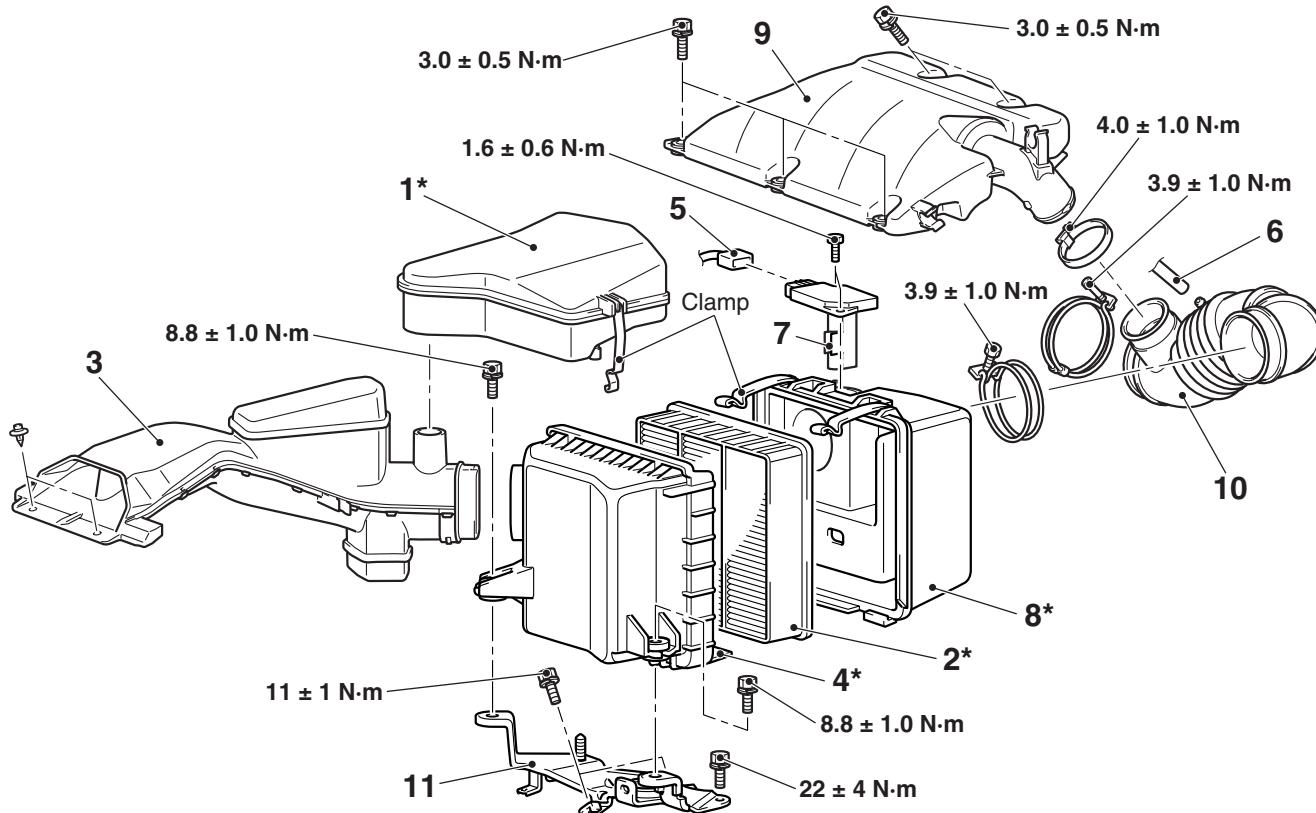
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CAUTION

Parts marked by * are made of recycled-paper mixed plastic material, so observe the following precautions.

- Avoid any shock or load to these parts when removing and installing them.
- When installing, securely set the air cleaner cover and the resonator clamp to the air cleaner body.

*NOTE: Parts marked by * are made of recycled-paper mixed plastic material. Dispose of according to state and local laws*



AC304211AC

Removal steps

1. Resonator
2. Air cleaner element
3. Air duct
4. Air cleaner body
5. Air flow sensor connector
6. Breather hose connection

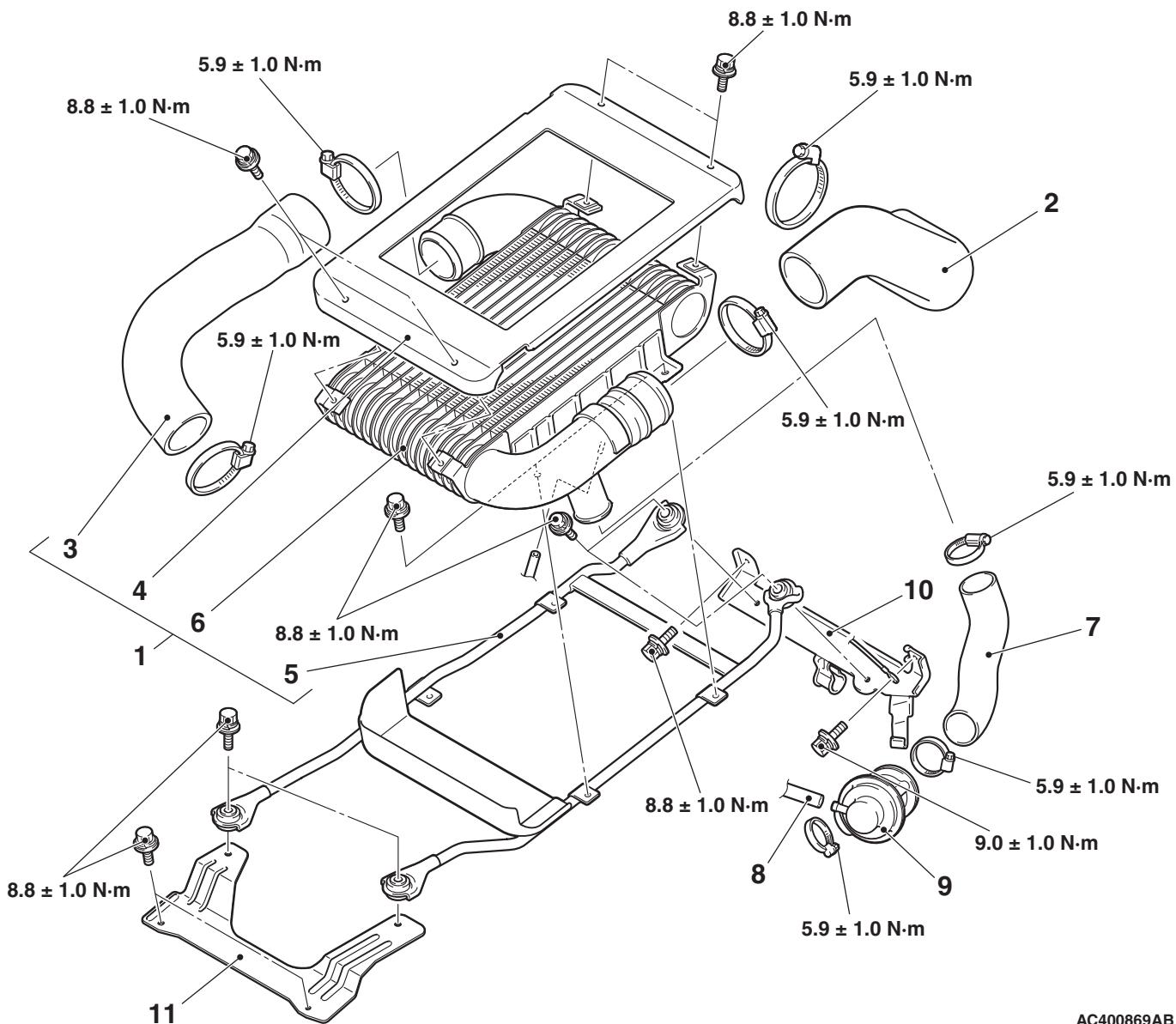
Removal steps (Continued)

7. Air flow sensor assembly
8. Air cleaner cover
9. Resonator
10. Air intake hose
11. Air cleaner bracket

INTERCOOLER <4G63-Turbo>

REMOVAL AND INSTALLATION

M1151002400067



Removal steps

1. Intercooler, intercooler cover, intercooler bracket, intercooler outlet air hose A and intercooler intake air hose assembly
2. Intercooler outlet air hose A
3. Intercooler intake air hose
4. Intercooler cover
5. Intercooler bracket

Removal steps (Continued)

6. Intercooler
 - Air duct (Refer to P.15-7)
 - Battery and battery tray
7. Intercooler outlet air hose B
8. Vacuum hose connection
9. Air by-pass valve assembly
10. Rear bracket
11. Front bracket

AC400869AB

INLET MANIFOLD

REMOVAL AND INSTALLATION

<4G63-NON-TURBO>

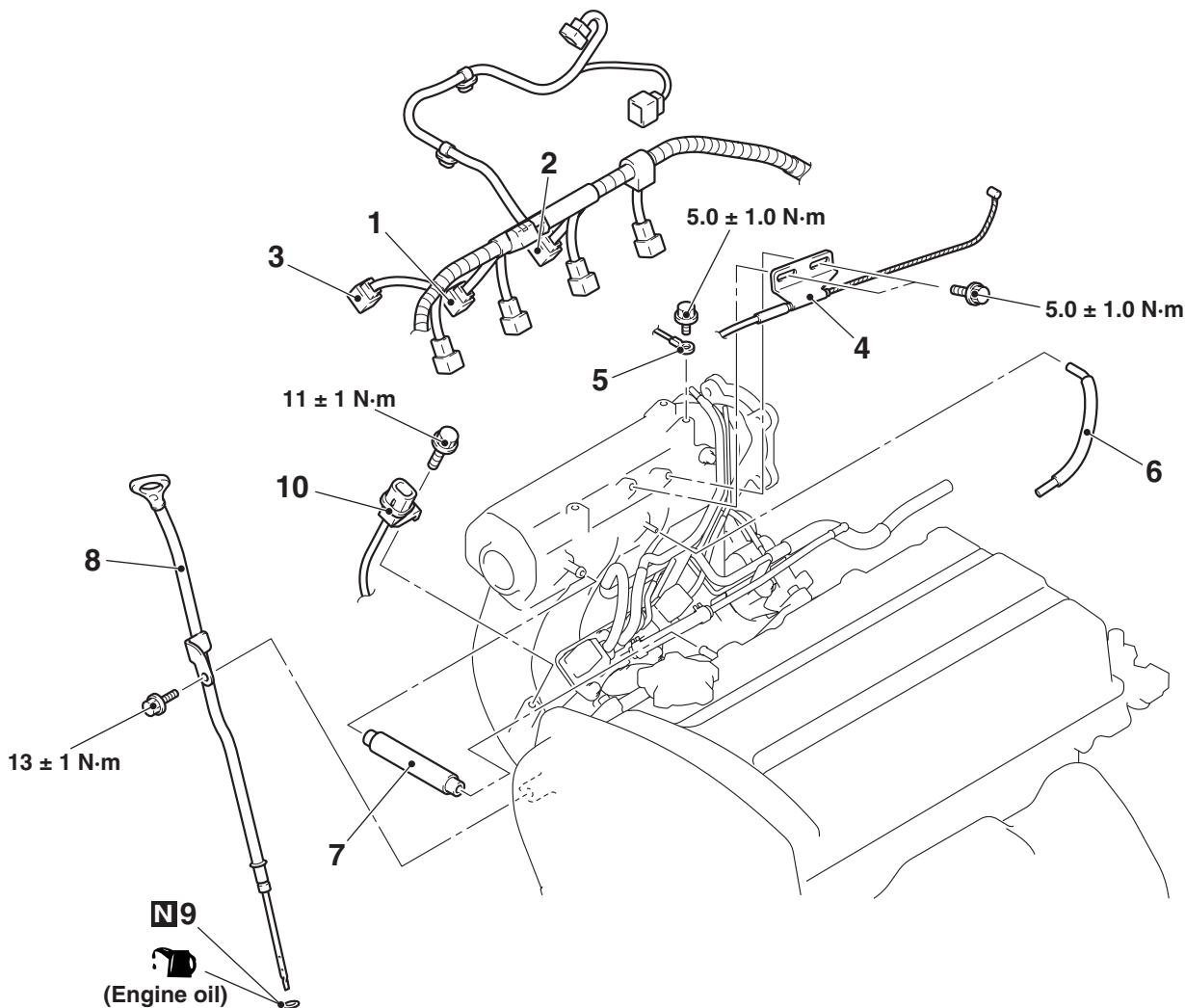
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Pre-removal Operation

- Fuel Line Pressure Reduction [Refer to GROUP 13A, On-vehicle Service – Fuel Pump Connector Disconnection (How to Reduce Pressurized Fuel Lines) [P.13A-318](#).]
- Throttle Body Removal (Refer to GROUP 13A, Throttle Body [P.13A-330](#)).
- Fuel Delivery Pipe and Fuel Injector assembly Removal (Refer to GROUP 13A, Injector [P.13A-328](#)).

Post-installation Operation

- Fuel Delivery Pipe and Fuel Injector assembly Installation (Refer to GROUP 13A, Injector [P.13A-328](#)).
- Throttle Body Installation (Refer to GROUP 13A, Throttle Body [P.13A-330](#)).
- Accelerator Cable Adjustment (Refer to GROUP 17, On-vehicle Service – Accelerator Cable Check and Adjustment [P.17-6](#)).
- Fuel Leak Check

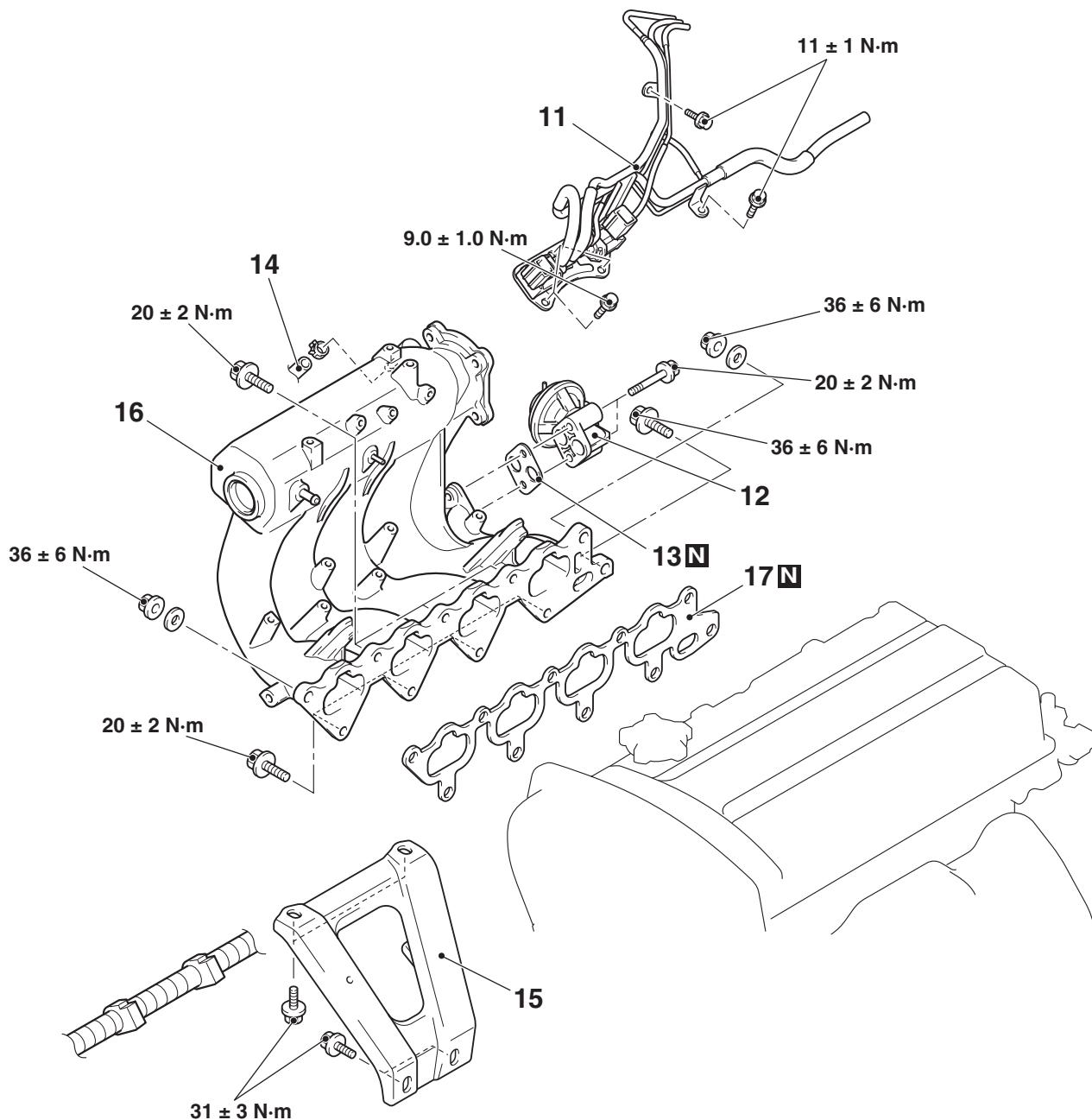


Removal steps

1. Purge control solenoid valve connector
2. EGR control solenoid valve connector
3. Detonation sensor connector
4. Accelerator cable connection

AC301313AB
Removal steps (Continued)

5. Earth cable connection
6. Emission control equipment hose
7. PCV hose
8. Oil level gauge and guide
9. O-ring
10. Detonation sensor connector clamp



AC301314AB

Removal steps

11. Vacuum hose and pipe assembly
12. EGR valve
13. EGR valve gasket
14. Brake booster vacuum hose connection

Removal steps (Continued)

15. Intake manifold stay
16. Intake manifold assembly
17. Intake manifold gasket

REMOVAL AND INSTALLATION
<4G63-TURBO>

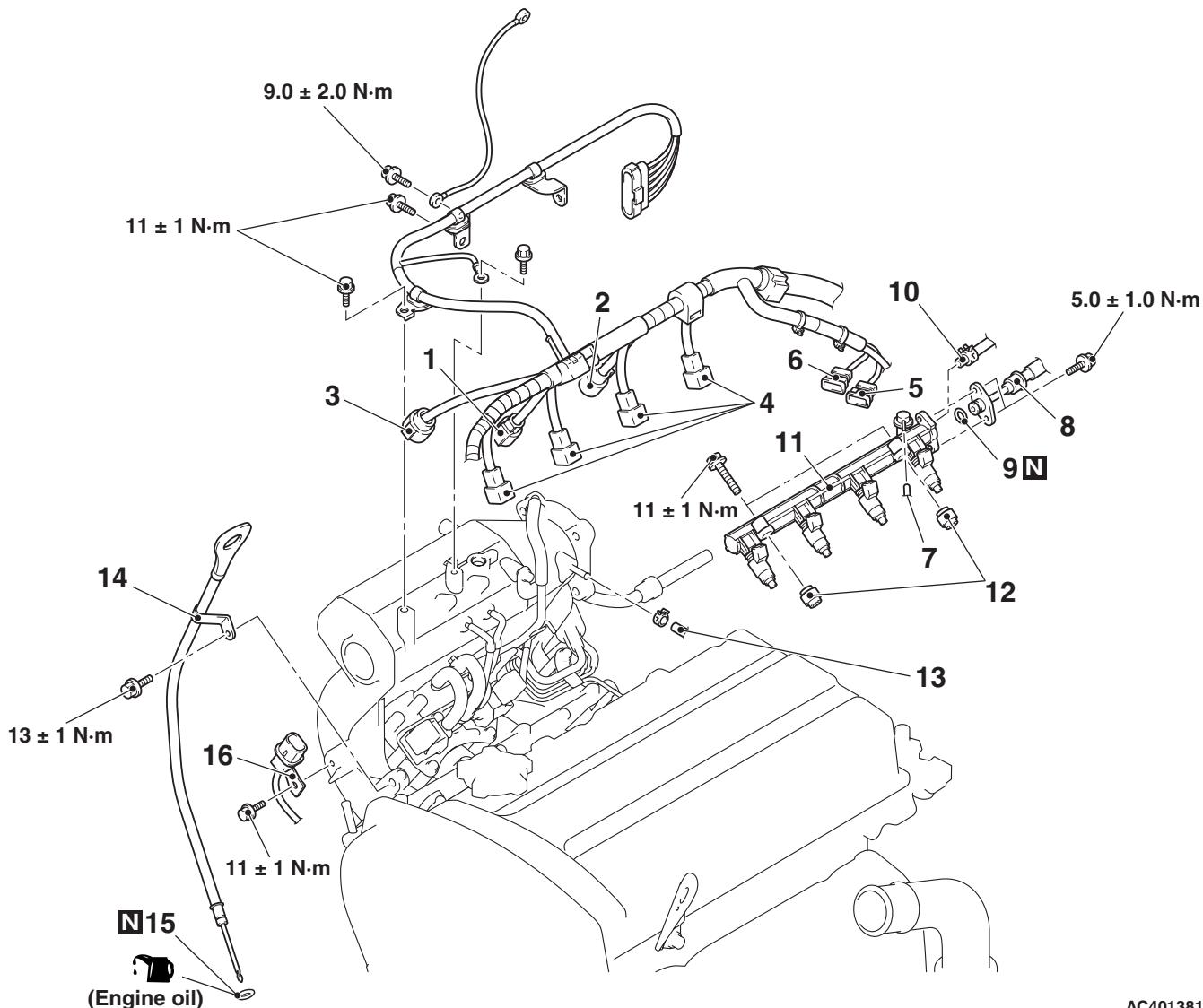
M1151003001151

Pre-removal Operation

- Fuel Line Pressure Reduction [Refer to GROUP 13B, On-vehicle Service – Fuel Pump Connector Disconnection (How to Reduce Pressurized Fuel Lines) [P.13B-393](#)].
- Throttle Body Removal (Refer to GROUP 13B, Throttle Body [P.13B-404](#)).

Post-installation Operation

- Throttle Body Installation (Refer to GROUP 13B, Throttle Body [P.13B-404](#)).
- Accelerator Cable Adjustment (Refer to GROUP 17, On-vehicle Service – Accelerator Cable Check and Adjustment [P.17-6](#)).
- Fuel Leak Check



AC401381AB

Removal steps

- Purge control solenoid valve connector
- EGR control solenoid valve connector
- Detonation sensor connector
- Injector connectors
- Waste gate solenoid valve connector
- Fuel pressure control solenoid valve connector

<<A>>

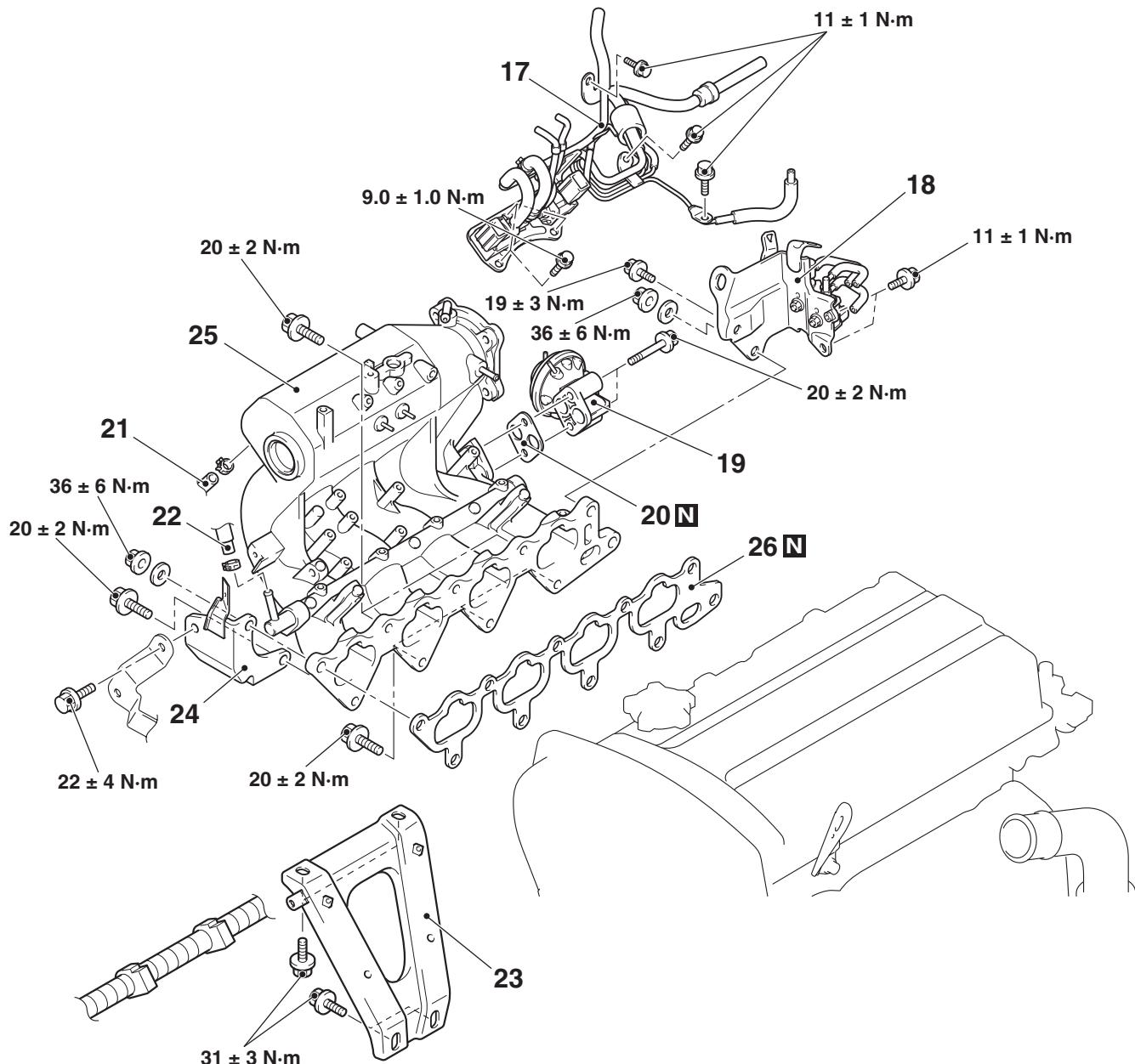
Removal steps (Continued)

- Emission control equipment hose connection
- Fuel high-pressure hose connection
- O-ring
- Fuel return line hose connection
- Fuel delivery pipe and fuel injector assembly
- Insulators
- Vacuum hose connection
- Oil level gauge and guide

>>A<<

Removal steps (Continued)

15. O-ring
16. Detonation sensor connector clamp



Removal steps

17. Vacuum hose and pipe assembly
18. Solenoid valve assembly
19. EGR valve
20. EGR valve gasket
21. Brake booster vacuum hose connection

Removal steps (Continued)

22. PCV hose
23. Intake manifold stay
24. Alternator brace stay
25. Intake manifold assembly
26. Intake manifold gasket

AC400871AB

REMOVAL SERVICE POINT

<<A>> FUEL DELIVERY PIPE AND FUEL
INJECTOR ASSEMBLY REMOVAL**CAUTION****Do not drop the injector.**

Remove the fuel delivery pipe with the fuel injector assembly attached to it.

INSTALLATION SERVICE POINT

>>A<< FUEL HIGH-PRESSURE HOSE
INSTALLATION

1. Apply a drop of new engine oil to the O-ring.
2. Turn the fuel high-pressure hose to the right and left to install to the fuel delivery pipe. Be careful not to damage the O-ring. After installing, check that the item turns smoothly.
3. If it does not turn smoothly, the O-ring may be trapped, remove the item, re-install it into the fuel delivery pipe and check again.
4. Tighten the fuel high-pressure hose to the specified torque.

Tightening torque: $5.0 \pm 1.0 \text{ N}\cdot\text{m}$

REMOVAL AND INSTALLATION <4G69>

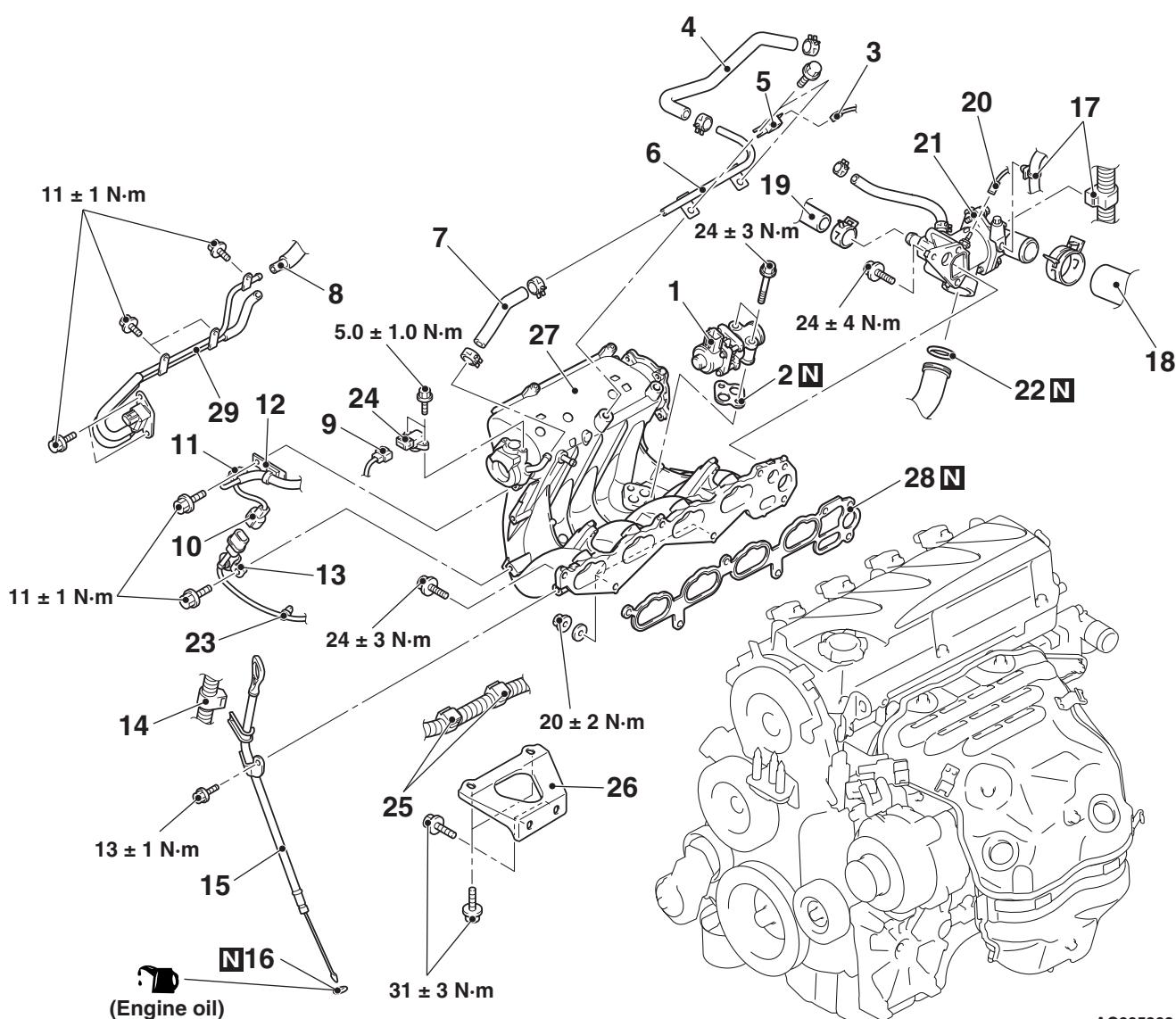
M1151003001935

Pre-removal Operation

- Fuel Line Pressure Reduction [Refer to GROUP 13C, On-vehicle Service – Fuel Pump Connector Disconnection (How to Reduce Pressurized Fuel Lines) [P.13C-428](#)].
- Engine Coolant Draining (Refer to GROUP 14, On-vehicle Service – Engine Coolant Replacement [P.14-17](#)).
- Air Cleaner Cover and Air Intake Hose Removal (Refer to [P.15-8](#)).
- Throttle Body Removal (Refer to GROUP 13C, Throttle Body [P.13C-439](#)).
- Delivery Pipe and Injector Assembly Removal (Refer to GROUP 13C, Injector [P.13C-437](#)).

Post-installation Operation

- Delivery Pipe and Injector Assembly Installation (Refer to GROUP 13C, Injector [P.13C-437](#)).
- Throttle Body Installation (Refer to GROUP 13C, Throttle Body [P.13C-439](#)).
- Air Cleaner Cover and Air Intake Hose Installation (Refer to [P.15-8](#)).
- Engine Coolant Refilling (Refer to GROUP 14, On-vehicle Service – Engine Coolant Replacement [P.14-17](#)).



Removal steps

>>C<<

- EGR valve
- EGR valve gasket
- Capacitor connector
- Brake booster vacuum hose
- Capacitor
- Brake booster vacuum pipe

Removal steps (Continued)

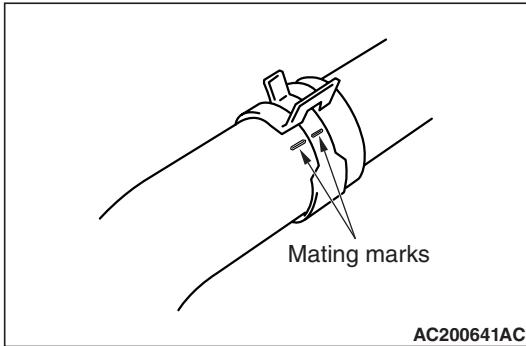
- Brake booster vacuum hose
- Evaporative emission vacuum hose connection
- Manifold absolute pressure sensor connector
- Detonation sensor connector

Removal steps (Continued)

11. Evaporative emission purge solenoid valve connector
12. Harness clamp
13. Detonation sensor connector clamp
14. Harness clamp
15. Oil level gauge and guide
16. O-ring
17. Harness clamp
- <>A>> B<< 18. Radiator lower hose connection
19. Heater water hose connection
20. Engine coolant temperature gauge unit connector

Removal steps (Continued)

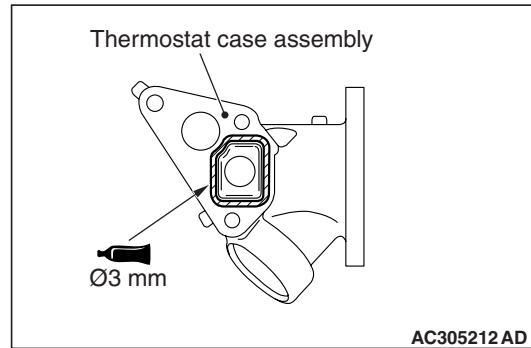
- >>A<< 21. Thermostat case assembly
22. O-ring
23. Detonation sensor harness clamp
24. Manifold absolute pressure sensor
25. Harness clamp
26. Intake manifold stay
27. Intake manifold
28. Intake manifold gasket
29. Evaporative emission purge solenoid valve, evaporative emission vacuum hose and pipe assembly

REMOVAL SERVICE POINT**<<A>> RADIATOR LOWER HOSE DIS-
CONNECTION**

Make mating marks on the radiator hose and the hose clamp. Disconnect the radiator hose.

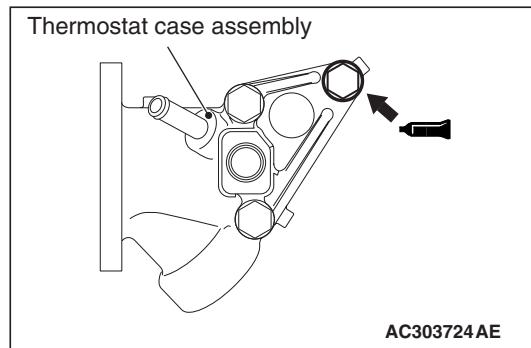
INSTALLATION SERVICE POINTS**>>A<< THERMOSTAT CASE ASSEMBLY
INSTALLATION**

1. Use a gasket scraper or wire brush to completely eliminate all gasket material on the gasket mounting surface.



2. Apply a bead of the sealant to the cylinder head mating surface of the thermostat case assembly as shown.

**Specified Sealant: MITSUBISHI GENUINE
PART No.MD970389 or equivalent**

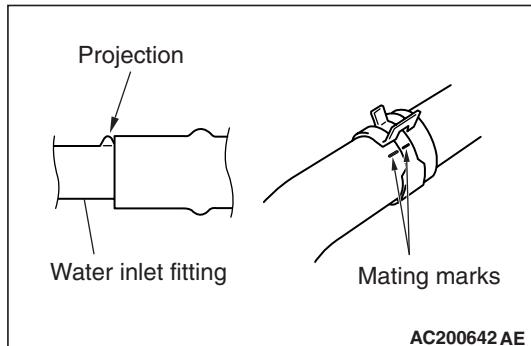


3. Apply sealant to the thread of the thermostat case assembly bolts as shown.

**Specified Sealant: 3M Stud Locking 4170 or
equivalent**

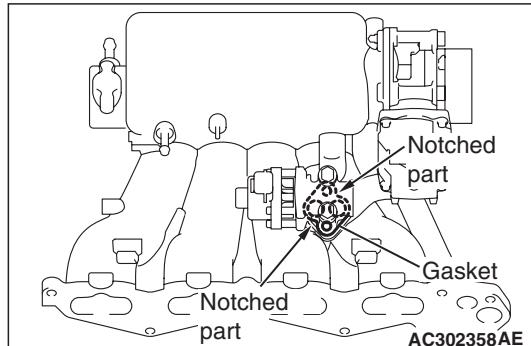
- With the sealant still wet (within 15 minutes after the sealant is applied), install the thermostat case assembly. Do not apply the sealant in an area more than the required.

>>B<< RADIATOR LOWER HOSE CONNECTION



- Insert each hose as far as the projection of the water inlet fitting.
- Align the mating marks on the radiator hose and hose clamp, and then connect the radiator hose.

>>C<< EGR VALVE GASKET INSTALLATION



Install the EGR valve gasket as shown in the illustration.

INSPECTION

M1151003100553

Check the following points; replace the part if a problem is found.

Intake Manifold Check

- Check for damage or cracking of any part.
- Clogging of the negative pressure (vacuum) outlet port, or clogging of the exhaust gas recirculation passages.
- Using a straight edge and feeler gauge, check for distortion of the cylinder head installation surface.

Standard value: 0.15 mm or less

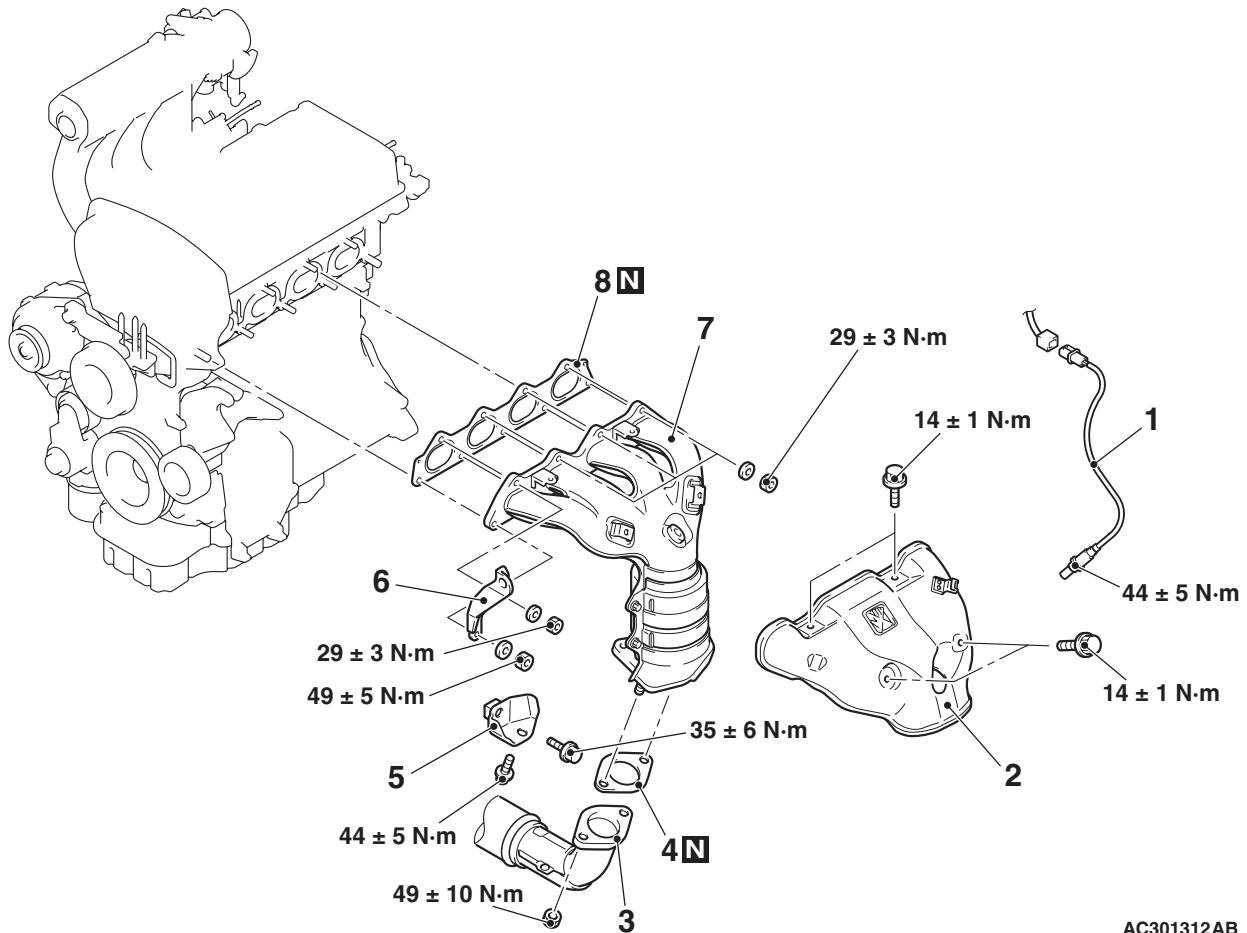
Limit: 0.20 mm

EXHAUST MANIFOLD

REMOVAL AND INSTALLATION

<4G63-NON-TURBO>

M1151003301011



AC301312AB

Removal steps

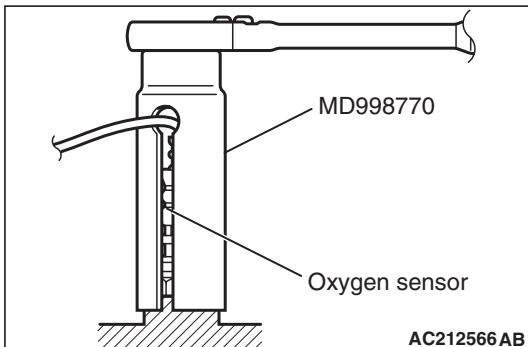
<<A>> >>A<< 1. Oxygen sensor
2. Exhaust manifold cover
3. Front exhaust pipe connection
4. Exhaust pipe gasket

Removal steps (Continued)

5. Exhaust manifold bracket
6. Engine hanger
7. Exhaust manifold
8. Exhaust manifold gasket

REMOVAL SERVICE POINT

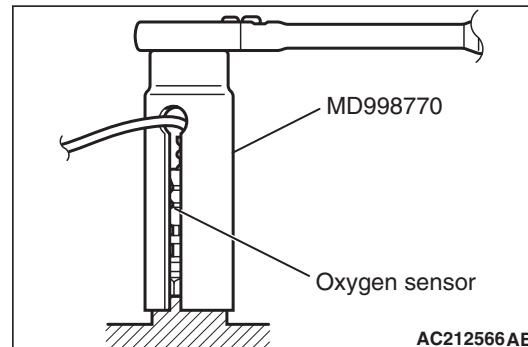
<<A>> OXYGEN SENSOR REMOVAL



Use special tool oxygen sensor wrench (MD998770) to remove the oxygen sensor.

INSTALLATION SERVICE POINT

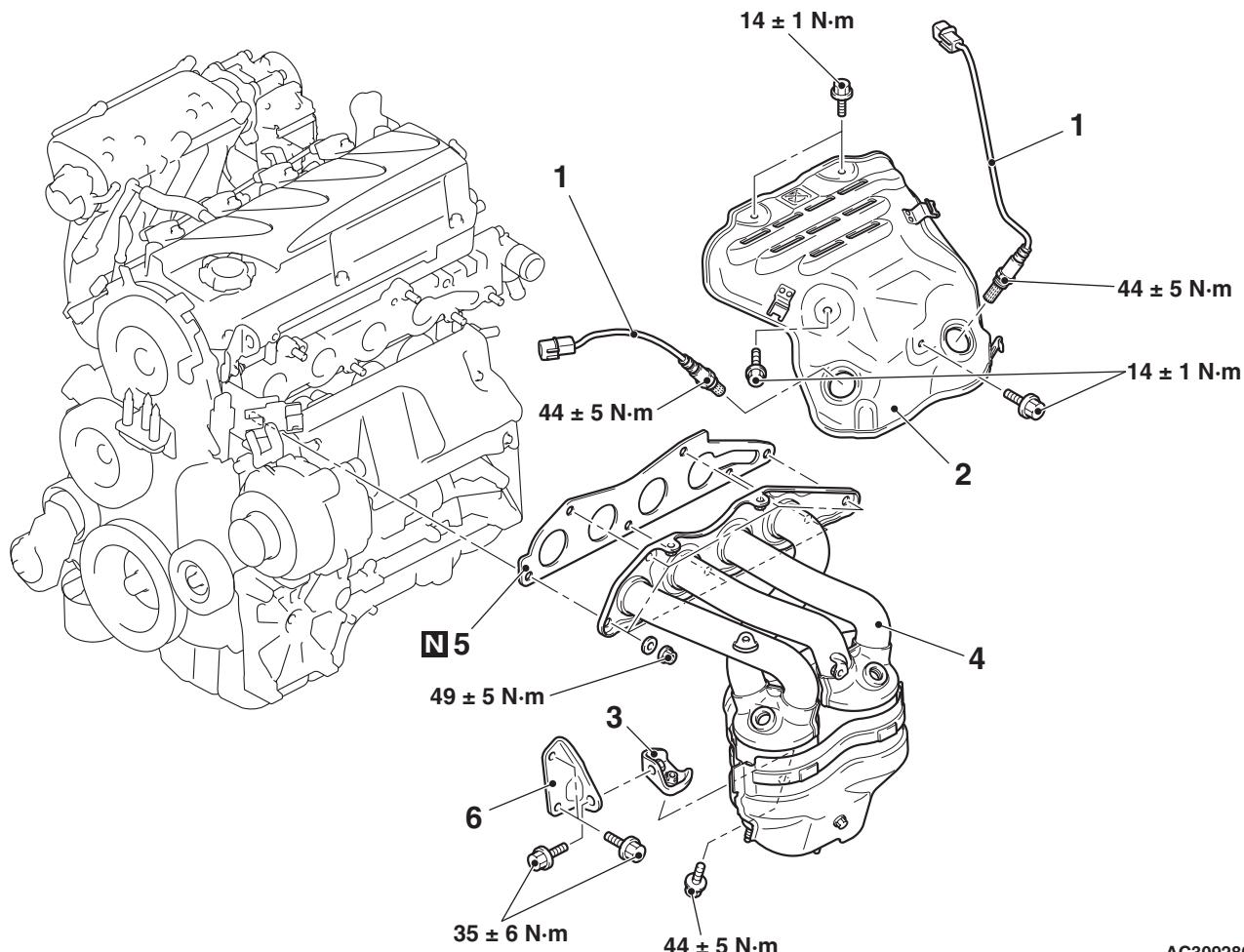
>>A<< OXYGEN SENSOR INSTALLATION



Use special tool oxygen sensor wrench (MD998770) to install the oxygen sensor.

REMOVAL AND INSTALLATION <4G69>

M1151003300728



AC309280AC

Removal steps

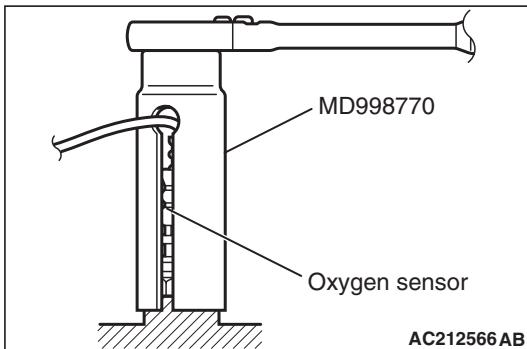
<<A>> >>A<< 1. Oxygen sensor
2. Exhaust manifold cover
• Front exhaust pipe (Refer to P.15-25.)
3. Exhaust manifold bracket B

Removal steps (Continued)

4. Exhaust manifold
5. Exhaust manifold gasket
6. Exhaust manifold bracket A

REMOVAL SERVICE POINT

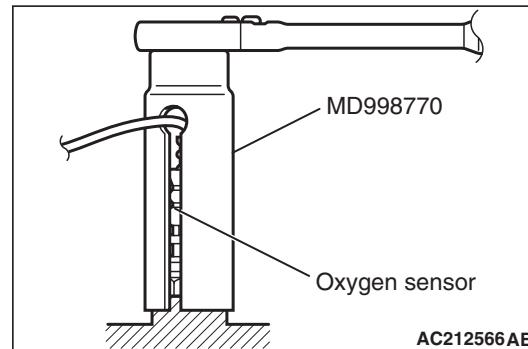
<<A>> OXYGEN SENSOR REMOVAL



Use special tool oxygen sensor wrench (MD998770) to remove the oxygen sensor.

INSTALLATION SERVICE POINT

>>A<< OXYGEN SENSOR INSTALLATION



Use special tool oxygen sensor wrench (MD998770) to install the oxygen sensor.

INSPECTION

M1151003400480

Check the following points; replace the part if a problem is found.

EXHAUST MANIFOLD CHECK

1. Check for damage or cracking of any part.
2. Using a straight edge and a thickness gauge, check for distortion of the cylinder head installation surface.

Standard value: 0.15 mm or less

Limit: 0.20 mm

EXHAUST MANIFOLD AND TURBOCHARGER

<4G63-Turbo>

REMOVAL AND INSTALLATION

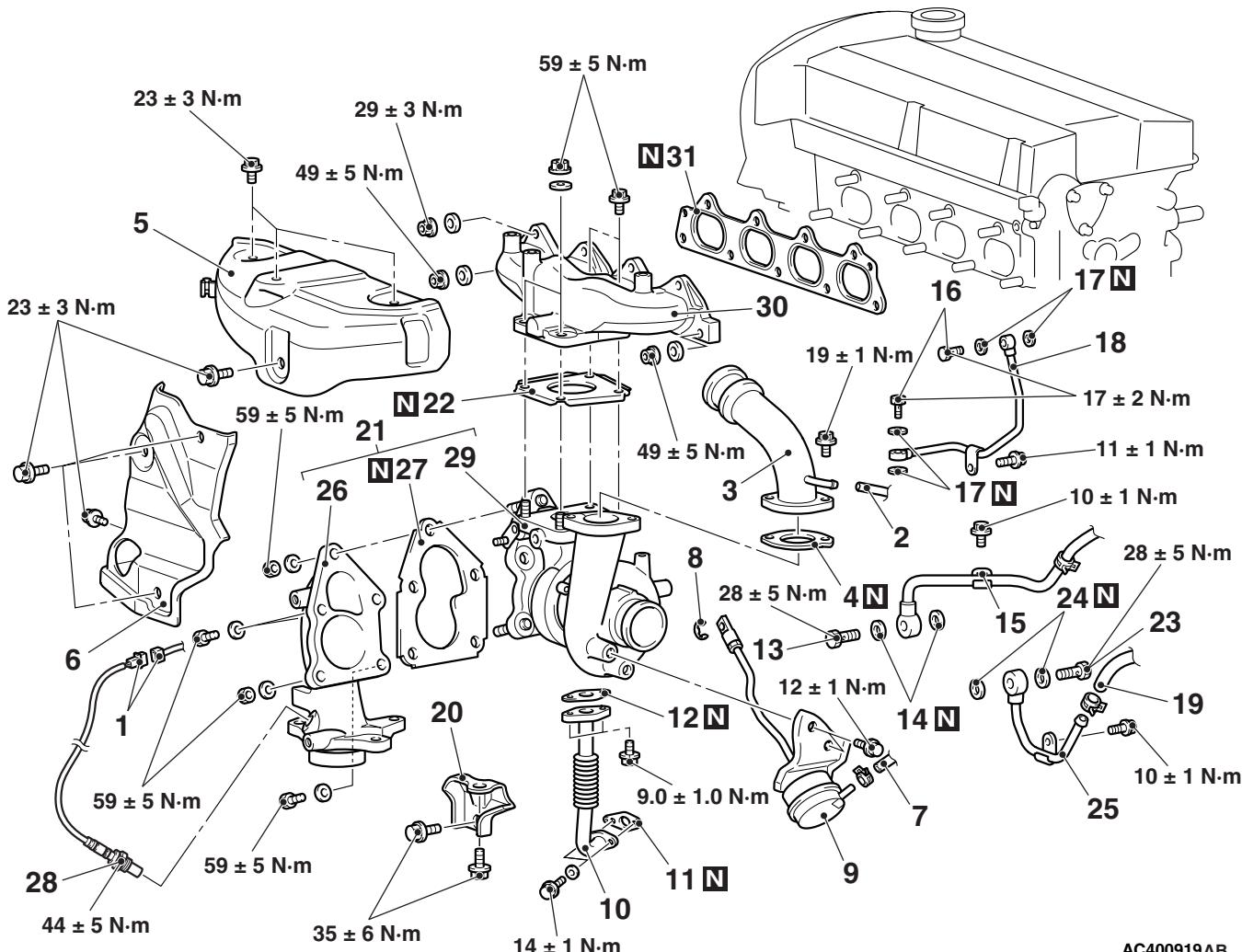
M1151008900082

Pre-removal Operation

- Engine Oil Draining (Refer to GROUP 12, On-vehicle Service – Engine Oil Replacement P.12-4).
- Engine Coolant Draining (Refer to GROUP 14, On-vehicle Service – Engine Coolant Replacement P.14-17).
- Intercooler and Intercooler Bracket Assembly Removal (Refer to P.15-9).
- Rocker Cover Centre Cover Removal (Refer to GROUP 11C, Camshaft and Valve Stem Seal P.11C-17).
- Front Exhaust Pipe Removal (Refer to P.15-27).
- Starter Assembly Removal (Refer to GROUP 16, Starter Motor Assembly P.16-26).

Post-installation Operation

- Starter Assembly Installation (Refer to GROUP 16, Starter Motor Assembly P.16-26).
- Front Exhaust Pipe Installation (Refer to P.15-27).
- Rocker Cover Centre Cover Installation (Refer to GROUP 11C, Camshaft and Valve Stem Seal P.11C-17).
- Intercooler and Intercooler Bracket Assembly Installation (Refer to P.15-9).
- Engine Coolant Refilling (Refer to GROUP 14, On-vehicle Service – Engine Coolant Replacement P.14-17).
- Engine Oil Refilling (Refer to GROUP 12, On-vehicle Service – Engine Oil Replacement P.12-4).



AC400919AB

Removal steps

>>D<<

1. Oxygen sensor connector
2. Vacuum hose connection
3. Turbocharger air outlet fitting
4. Turbocharger air outlet fitting gasket
5. Exhaust manifold cover

Removal steps (Continued)

6. Turbocharger protector
7. Vacuum hose connection
8. Turbocharger pin
9. Turbocharger waste gate actuator
10. Turbocharger oil return tube
11. Turbocharger oil return tube gasket
12. Turbocharger oil return tube gasket

<<A>>

Removal steps (Continued)

13. Eye bolt
14. Gaskets
15. Turbocharger water feed pipe clamp
16. Eye bolts
17. Gaskets
18. Turbocharger oil feed tube
19. Turbocharger water return hose connection
20. Turbocharger exhaust outlet fitting stay
21. Turbocharger, turbocharger water return pipe and turbocharger exhaust outlet fitting assembly

<>

>>C<<

>>B<<

>>A<<

Removal steps (Continued)

22. Turbocharger exhaust gas inlet hole gasket
23. Eye bolt
24. Gaskets
25. Turbocharger water return pipe
26. Turbocharger exhaust outlet fitting
27. Turbocharger exhaust outlet gasket
28. Oxygen sensor
29. Turbocharger assembly
30. Exhaust manifold
31. Exhaust manifold gasket

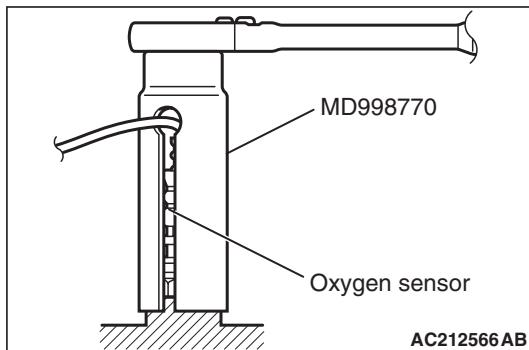
REMOVAL SERVICE POINTS

**<<A>> TURBOCHARGER OIL FEED TUBE
REMOVAL**

CAUTION

After removing the turbocharger oil feed tube, be careful that any foreign materials do not get into the oil passages of the turbocharger.

<> OXYGEN SENSOR REMOVAL

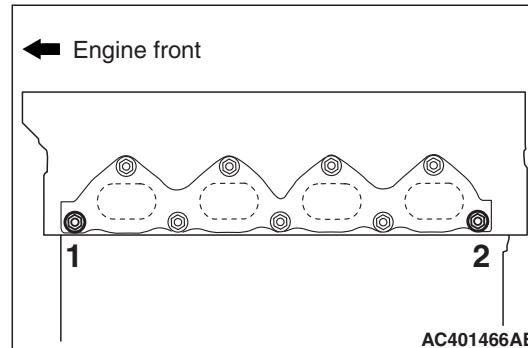


Use special tool oxygen sensor wrench (MD998770) to remove the oxygen sensor.

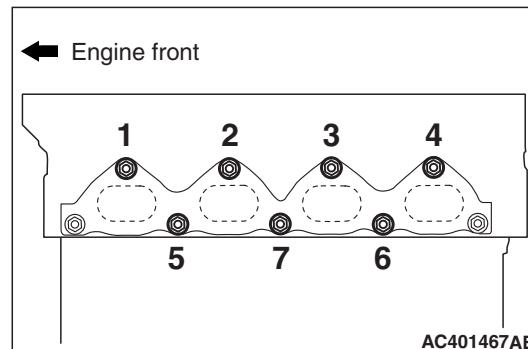
INSTALLATION SERVICE POINTS

**>>A<< EXHAUST MANIFOLD INSTALLA-
TION**

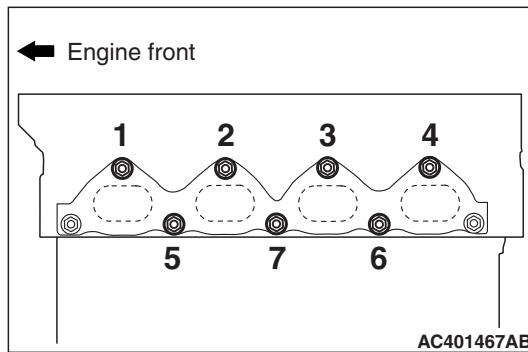
1. Tighten the exhaust manifold mounting nuts in the order below.



- (1) Finger-tighten the shown nuts in numerical order in two stages.

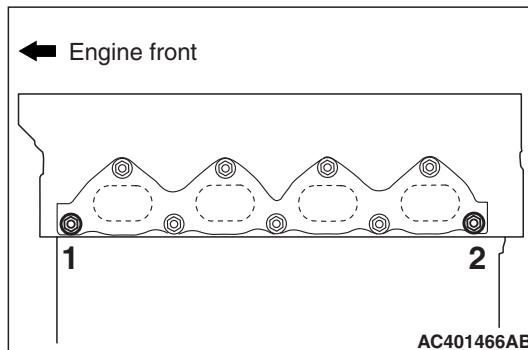


- (2) Finger-tighten the shown nuts in numerical order.



(3) Tighten the nuts shown in numerical order to the specified torque.

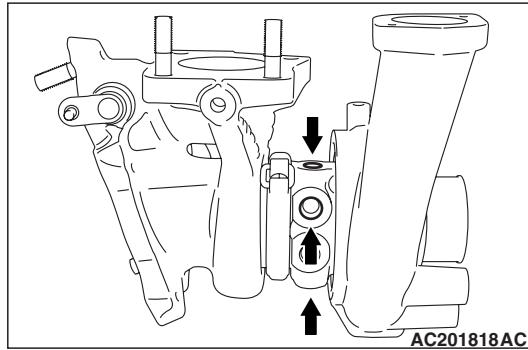
Tightening torque: $29 \pm 3 \text{ N}\cdot\text{m}$



(4) Tighten the nuts shown in numerical order to the specified torque.

Tightening torque: $49 \pm 5 \text{ N}\cdot\text{m}$

>>B<< TURBOCHARGER ASSEMBLY INSTALLATION



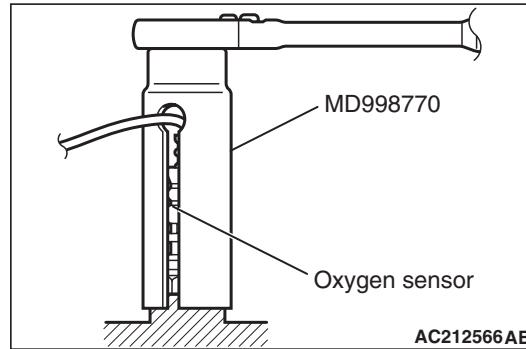
1. Clean the turbocharger oil feed tube, water feed pipe and water return pipe fitting, the inside of eye bolts, and individual pipe for clogs.

CAUTION

Be careful that any foreign materials do not get into the turbocharger.

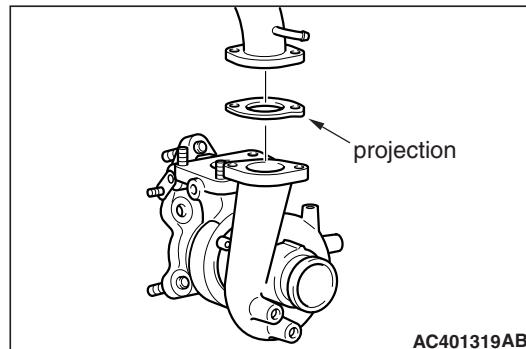
2. Clean or blow the air if carbon residues are stuck to the oil passages of turbocharger assembly.
3. Add new engine oil through the turbocharger oil feed tube of turbocharger assembly.

>>C<< OXYGEN SENSOR INSTALLATION



Use special tool oxygen sensor wrench (MD998770) to install the oxygen sensor.

>>D<< TURBOCHARGER AIR OUTLET FITTING GASKET INSTALLATION



Install the gasket as its protrusion is in the direction shown.

INSPECTION

M1151003400639

Check the following points; replace the part if a problem is found.

EXHAUST MANIFOLD CHECK

1. Check for damage or cracking of any part.
2. Using a straight edge and a feeler gauge, check for distortion of the cylinder head installation surface.

Standard value: 0.15 mm or less

Limit: 0.20 mm

TURBOCHARGER ASSEMBLY CHECK

1. Visually check the turbine wheel and the compressor wheel for cracking or other damage.
2. Check whether the turbine wheel and the compressor wheel can be easily turned by hand.
3. Check for oil leakage from the turbocharger assembly.
4. Check whether or not the turbocharger wastegate regulating valve remains open. If any problem is found, replace the part after disassembly.

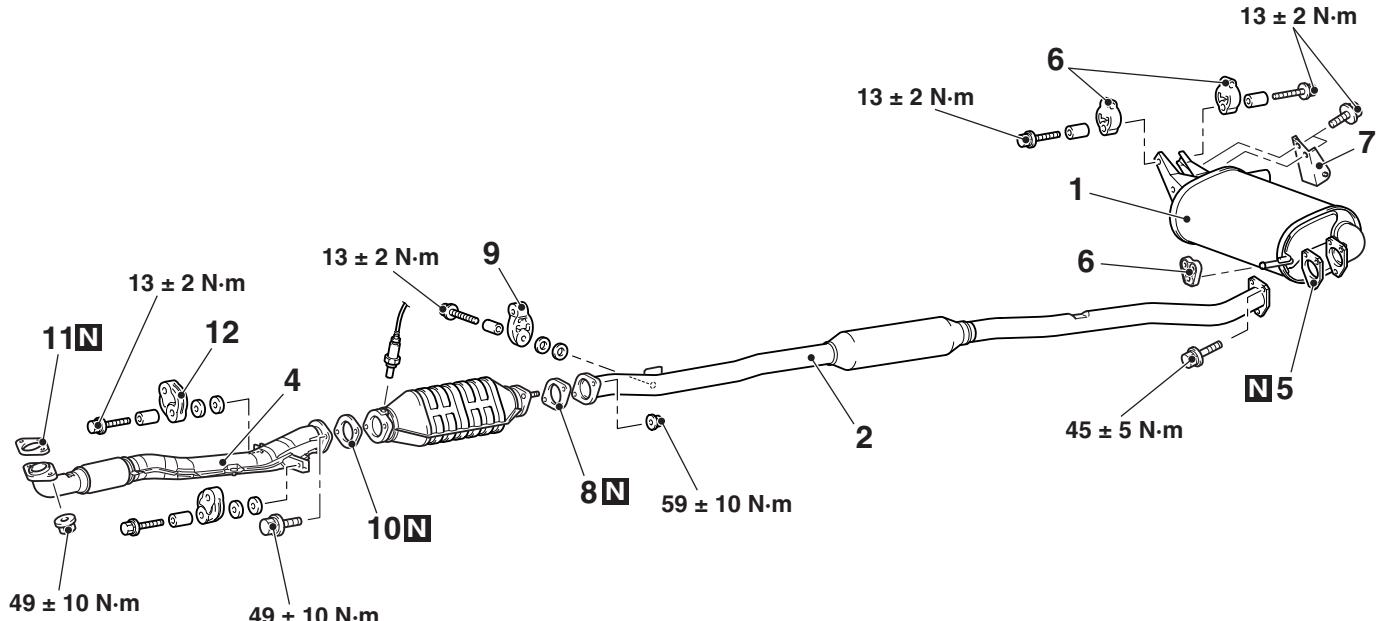
EXHAUST PIPE AND MAIN MUFFLER

REMOVAL AND INSTALLATION

<4G63-NON-TURBO, 4G69>

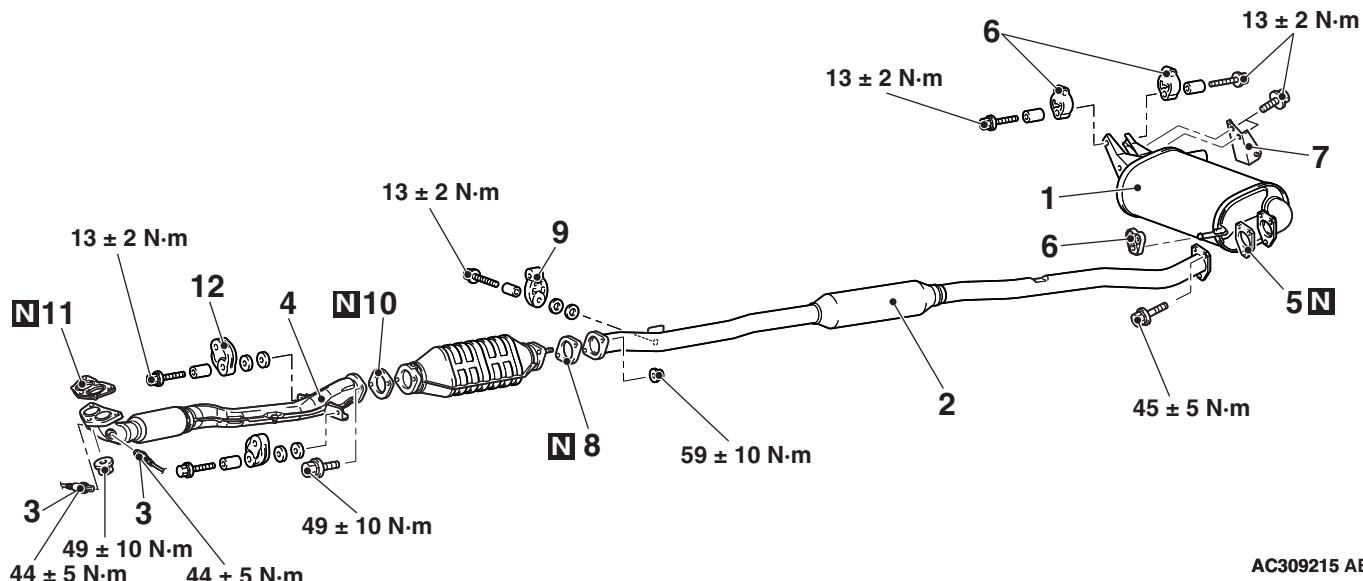
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<4G63-Non-Turbo>



AC301054 AC

<4G69>



AC309215 AB

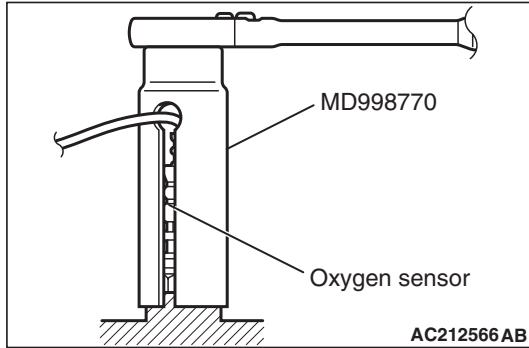
Exhaust main muffler removal steps

1. Exhaust main muffler
5. Exhaust pipe gasket
6. Hanger
7. Exhaust pipe damper

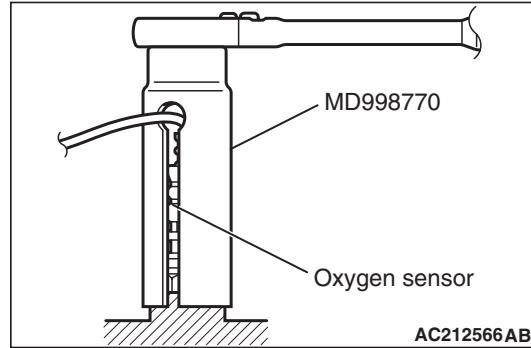
Centre exhaust pipe removal steps

2. Centre exhaust pipe
5. Exhaust pipe gasket
8. Exhaust pipe gasket
9. Hanger

	Front exhaust pipe removal steps	Front exhaust pipe removal steps (Continued)
<<A>> >>A<<	<ul style="list-style-type: none">• Centre under cover (front) (Refer to GROUP 51, Under Cover P.51-31).3. Oxygen sensor <4G69>4. Front exhaust pipe	<ul style="list-style-type: none">10. Exhaust pipe gasket11. Exhaust pipe gasket12. Hanger

REMOVAL SERVICE POINT**<<A>> OXYGEN SENSOR REMOVAL**

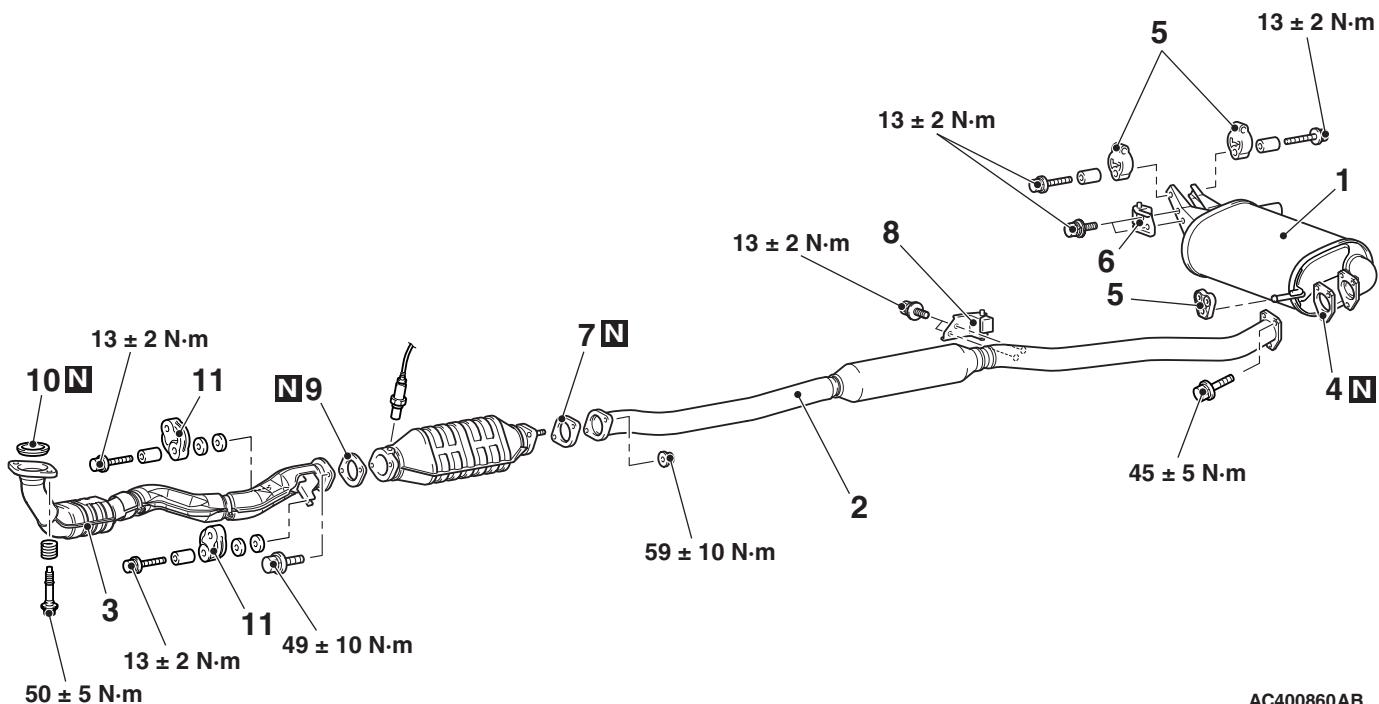
Use special tool oxygen sensor wrench (MD998770) to remove the oxygen sensor.

INSTALLATION SERVICE POINT**>>A<< OXYGEN SENSOR INSTALLATION**

Use special tool oxygen sensor wrench (MD998770) to install the oxygen sensor.

REMOVAL AND INSTALLATION
<4G63-TURBO>

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Exhaust main muffler removal steps

1. Exhaust main muffler
4. Exhaust pipe gasket
5. Hanger
6. Exhaust pipe damper

Centre exhaust pipe removal steps

2. Centre exhaust pipe
4. Exhaust pipe gasket
7. Exhaust pipe gasket
8. Exhaust pipe damper

Front exhaust pipe removal steps

- Centre under cover (front) (Refer to GROUP 51, Under Cover P.51-31).
- 3. Front exhaust pipe
- 9. Exhaust pipe gasket
- 10. Seal ring
- 11. Hanger

NOTES