
INTAKE AND EXHAUST

CONTENTS

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GENERAL INFORMATION	2	INTAKE MANIFOLD	3
SERVICE SPECIFICATIONS	2	EXHAUST MANIFOLD	6
SPECIAL TOOL	2	EXHAUST PIPE AND MAIN MUFFLER	7
ON-VEHICLE SERVICE	2		
Intake Manifold Vacuum Check	2		

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INTAKE AND EXHAUST – General Information/Service Specifications/ Special Tool/On-vehicle Service

GENERAL INFORMATION

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The intake manifold is made of an aluminium alloy, and the shape provides an increased intake inertia effect and has a good volumetric efficiency.

The exhaust manifold is made of a stainless steel. The exhaust pipe is divided into three parts: the front pipe, the center pipe, and the main muffler.

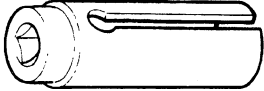
SERVICE SPECIFICATIONS

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

SPECIAL TOOL

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Tool	Number	Name	Use
	MD998770	Oxygen sensor wrench	Removal/Installation of oxygen sensor

ON-VEHICLE SERVICE

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INTAKE MANIFOLD VACUUM CHECK

Refer to GROUP 11A – On-vehicle Service.

INTAKE MANIFOLD

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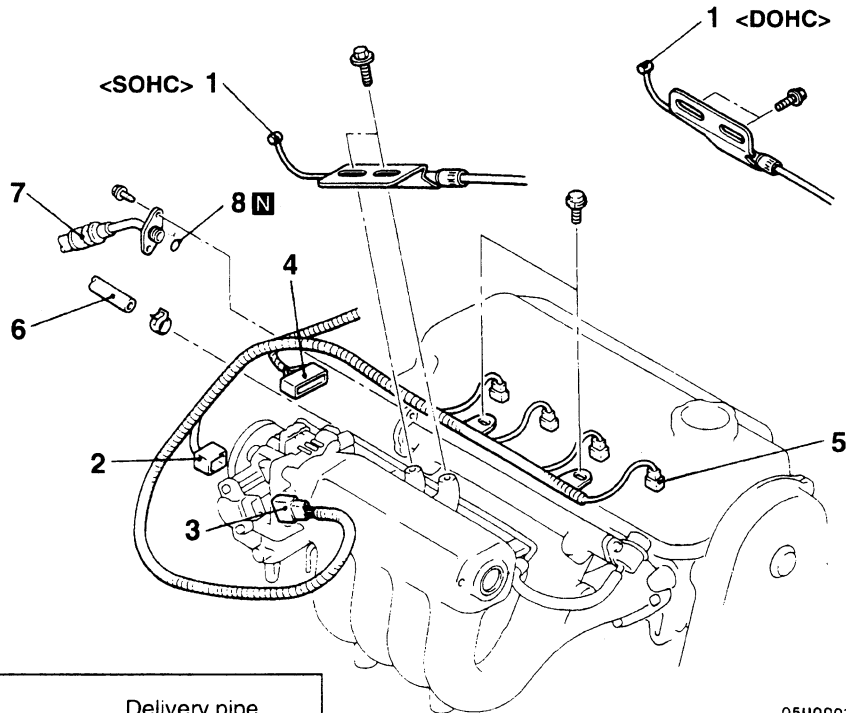
REMOVAL AND INSTALLATION

Pre-removal Operation

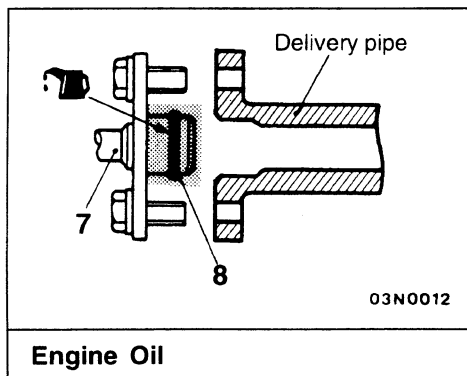
- (1) Fuel Discharge Prevention
(Refer to GROUP 13A – On-vehicle Service.)
- (2) Engine Coolant Draining
(Refer to GROUP 14 – On-vehicle Service.)
- (3) Air Cleaner and Air Intake Hose Removal

Post-Installation Operation

- (1) Engine Coolant Supplying
(Refer to GROUP 14 – On-vehicle Service.)
- (2) Accelerator Cable Adjustment
(Refer to GROUP 17 – On-vehicle Service.)
- (3) Air Cleaner and Air Intake Hose Installation



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Engine Oil

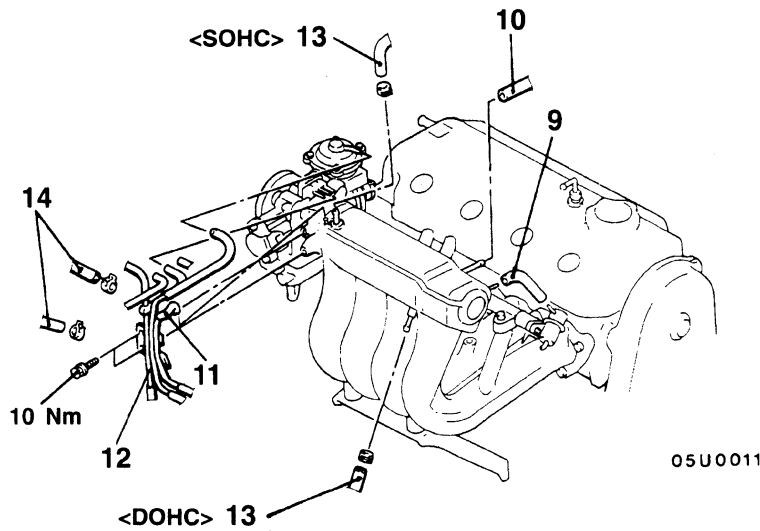
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Removal steps

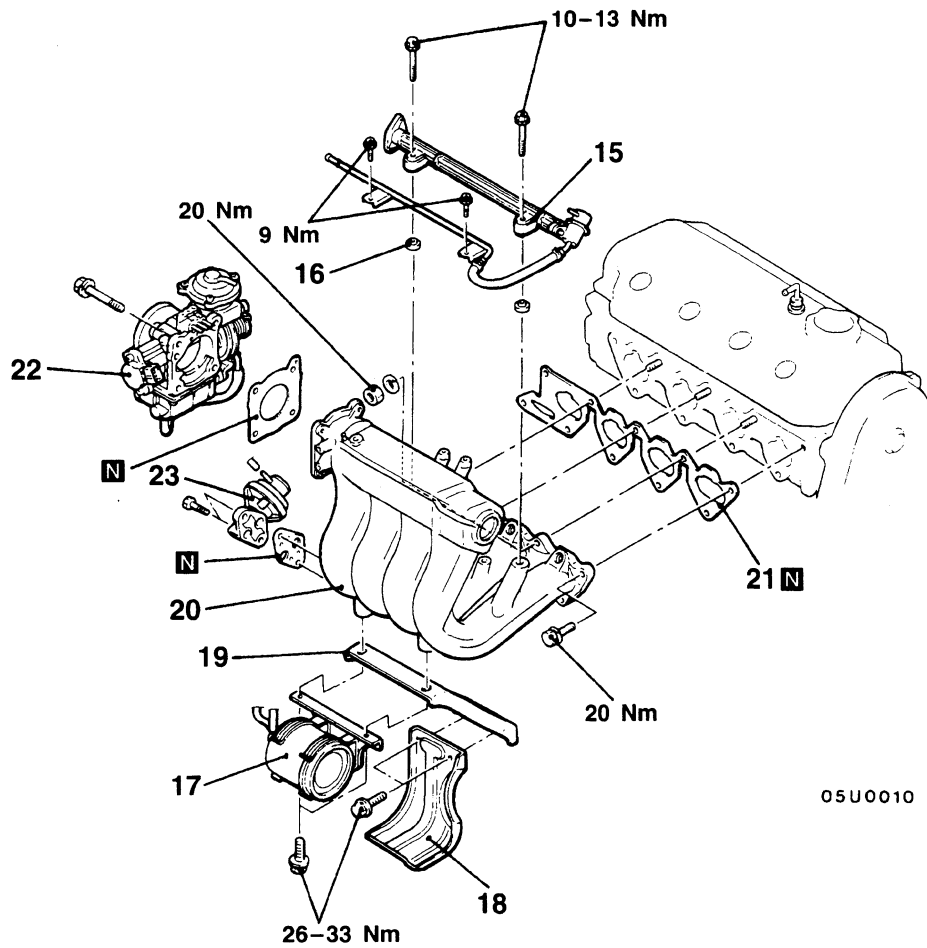
1. Accelerator cable connection
2. ISC connector
3. TPS connector
4. APS connector
<Vehicles with TCL>

5. Injector connector
6. Fuel return hose connection
7. Fuel high pressure hose connection
8. O-ring





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- 9. Vacuum hose connection
- 10. PCV hose connection
- 11. Vacuum hose connection
- 12. Vacuum pipe
- 13. Brake booster vacuum hose connection
- 14. Water hose connection
- 15. Delivery pipe, injector and pressure regulator assembly

- 16. Insulator
- 17. Vacuum tank and vacuum tank bracket assembly
<Vehicles with TCL>
- 18. Heat protector <4G93-M/T>
- 19. Intake manifold stay
- 20. Intake manifold
- 21. Intake manifold gasket
- 22. Throttle body
- 23. EGR valve



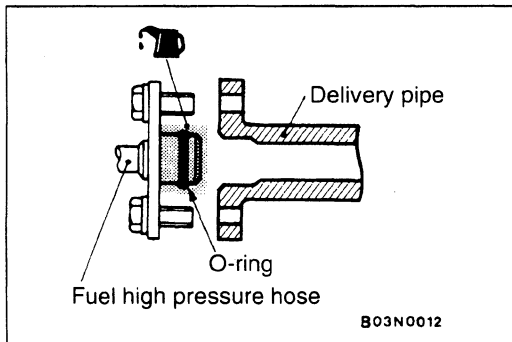
REMOVAL SERVICE POINT

◀A▶ DELIVERY PIPE, INJECTOR AND PRESSURE REGULATOR REMOVAL

Remove the delivery pipe (with the injectors and pressure regulator attached to it).

Caution

Care must be taken, when removing the delivery pipe, not to drop the injector.



INSTALLATION SERVICE POINT

▶A◀ O-RING/FUEL HIGH PRESSURE HOSE INSTALLATION

1. When connecting the fuel high-pressure hose to the delivery pipe, apply a small amount of new engine oil to the O-ring and then insert the fuel high-pressure hose, being careful not to damage the O-ring.

Caution

Be careful not to let any engine oil get into the delivery pipe.

2. While turning the fuel high pressure hose to the left and right, install it to the delivery pipe.
3. Check to be sure that the injector turns smoothly. If it does not turn smoothly, the O-ring may be trapped, remove the fuel high pressure hose and then re-insert it into the delivery pipe and check once again.

INSPECTION

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

INTAKE MANIFOLD CHECK

1. Check for damage or cracking of any part.
2. Check for obstruction of the negative pressure (vacuum) outlet port, and for obstruction of the water passage or gas passage.
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

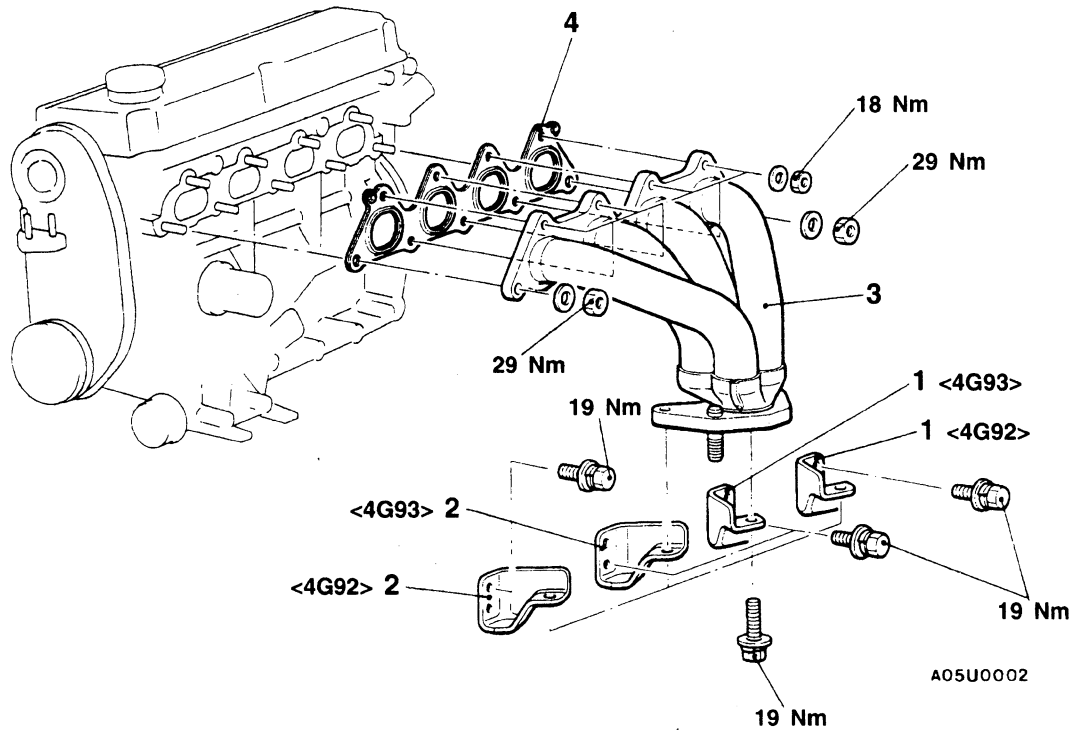
EXHAUST MANIFOLD

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REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

- Front Exhaust Pipe Removal and Installation (Refer to P.15-7.)



Removal steps

1. Exhaust manifold bracket (B)
2. Exhaust manifold bracket (A)
3. Exhaust manifold
4. Exhaust manifold gasket

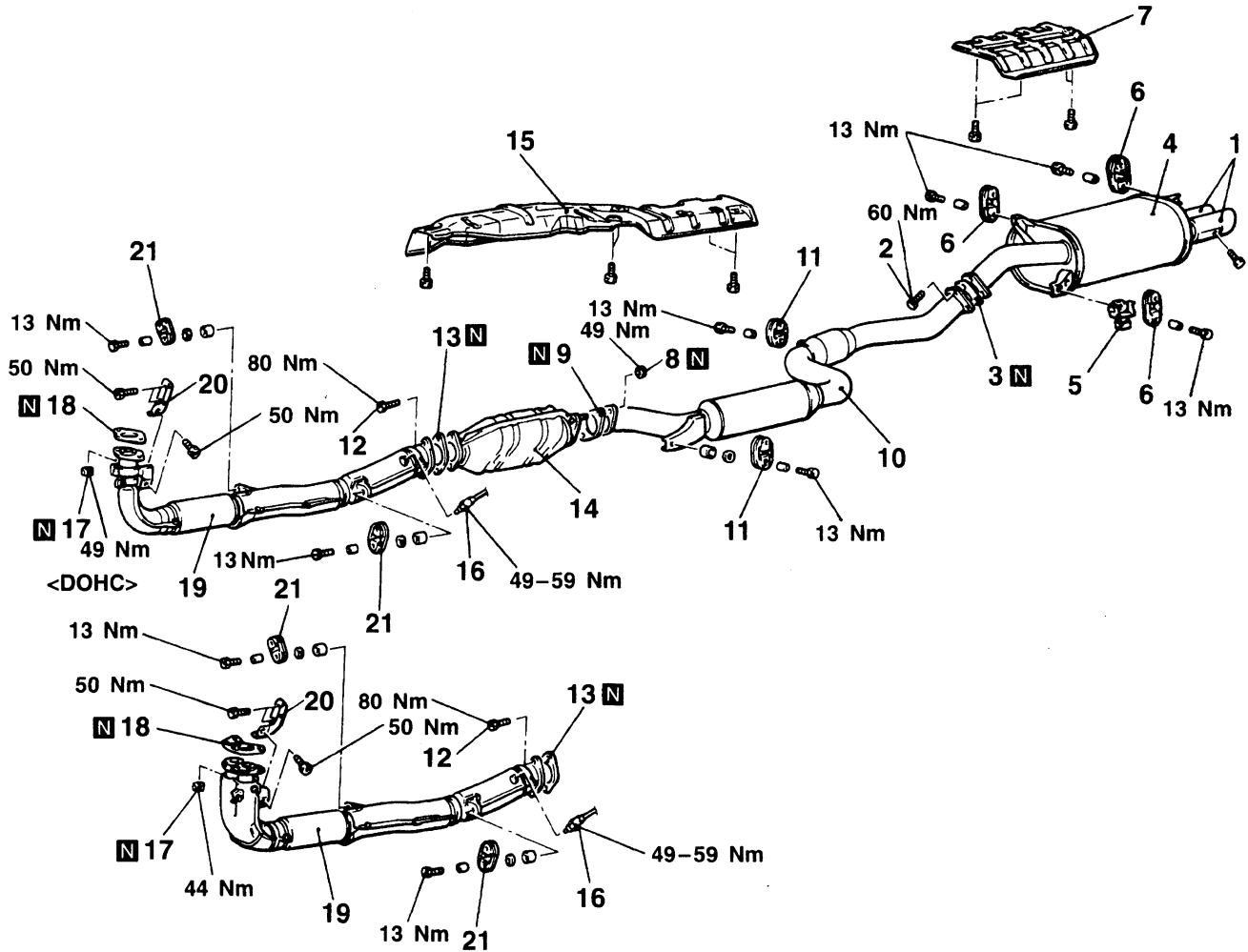
EXHAUST PIPE AND MAIN MUFFLER

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REMOVAL AND INSTALLATION

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

<SOHC>



<DOHC>

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Main muffler removal steps

1. Mouldings <DOHC>
2. Bolt
3. Gasket
4. Main muffler
5. Dynamic damper
6. Hanger
7. Rear floor heat protector panel

12. Bolt
13. Gasket
14. Catalytic converter
15. Front floor heat protector panel

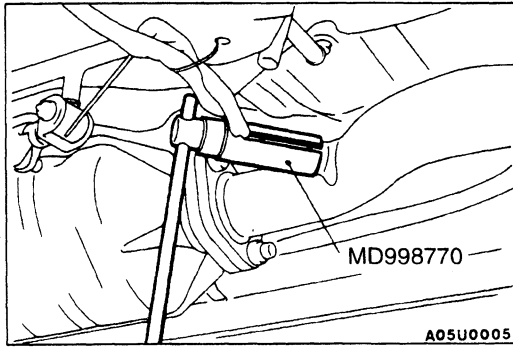
Center exhaust pipe removal steps

2. Bolt
3. Gasket
8. Self locking nuts
9. Gasket
10. Center exhaust pipe
11. Hanger

Front exhaust pipe removal steps

12. Bolt
13. Gasket
16. Oxygen sensor
17. Self locking nuts
18. Gasket
19. Front exhaust pipe
20. Front exhaust pipe bracket
21. Hanger





REMOVAL SERVICE POINT

◀A▶ OXYGEN SENSOR REMOVAL

INSTALLATION SERVICE POINT

▶A◀ OXYGEN SENSOR INSTALLATION