

**GROUP 15**

**INTAKE AND  
EXHAUST**

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**GENERAL INFORMATION**

M1151000100402

The exhaust pipe is divided into three parts.

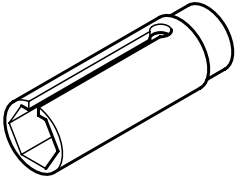
**SERVICE SPECIFICATION**

M1151000300428

Item	Standard value	Limit
Manifold distortion of the installation surface mm	0.15 or less	0.20

**SPECIAL TOOL**

M1151000600399

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

# AIR CLEANER

## REMOVAL AND INSTALLATION

M1151002100486

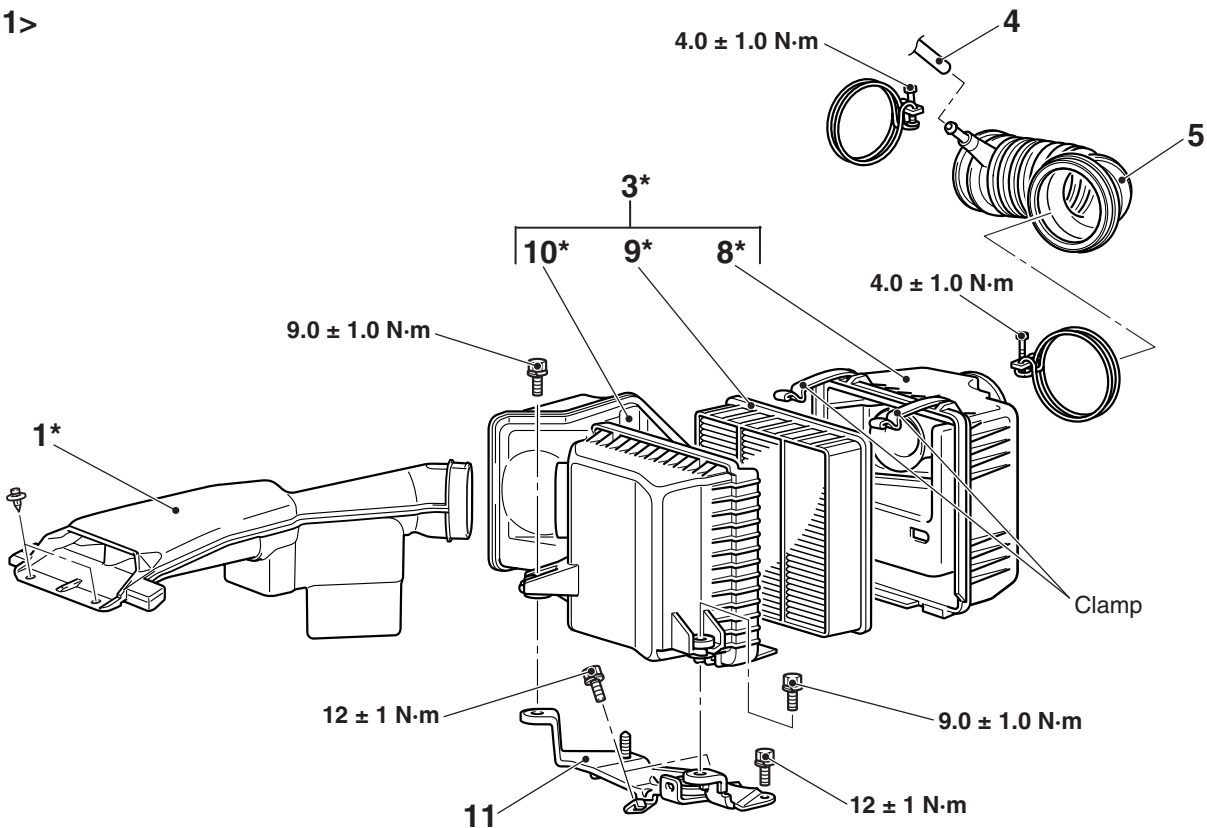
**CAUTION**

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 clamp to the air cleaner body.

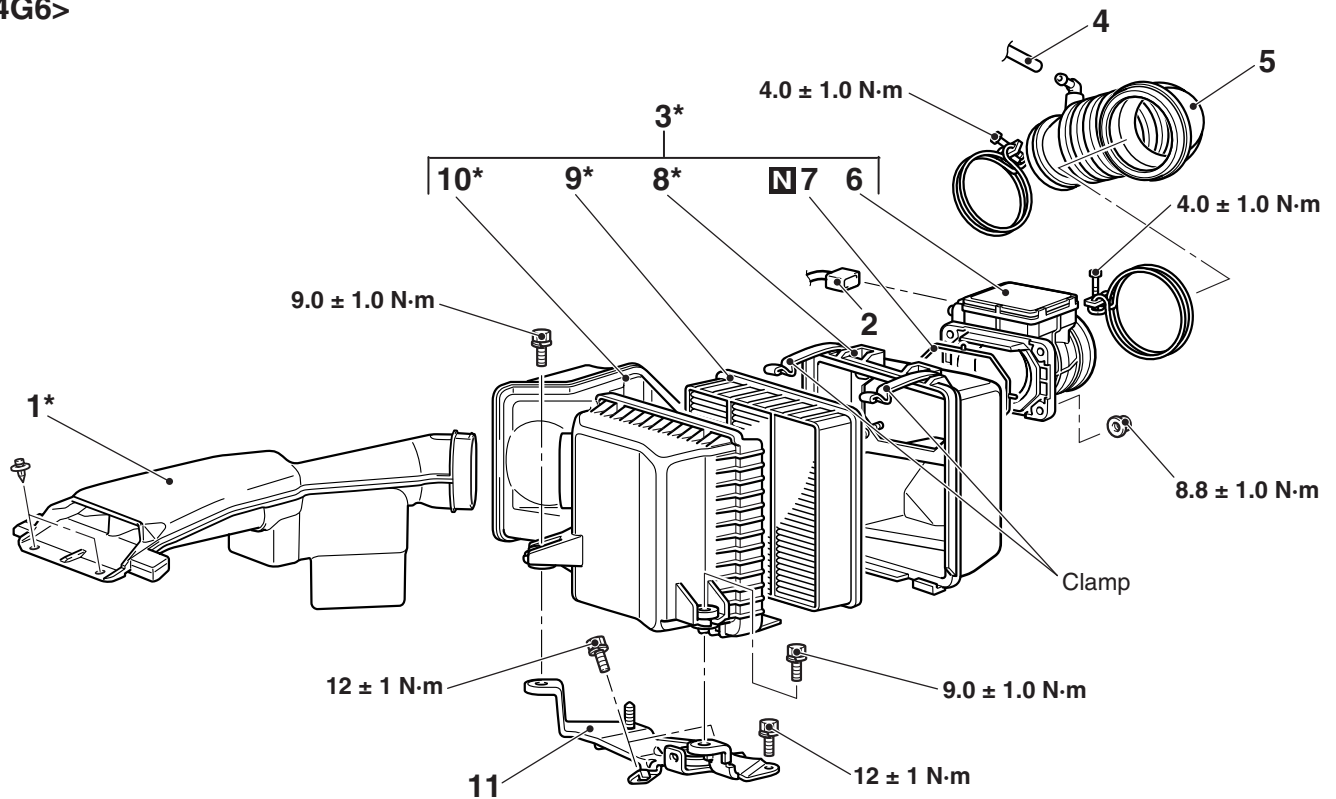
*NOTE: Parts marked by \* are made of recycled-paper mixed plastic material. Dispose of according to state and local laws.*

<4G1>



AC303618AB

&lt;4G6&gt;



AC303619AB

**Removal steps**

1. Air cleaner intake duct
2. Air cleaner air flow sensor connector <4G6>
3. Air cleaner assembly <4G1> or Air cleaner and air cleaner air flow sensor assembly <4G6>
4. Rocker cover breather hose connection
5. Air cleaner to throttle body duct

**Removal steps (Continued)**

6. Air cleaner air flow sensor <4G6>
7. Air cleaner air flow sensor gasket <4G6>
8. Air cleaner cover
9. Air cleaner element
10. Air cleaner body assembly
11. Air cleaner bracket

# INLET MANIFOLD

## REMOVAL AND INSTALLATION <4G1>

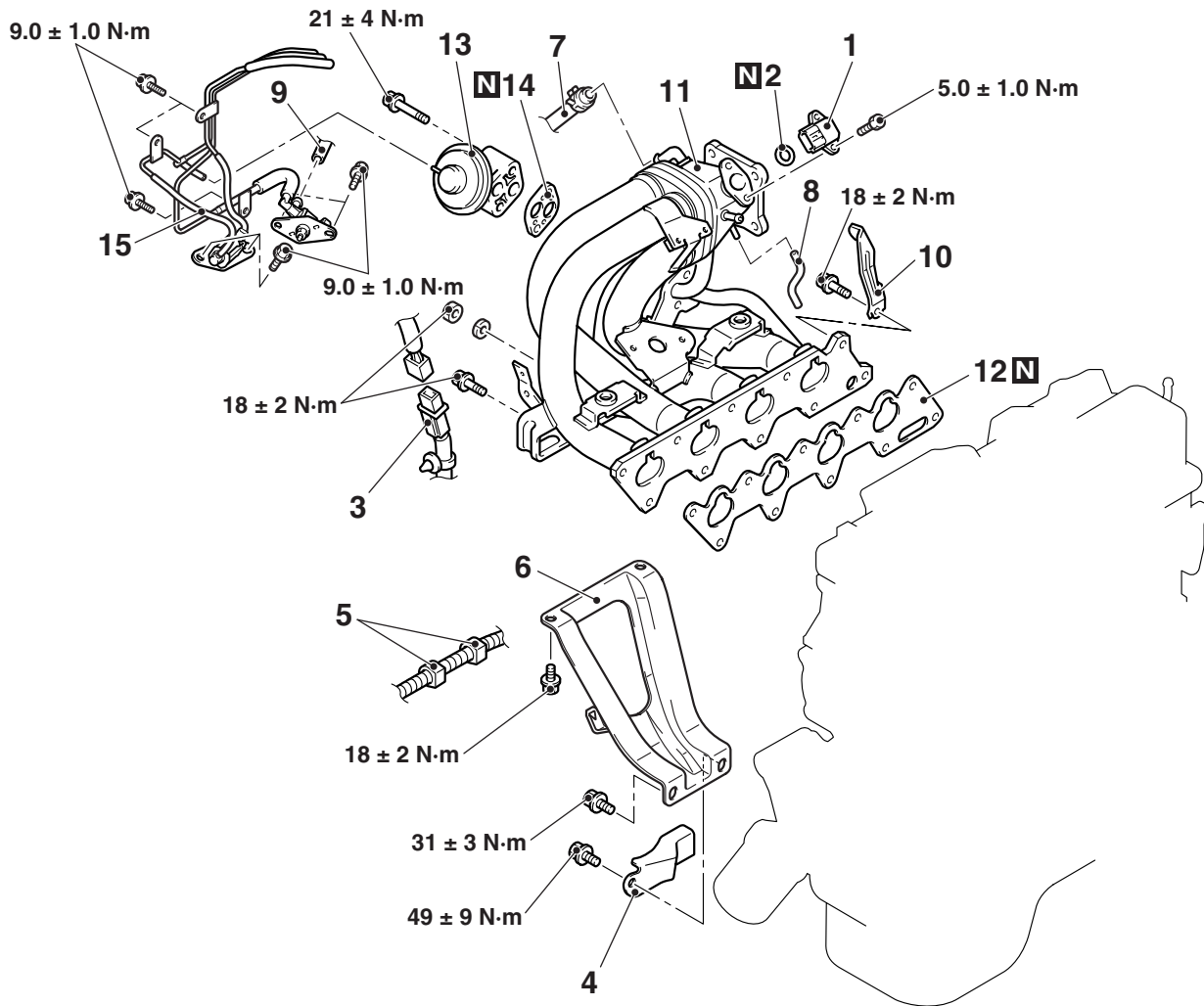
M1151003000749

### Pre-removal Operation

- Fuel Line Pressure Reduction (Refer to GROUP 13A - On-vehicle Service P.13A-401).
- Engine Coolant Draining (Refer to GROUP 14 - On-vehicle Service P.14-21).
- Strut Tower Bar Removal (Refer to GROUP 42 P.42-9).
- Throttle Body Assembly Removal (Refer to GROUP 13A P.13A-412).
- Fuel Delivery Pipe and Fuel Injector Assembly Removal (Refer to GROUP 13A P.13A-410).

### Post-installation Operation

- Fuel Delivery Pipe and Fuel Injector Assembly Installation (Refer to GROUP 13A P.13A-410).
- Throttle Body Assembly Installation (Refer to GROUP 13A P.13A-412).
- Strut Tower Bar Installation (Refer to GROUP 42 P.42-9).
- Engine Coolant Supplying (Refer to GROUP 14 - On-vehicle Service P.14-21).
- Accelerator Cable Adjustment (Refer to GROUP 17 - On-vehicle Service P.17-2).
- Fuel Leak Check



AC303642AB

### Removal steps

1. Inlet manifold absolute pressure sensor
2. Engine control pressure sensor O-ring
3. Engine control detonation sensor connector
4. T/M housing front lower cover stay (L.H.)

### Removal steps (Continued)

5. Battery wiring harness clamp connection
6. Inlet manifold stay
7. Brake booster vacuum hose connection
8. Emission control equip hose connection
9. Fuel vapour control hose connection

**Removal steps (Continued)**

10. Inlet manifold stay
11. Inlet manifold
12. Inlet manifold gasket
13. EGR valve
14. EGR valve gasket
15. Emission vacuum hose & pipe and  
emission solenoid valve assembly

REMOVAL AND INSTALLATION <4G6>

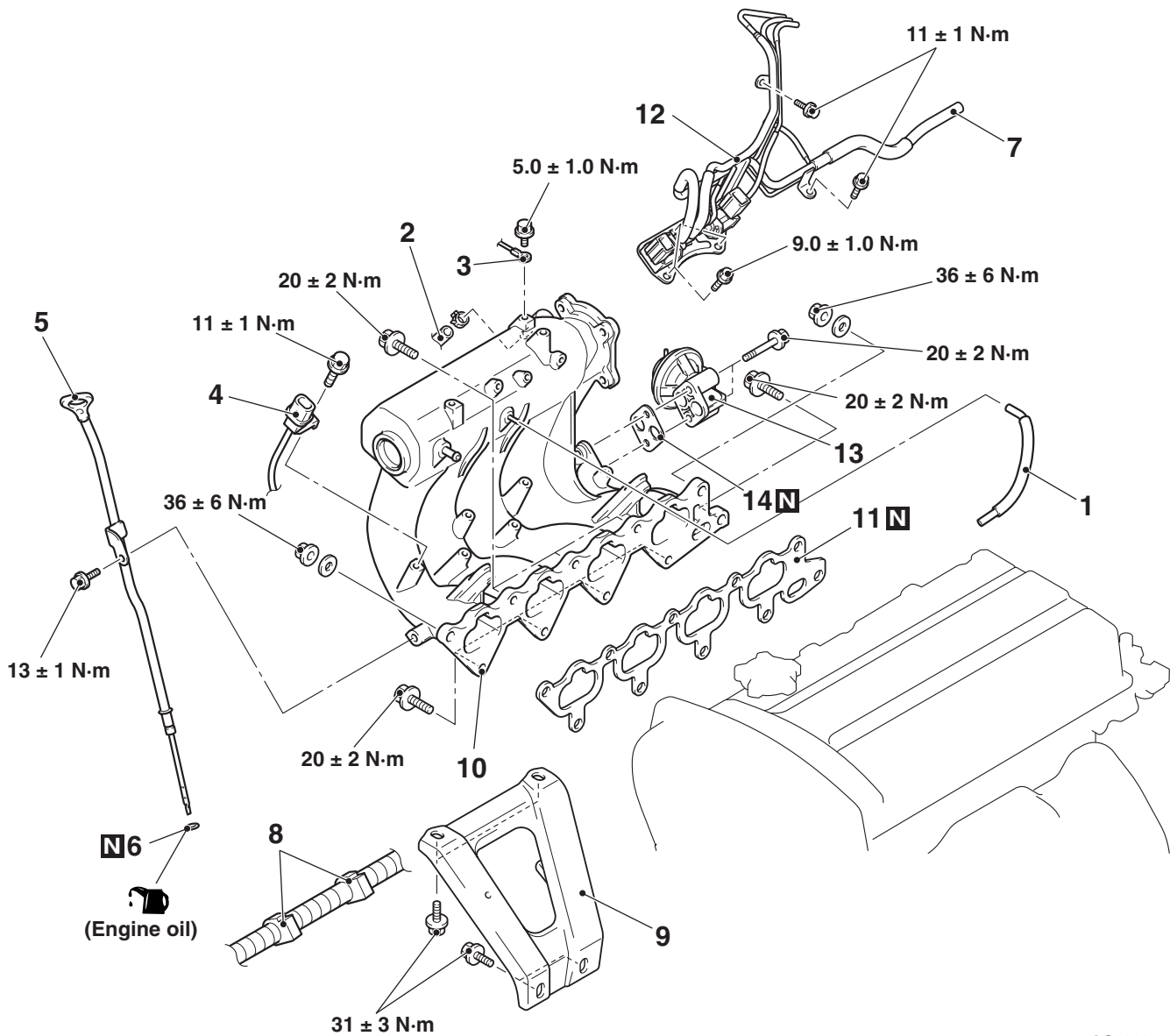
M1151003001236

**Pre-removal Operation**

- Fuel Line Pressure Reduction (Refer to GROUP 13A - On-vehicle Service P.13A-401).
- Engine Coolant Draining (Refer to GROUP 14 - On-vehicle Service P.14-21).
- Strut Tower Bar Removal (Refer to GROUP 42 P.42-9).
- Throttle Body Assembly Removal (Refer to GROUP 13B P.13B-337).
- Fuel Delivery Pipe and Fuel Injector Assembly Removal (Refer to GROUP 13B P.13B-335).

**Post-installation Operation**

- Fuel Delivery Pipe and Fuel Injector Assembly Installation (Refer to GROUP 13B P.13B-335).
- Throttle Body Assembly Installation (Refer to GROUP 13B P.13B-337).
- Strut Tower Bar Installation (Refer to GROUP 42 P.42-9).
- Engine Coolant Supplying (Refer to GROUP 14 - On-vehicle Service P.14-21).
- Accelerator Cable Adjustment (Refer to GROUP 17 - On-vehicle Service P.17-2).
- Fuel Leak Check



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**Removal steps**

1. Emission control equip hose connector
2. Brake booster vacuum hose connection
3. Earth cable connection

**Removal steps (Continued)**

4. Engine control detonation sensor connector
5. Engine oil level gauge and guide assembly
6. Engine oil filler O-ring
7. Emission vacuum hose connection

**Removal steps (Continued)**

8. Battery wiring harness clamp
9. Inlet manifold stay
10. Inlet manifold
11. Inlet manifold gasket
12. Emission vacuum hose & pipe and emission solenoid valve assembly
13. EGR valve
14. EGR valve gasket

**INSPECTION**

M1151003100616

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

**Inlet Manifold Check**

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

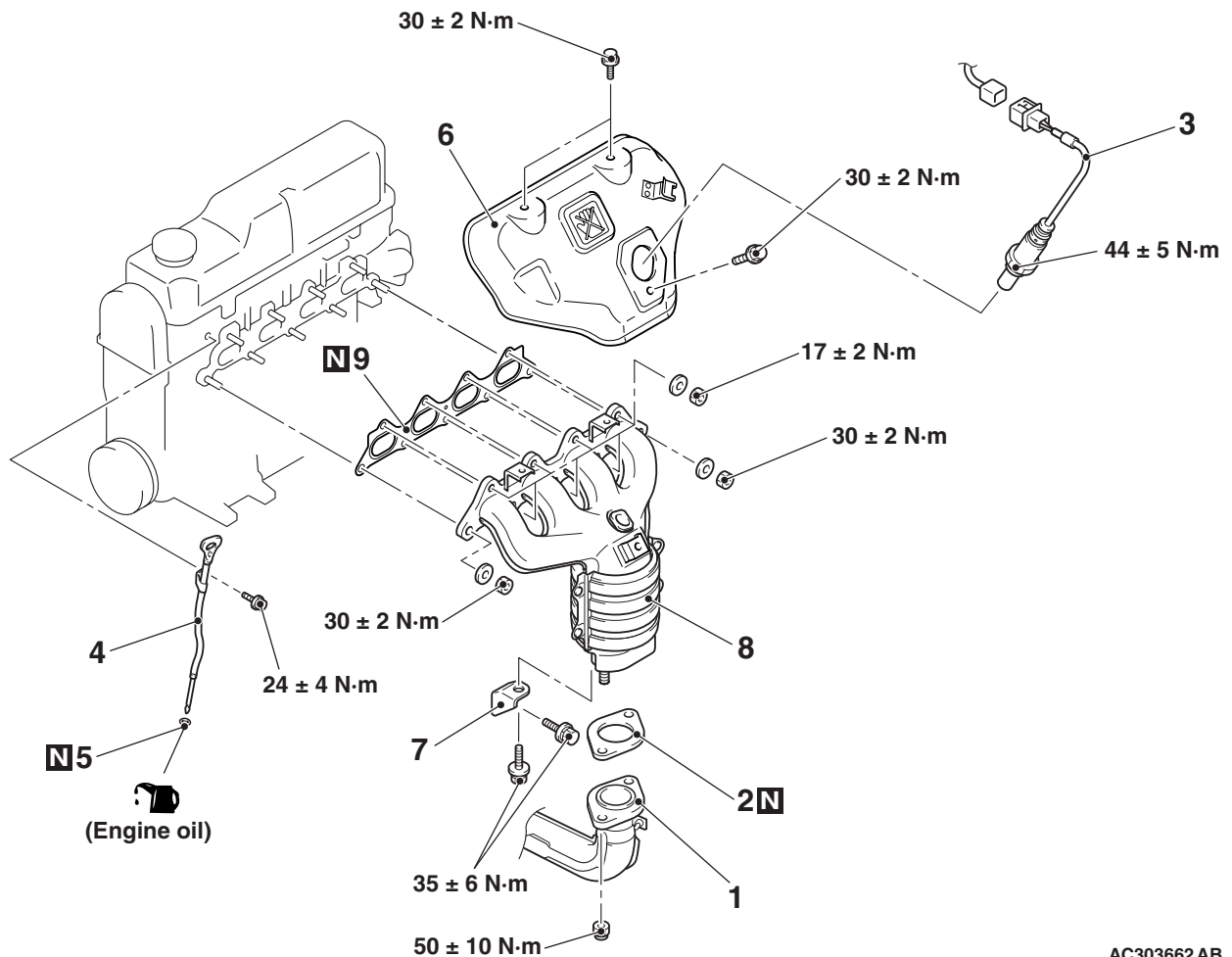
**Standard value: 0.15 mm or less**

**Limit: 0.20 mm**

**EXHAUST MANIFOLD**

**REMOVAL AND INSTALLATION <4G1>**

M1151003300568



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**Removal steps**

1. Front exhaust pipe connection
2. Exhaust pipe gasket
- <<A>> >>A<< 3. Engine control oxygen sensor (front)

**Removal steps (Continued)**

4. Engine oil level gauge and guide assembly
5. Engine oil filler O-ring
6. Exhaust manifold cover

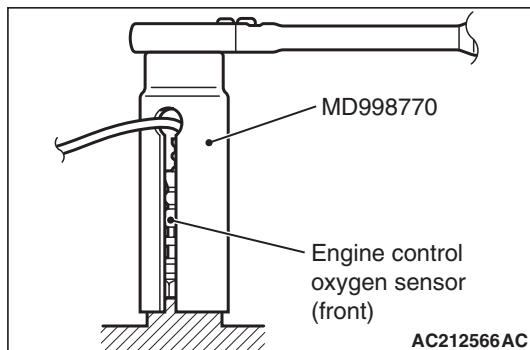


**Removal steps (Continued)**

7. Exhaust manifold bracket
8. Exhaust manifold
9. Exhaust manifold gasket

**REMOVAL SERVICE POINT**

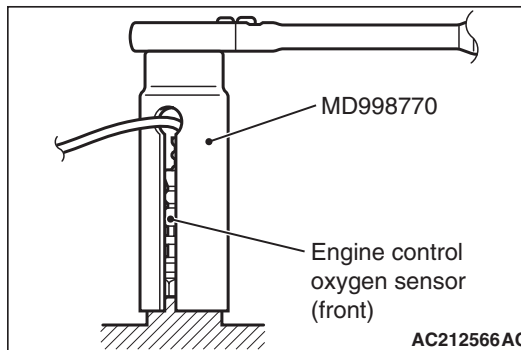
**<<A>> ENGINE CONTROL OXYGEN SENSOR (FRONT) REMOVAL**



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

**INSTALLATION SERVICE POINT**

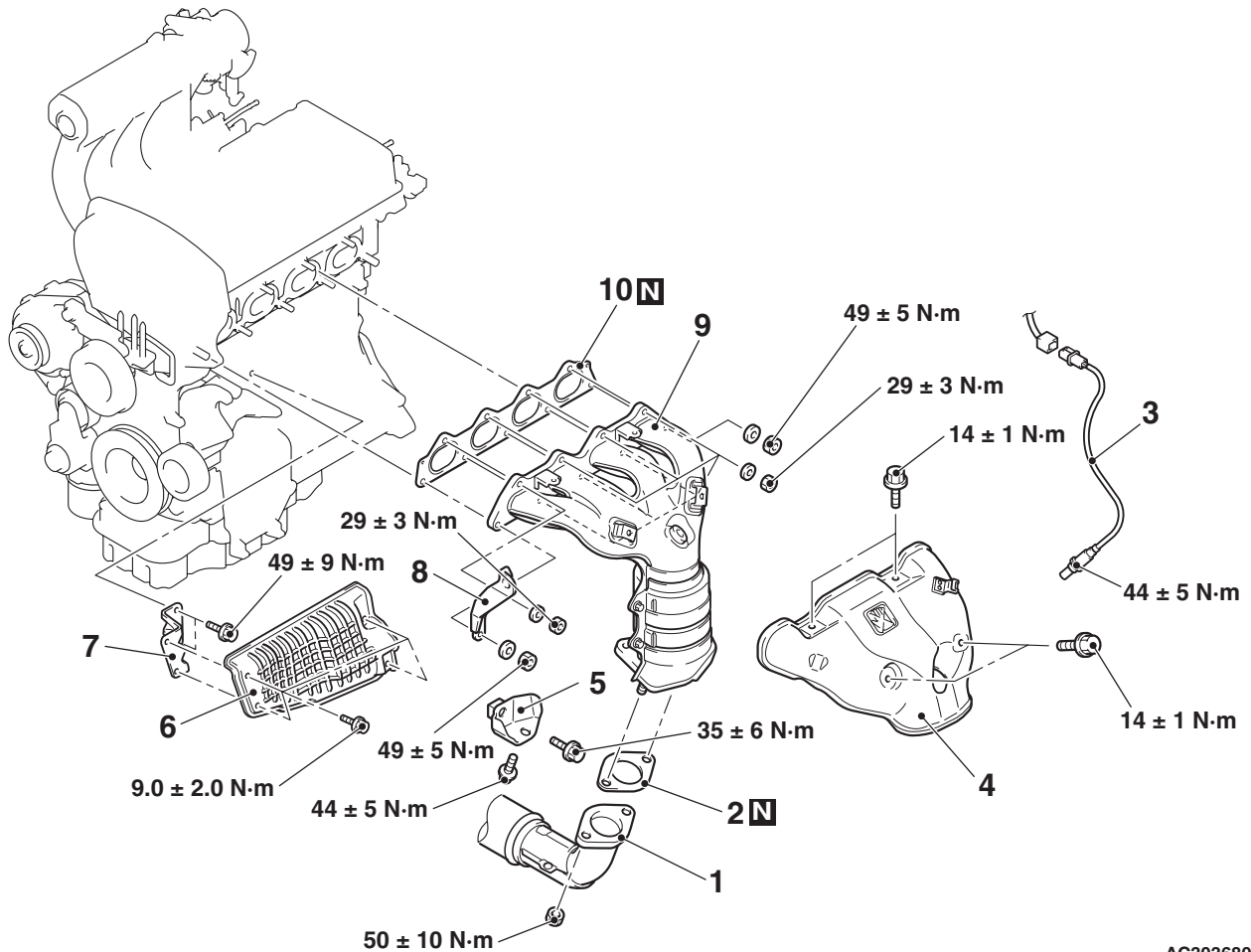
**>>A<< ENGINE CONTROL OXYGEN SENSOR (FRONT) INSTALLATION**



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

REMOVAL AND INSTALLATION <4G6>

**Pre-removal and Post-installation Operation**  
Under cover Removal and Installation



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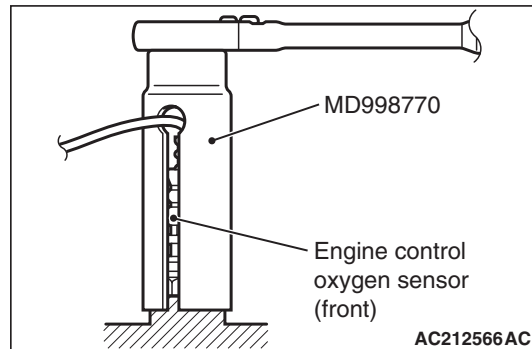
**Removal steps**

1. Front exhaust pipe connection
2. Exhaust pipe gasket
3. Engine control oxygen sensor (front)
4. Exhaust manifold cover
5. Exhaust manifold bracket
6. Starter cover
7. Starter cover bracket
8. Engine hanger
9. Exhaust manifold
10. Exhaust manifold gasket

<<A>> >>A<<

**REMOVAL SERVICE POINT**

**<<A>> ENGINE CONTROL OXYGEN SENSOR (FRONT) REMOVAL**

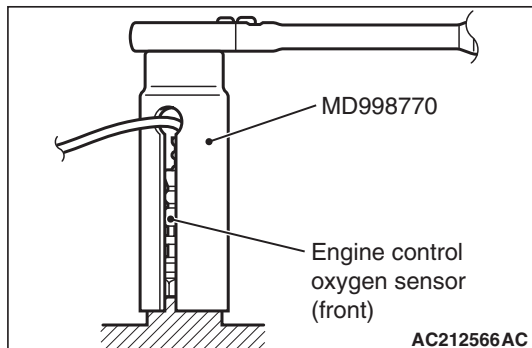


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Use special tool oxygen sensor wrench (MD998770) to remove the engine control oxygen sensor (front).

**INSTALLATION SERVICE POINT**

**>>A<< ENGINE CONTROL OXYGEN SENSOR (FRONT) INSTALLATION**



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

**INSPECTION**

M1151003400543

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**

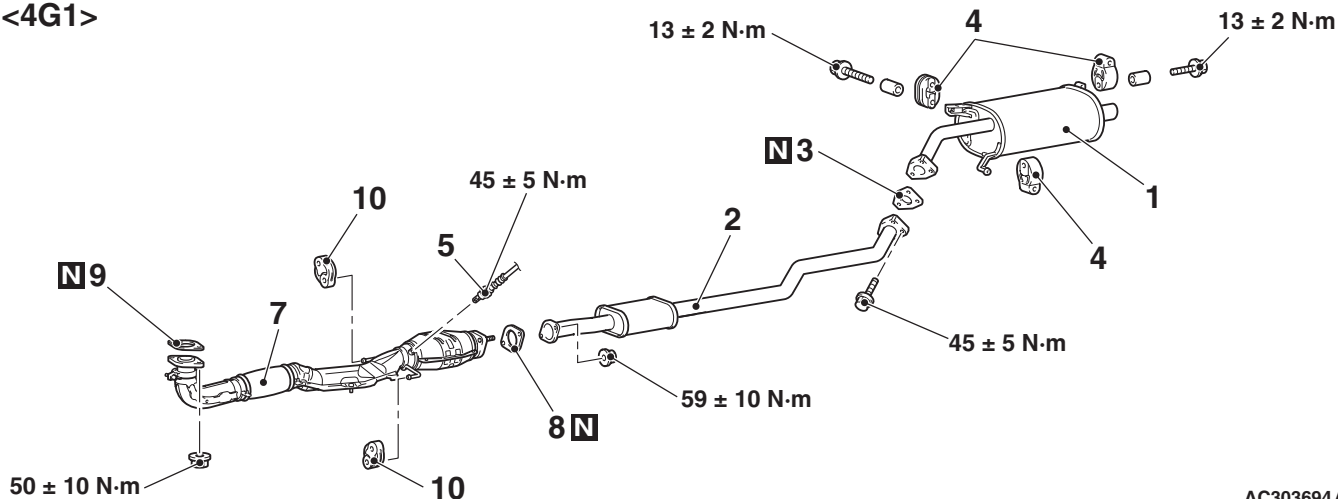
**Limit: 0.20 mm**

**EXHAUST PIPE AND MAIN MUFFLER**

**REMOVAL AND INSTALLATION**

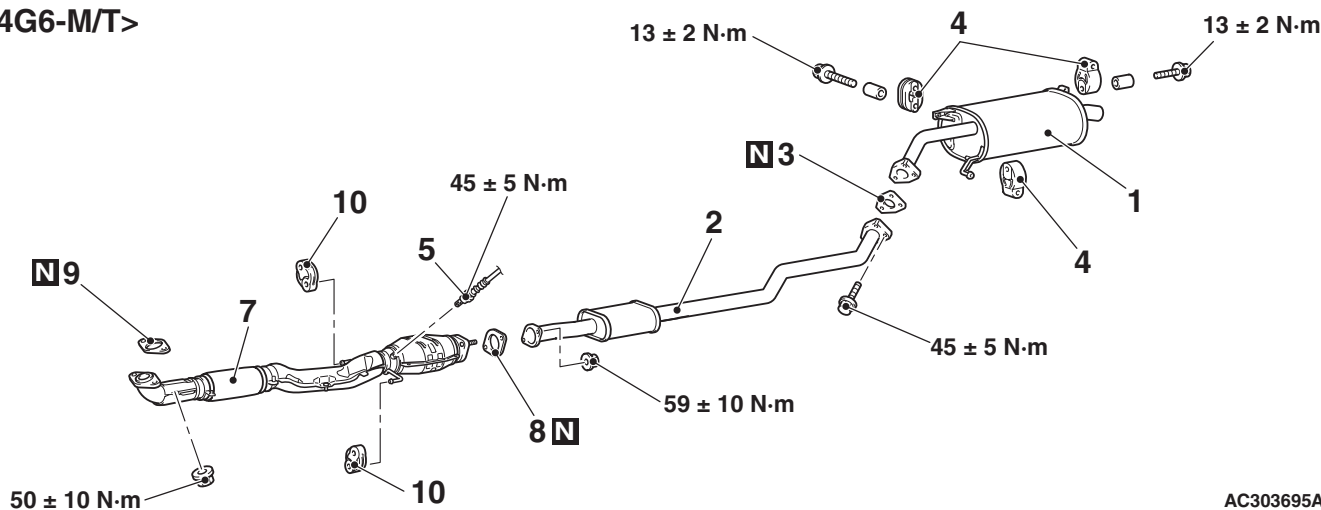
M1151008700969

<4G1>



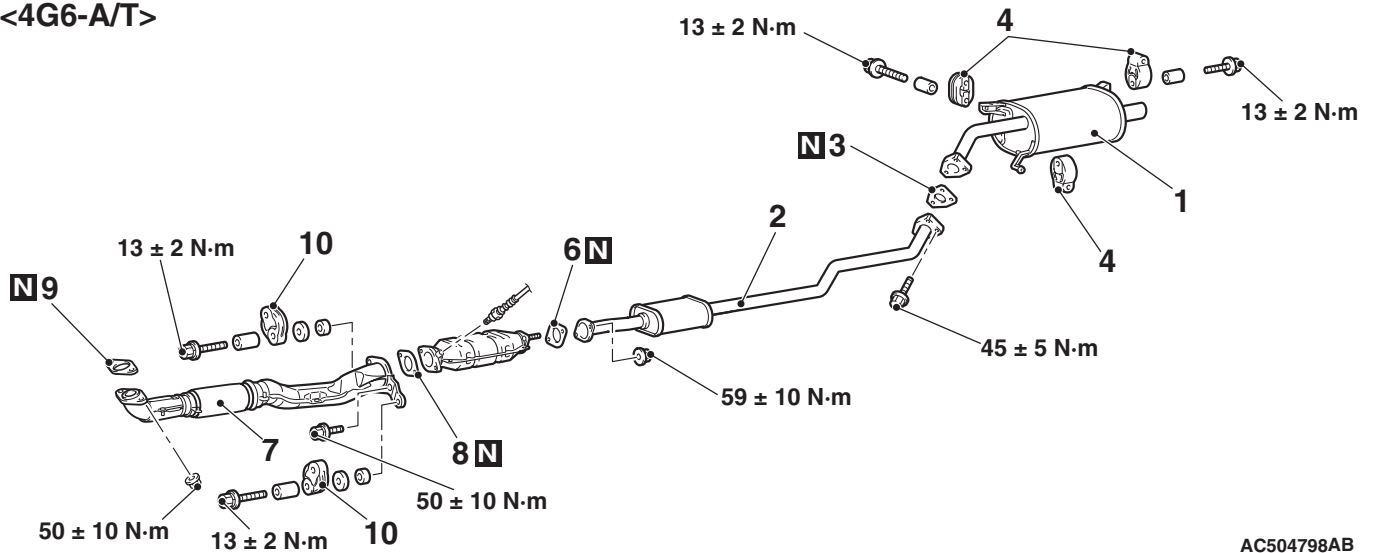
AC303694AC

<4G6-M/T>



AC303695AC

<4G6-A/T>



AC504798AB

**Exhaust main muffler removal steps**

1. Exhaust main muffler
3. Exhaust pipe gasket
4. Exhaust muffer hanger

**Centre exhaust pipe removal steps**

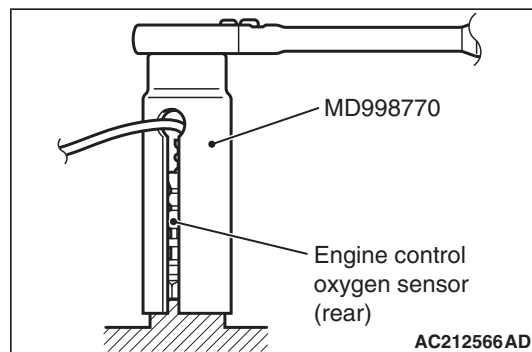
2. Centre exhaust pipe
3. Exhaust pipe gasket
6. Exhaust pipe gasket <4G6-A/T>
8. Exhaust pipe gasket <4G1, 4G6-M/T>

**Front exhaust pipe removal steps**

- <<A>> >>A<<
5. Engine control oxygen sensor (rear) <4G1, 4G6-M/T>
  7. Front exhaust pipe
  8. Exhaust pipe gasket
  9. Exhaust pipe gasket
  10. Exhaust muffer hanger

**REMOVAL SERVICE POINT**

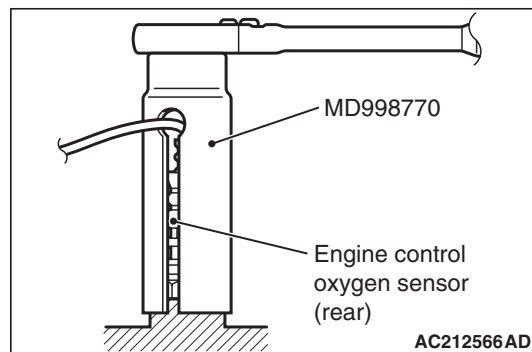
**<<A>> ENGINE CONTROL OXYGEN SENSOR (REAR) REMOVAL**



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

**INSTALLATION SERVICE POINT**

**>>A<< ENGINE CONTROL OXYGEN SENSOR (REAR) INSTALLATION**



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