
GROUP 15

INTAKE AND EXHAUST

CONTENTS

GENERAL INFORMATION	15-2	INLET MANIFOLD	15-4
		REMOVAL AND INSTALLATION	15-4
SERVICE SPECIFICATION	15-2	INSPECTION.....	15-6
SEALANTS	15-2	EXHAUST MANIFOLD	15-7
		REMOVAL AND INSTALLATION	15-7
SPECIAL TOOL.....	15-2	INSPECTION.....	15-8
AIR CLEANER.....	15-3	EXHAUST PIPE AND MAIN	
REMOVAL AND INSTALLATION	15-3	MUFFLER.....	15-8
		REMOVAL AND INSTALLATION	15-8

GENERAL INFORMATION

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The exhaust pipe is divided into three parts.

SERVICE SPECIFICATION

M1151000300611

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

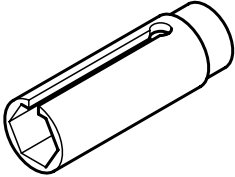
SEALANTS

M1151000500325

Item	Specified sealant
Thermostat case	mitsubishi genuine part MD970389 or equivalent
Thermostat case assembly bolt	3M Stud Locking 4170 or equivalent

SPECIAL TOOL

M1151000600548

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

AIR CLEANER

REMOVAL AND INSTALLATION

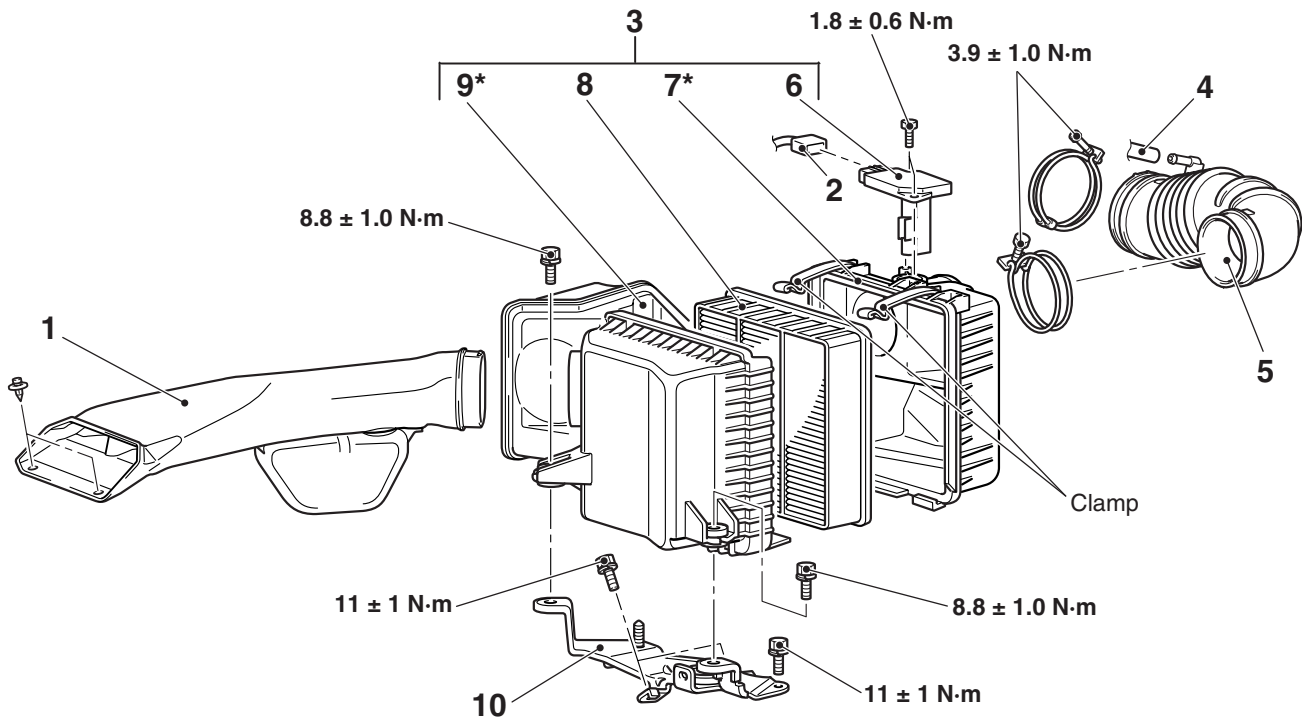
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CAUTION

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 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.



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Removal steps

1. Air cleaner intake duct
2. Air cleaner air flow sensor connector
3. Air cleaner assembly
4. Breather hose connection
- Engine cover (Refer to GROUP 11A, Camshaft and Valve Stem Seal [P.11A-19](#))

Removal steps (Continued)

5. Air intake hose
6. Air cleaner air flow sensor
7. Air cleaner cover
8. Air cleaner element
9. Air cleaner body assembly
10. Air cleaner bracket

INLET MANIFOLD

REMOVAL AND INSTALLATION

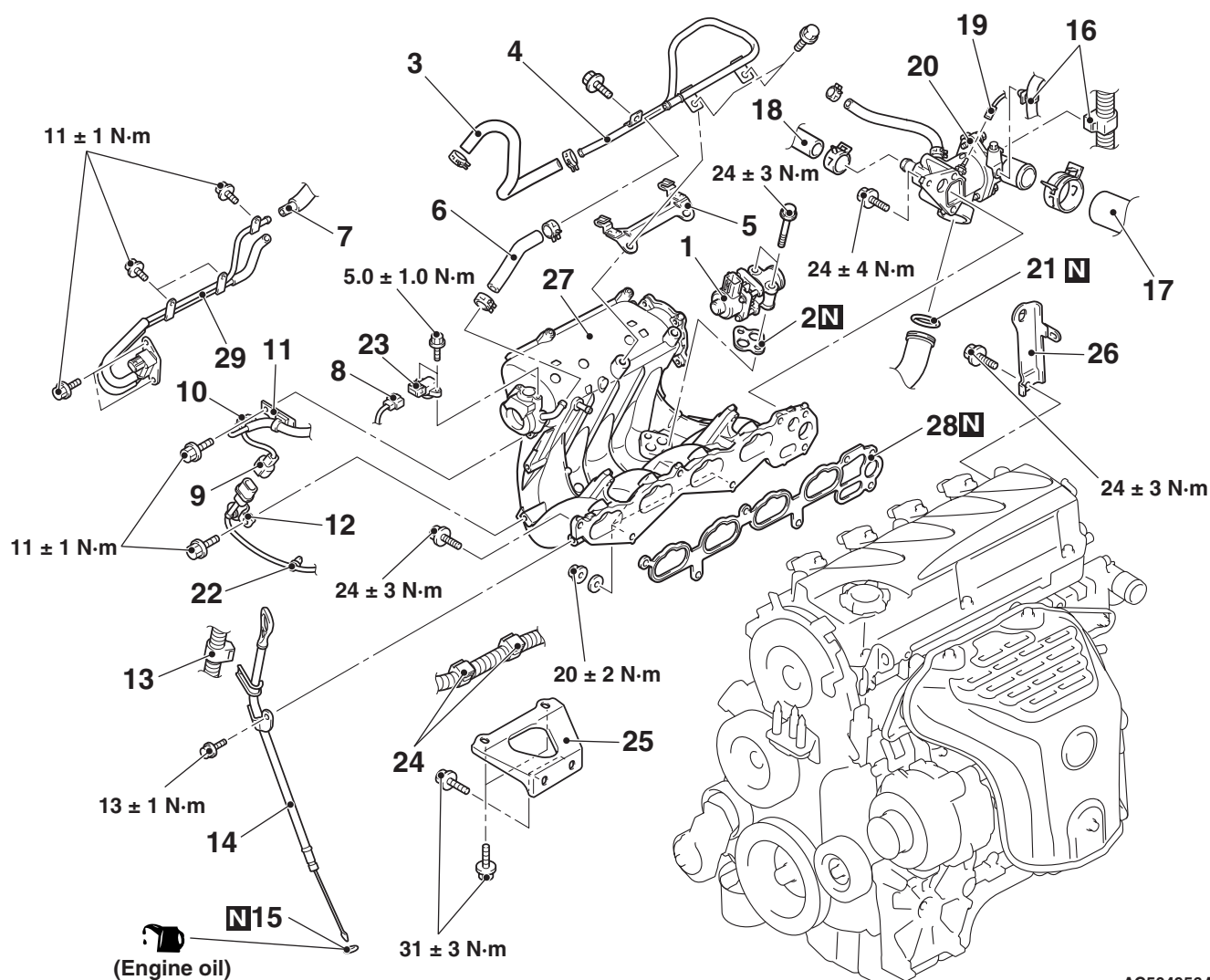
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Pre-removal Operation

- Fuel Line Pressure Reduction (Refer to GROUP 13A – On-vehicle Service [P.13A-323](#)).
- Engine Coolant Draining (Refer to GROUP 14 –On-vehicle Service [P.14-21](#)).
- Engine Cover Removal (Refer to GROUP 11A, Camshaft and Valve Stem Seal [P.11A-19](#)).
- Air Cleaner Removal (Refer to [P.15-3](#)).
- Strut Tower Bar Removal (Refer to GROUP 42, Strut Tower Bar [P.42-9](#)).<Vehicles with Strut Tower Bar>
- Throttle Body Assembly Removal (Refer to GROUP 13A – Throttle Body [P.13A-333](#)).
- Fuel Delivery Pipe and Fuel Injector Assembly Removal (Refer to GROUP 13A –Fuel Injector [P.13A-332](#)).

Post-installation Operation

- Fuel Delivery Pipe and Fuel Injector Assembly Installation (Refer to GROUP 13A –Fuel Injector [P.13A-332](#)).
- Throttle Body Assembly Installation (Refer to GROUP 13A –Throttle Body [P.13A-333](#)).
- Strut Tower Bar Installation (Refer to GROUP 42, Strut Tower Bar [P.42-9](#)). <Vehicles with Strut Tower Bar>
- Air Cleaner Installation (Refer to [P.15-3](#)).
- Engine Cover Installation (Refer to GROUP 11A, Camshaft and Valve Stem Seal [P.11A-19](#)).
- Engine Coolant Supplying (Refer to GROUP 14 –On-vehicle Service [P.14-21](#)).
- Fuel Leak Check



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Removal steps

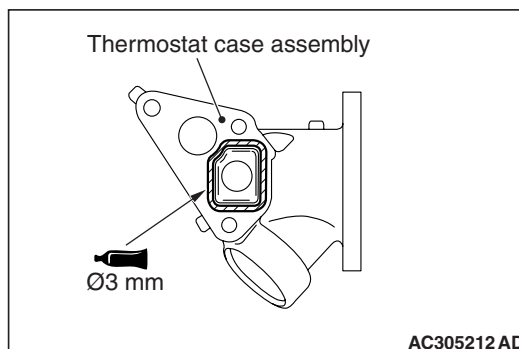
- >>C<<
1. EGR valve
 2. EGR valve gasket
 3. Brake booster vacuum hose
 4. Brake booster vacuum pipe

Removal steps (Continued)

5. Engine cover bracket
6. Brake booster vacuum hose
7. Evaporative emission vacuum hose connection

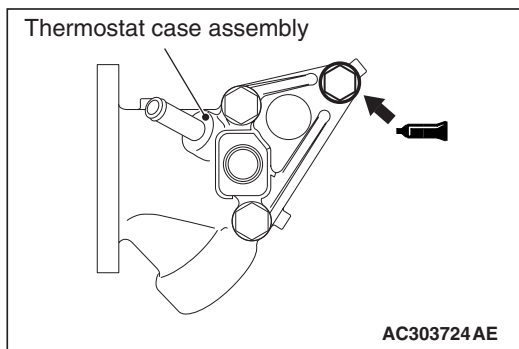
Removal steps (Continued)

- 8. Manifold absolute pressure sensor connector
- 9. Detonation sensor connector
- 10. Evaporative emission purge solenoid valve connector
- 11. Harness clamp
- 12. Detonation sensor connector clamp
- 13. Harness clamp
- 14. Oil level gauge and guide
- 15. O-ring
- 16. Harness clamp
- <<A>> >>B<< 17. Radiator lower hose connection
- 18. Heater water hose connection
- 19. Engine coolant temperature gauge unit connector
- >>A<< 20. Thermostat case assembly
- 21. O-ring
- 22. Detonation sensor harness clamp
- 23. Manifold absolute pressure sensor
- 24. Harness clamp
- 25. Intake manifold stay
- 26. Engine hanger
- 27. Intake manifold
- 28. Intake manifold gasket
- 29. Evaporative emission purge solenoid valve, evaporative emission vacuum hose and pipe assembly



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



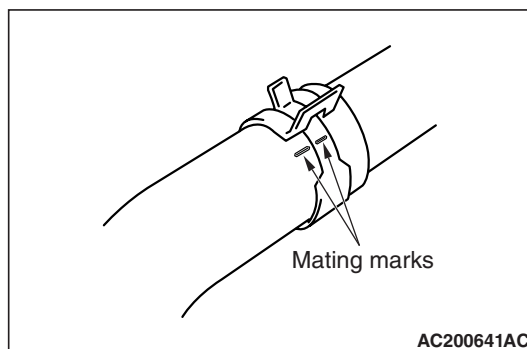
3. Apply sealant to the thread of the thermostat case assembly bolts as shown.

Specified Sealant: 3M Stud Locking 4170 or equivalent

4. 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.

REMOVAL SERVICE POINT

<<A>> RADIATOR LOWER HOSE DISCONNECTION



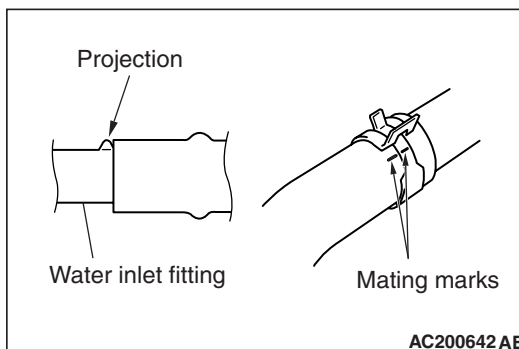
Make mating marks on the radiator hose and the hose clamp. Disconnect the radiator hose.

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.

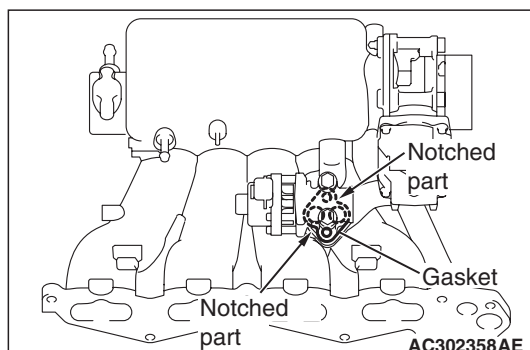
>>B<< RADIATOR LOWER HOSE CONNECTION



1. Insert each hose as far as the projection of the water inlet fitting.

2. 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

M1151003100779

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 thickness gauge, check for distortion of the cylinder head installation surface.

Standard value: 0.15 mm or less

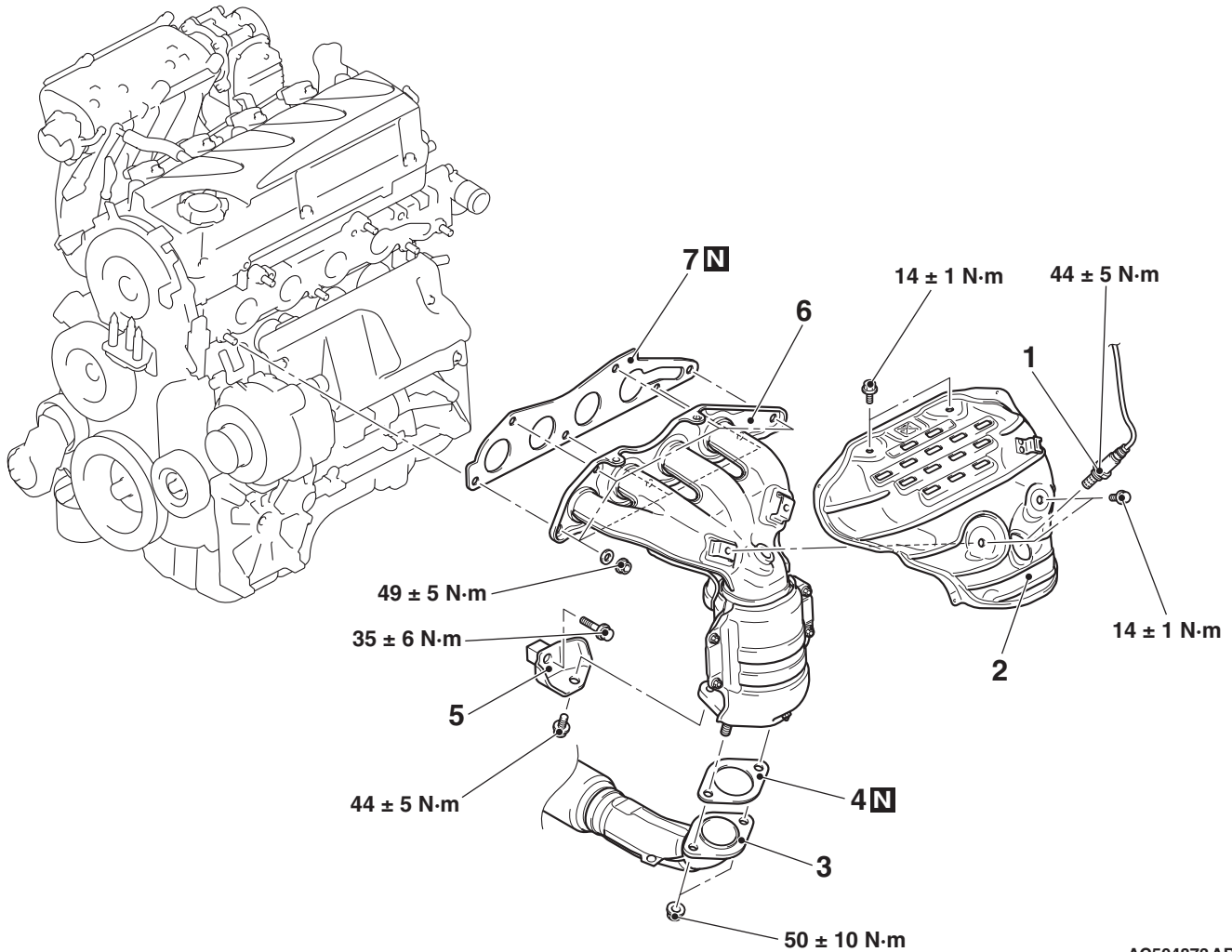
Limit: 0.20 mm

EXHAUST MANIFOLD

REMOVAL AND INSTALLATION

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Pre-removal and Post-installation Operation
Under Cover Removal and Installation

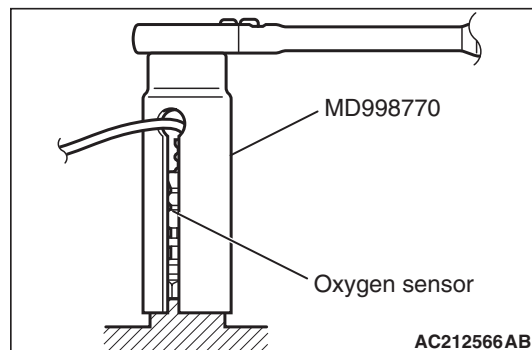


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- <<A>> >>A<<
1. Oxygen sensor
 2. Exhaust manifold cover
 3. Front exhaust pipe connection
 4. Gasket
 5. Exhaust manifold bracket
 6. Exhaust manifold
 7. Exhaust manifold gasket

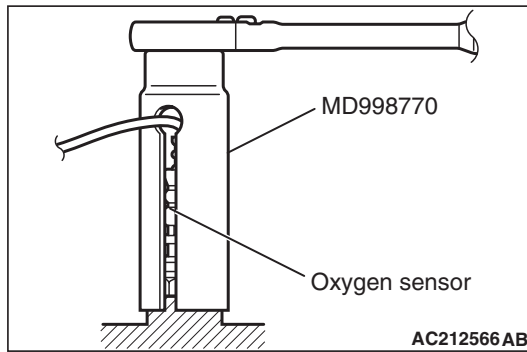
REMOVAL SERVICE POINT

<<A>> OXYGEN SENSOR REMOVAL



AC212566 AB

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

M1151003400695

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

EXHAUST MANIFOLD CHECK

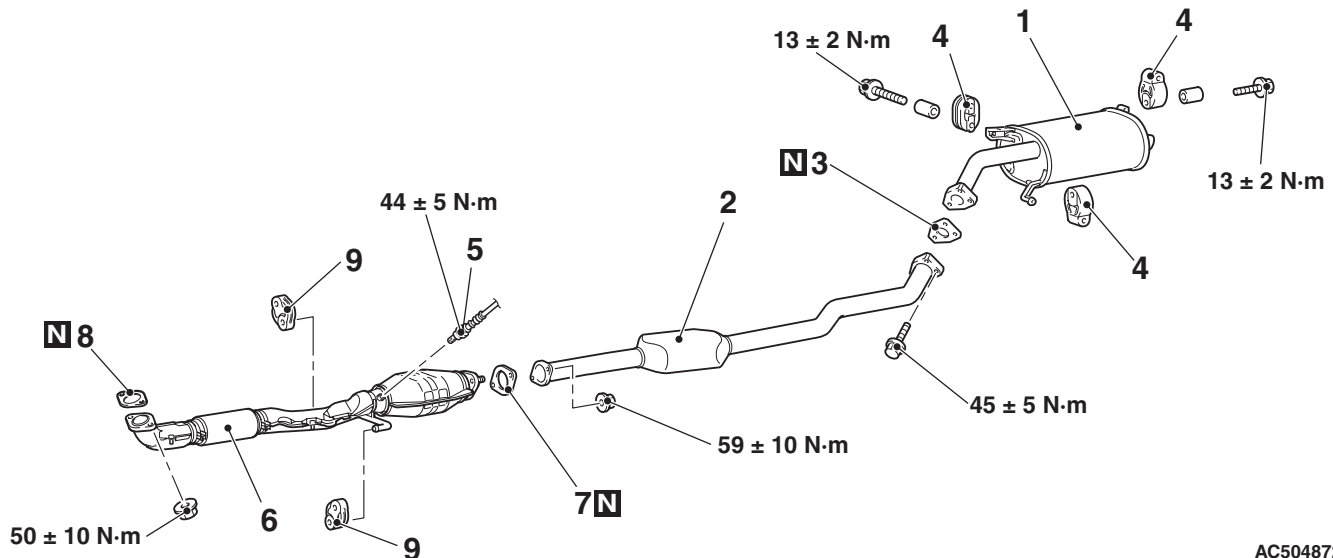
1. Check for damage or cracking of any part.
2. Using a straight edge and a thickness gauge, check for distortion of the cylinder head installation surface.

Standard value: 0.15 mm or less

Limit: 0.20 mm

EXHAUST PIPE AND MAIN MUFFLER**REMOVAL AND INSTALLATION**

M1151008700992

**Exhaust main muffler removal steps**

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

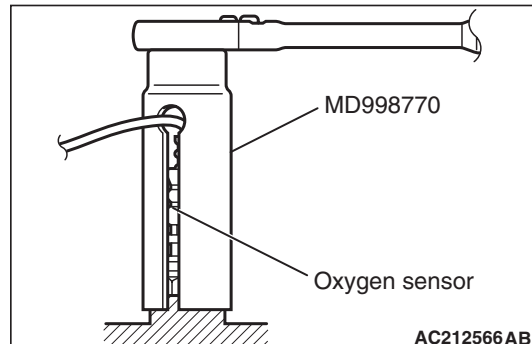
Centre exhaust pipe removal steps

2. Centre exhaust pipe
3. Exhaust pipe gasket
7. Exhaust pipe gasket

Front exhaust pipe removal steps

<<A>> >>A<<

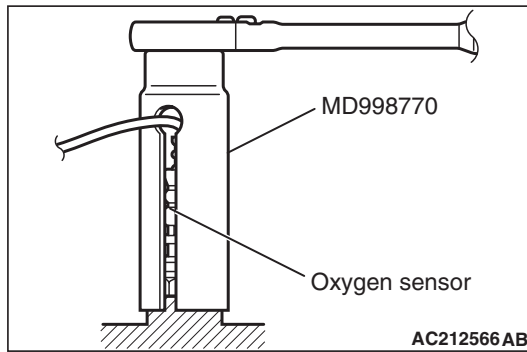
5. Oxygen sensor
6. Front exhaust pipe
7. Exhaust pipe gasket
8. Exhaust pipe gasket
9. Exhaust muffler hanger

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.