

## GROUP 15 INTAKE AND EXHAUST

### GENERAL

#### OUTLINE OF CHANGES

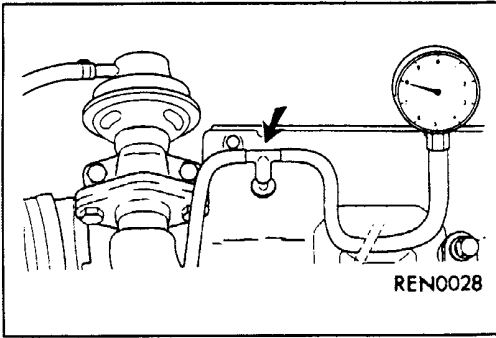
- The following service procedures have been added to correspond to the addition of the diesel-powered vehicle.

Applicable models: 1900D

1. On-vehicle Service
2. Removal and installation of the intercooler
3. Removal and installation of the intake manifold
4. Removal and installation of the exhaust manifold
5. Removal and installation of the turbocharger
6. Removal and installation of the exhaust pipe and main muffler

### SERVICE SPECIFICATIONS

Items		Standard value
Supercharging pressure kPa	at 2,000 r/min	60 – 80
	at 2,500 r/min	80 – 95
	at 3,000 r/min	80 – 95
Waste gate actuator rod movement amount mm	at 102 – 110 kPa	0.38
	at 117 – 123 kPa	4.0



## ON-VEHICLE SERVICE

### TURBOCHARGER SUPERCHARGING PRESSURE CHECK

**Caution**

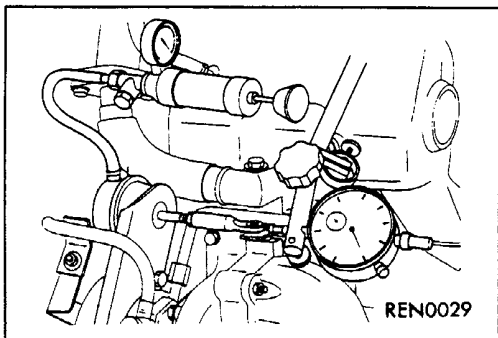
Conduct the driving test in a location where driving at full acceleration can be done with safety. Two persons should be in the vehicle when the test is conducted; the person in the passenger seat should read the indications shown by the pressure meter.

1. Disconnect the boost hose from the supercharging pressure release nipple of the intake manifold, and then connect a pressure gauge to the nipple as shown in the illustration.
2. Drive the vehicle with the engine under load (driving uphill) and with the transmission in 5th gear.
3. At an engine speed of 2,000 r/min, accelerate to full throttle and check the supercharging pressure.

**Standard value:**

Engine speed r/min	Supercharging pressure kPa
2000 ± 100	60 - 80
2500 ± 100	80 - 95
3000 ± 100	80 - 95

4. If the pressure is outside the standard value range, adjust using the wast gate actuator rod.

**WASTE GATE ACTUATOR CHECK**

1. Disconnect the boost hose from the waste gate actuator nipple.
2. Connect a manual pump (pressure-application type) to the nipple.
3. Gradually apply pressure and check the amount of movement of the rod.

**Standard value:**

Pressure kPa	Rod movement amount mm
102 - 110	0.38
117 - 123	4.0

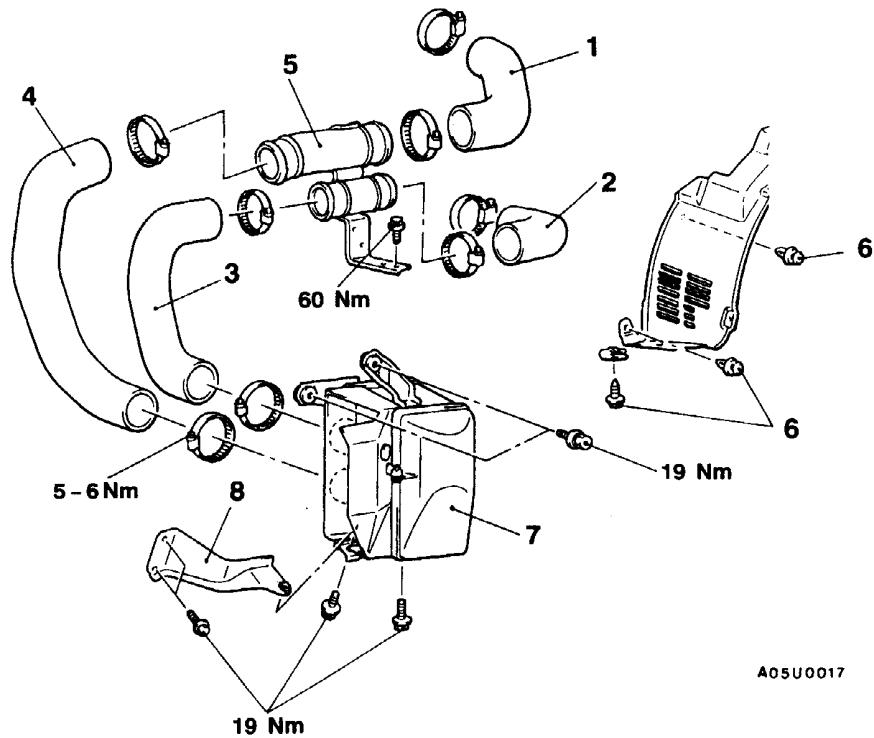
4. If the amount of movement is not at the standard value, adjust the waste gate actuator rod.

# INTERCOOLER

## REMOVAL AND INSTALLATION

**Pre-removal and Post-installation Operations**

- (1) Air Cleaner Assembly Removal and Installation
- (2) Battery and Battery Tray Removal and Installation
- (3) Under Cover Removal and Installation



A05U0017

**Removal steps**

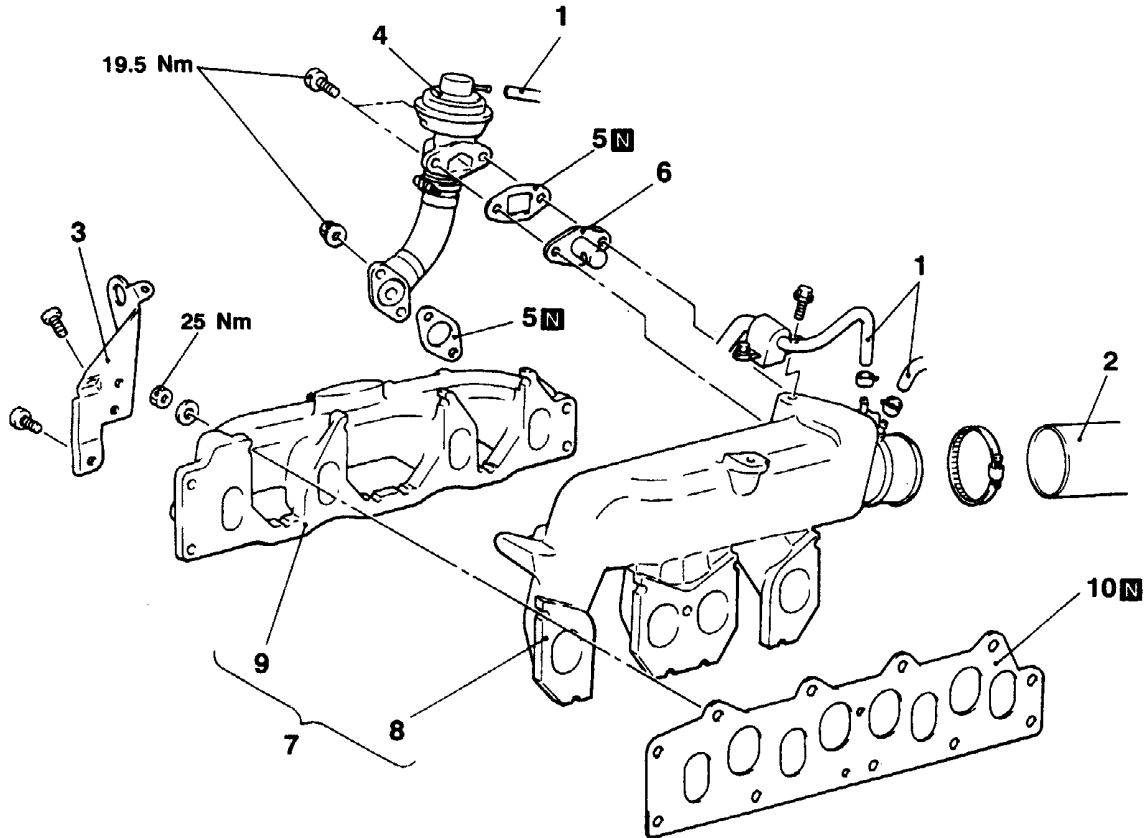
- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>1. Air hose D</li> <li>2. Air hose A</li> <li>3. Air hose B</li> <li>4. Air hose C</li> </ul> | <ul style="list-style-type: none"> <li>5. Air pipe</li> <li>6. Clip and screw</li> <li>7. Intercooler assembly</li> <li>8. Intercooler stay</li> </ul> |
|--|--|

## INTAKE MANIFOLD AND EXHAUST MANIFOLD

### REMOVAL AND INSTALLATION

**Pre-removal and Post-installation Operation**

- Turbocharger Assembly Removal and Installation (Refer to P.15-5.)



A05U0015

**Removal steps**

1. Vacuum hoses connection
2. Air hose D connection
3. Engine hanger
4. EGR valve and pipe assembly
5. Gasket
6. Spacer
7. Intake and Exhaust manifold assembly
8. Intake manifold
9. Exhaust manifold
10. Intake and exhaust manifold gasket

**TURBOCHARGER**

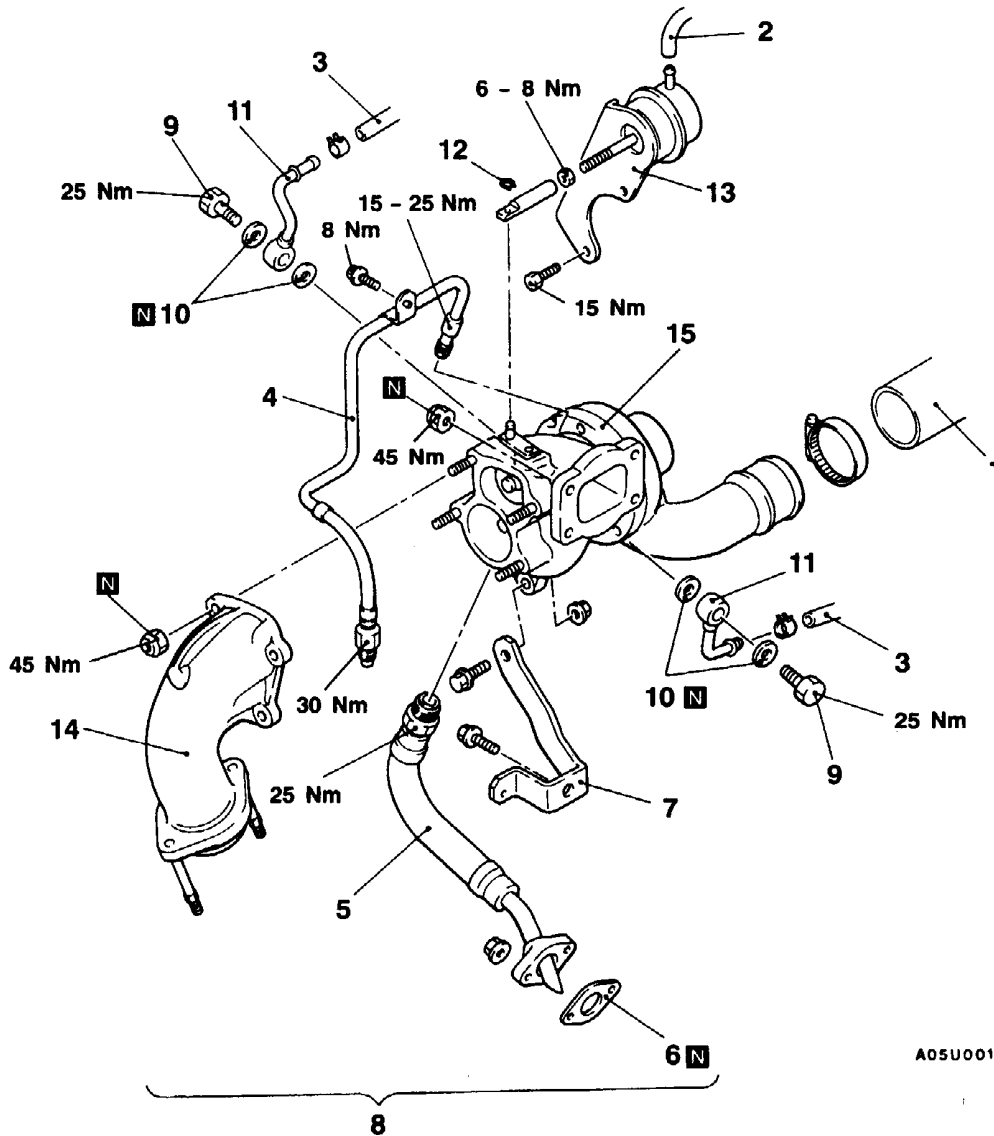
**REMOVAL AND INSTALLATION**

**Pre-removal Operation**

- (1) Engine Coolant Draining
- (2) Air Cleaner and Air Intake Hose Removal
- (3) Downpipe Assembly Removal (Refer to P.15-6.)

**Post-installation Operation**

- (1) Downpipe Assembly Installation (Refer to P.15-6.)
- (2) Air Cleaner and Air Intake Hose Installation
- (3) Engine Coolant Supplying
- (4) Engine Oil Check and Topping-up



A05U0016

**Removal steps**

- 1. Air hose A connection
- 2. Vacuum hose connection
- 3. Engine coolant hoses connection
- 4. Oil pipe assembly
- 5. Oil return pipe assembly
- 6. Gasket
- 7. Turbo support bracket
- 8. Turbocharger assembly

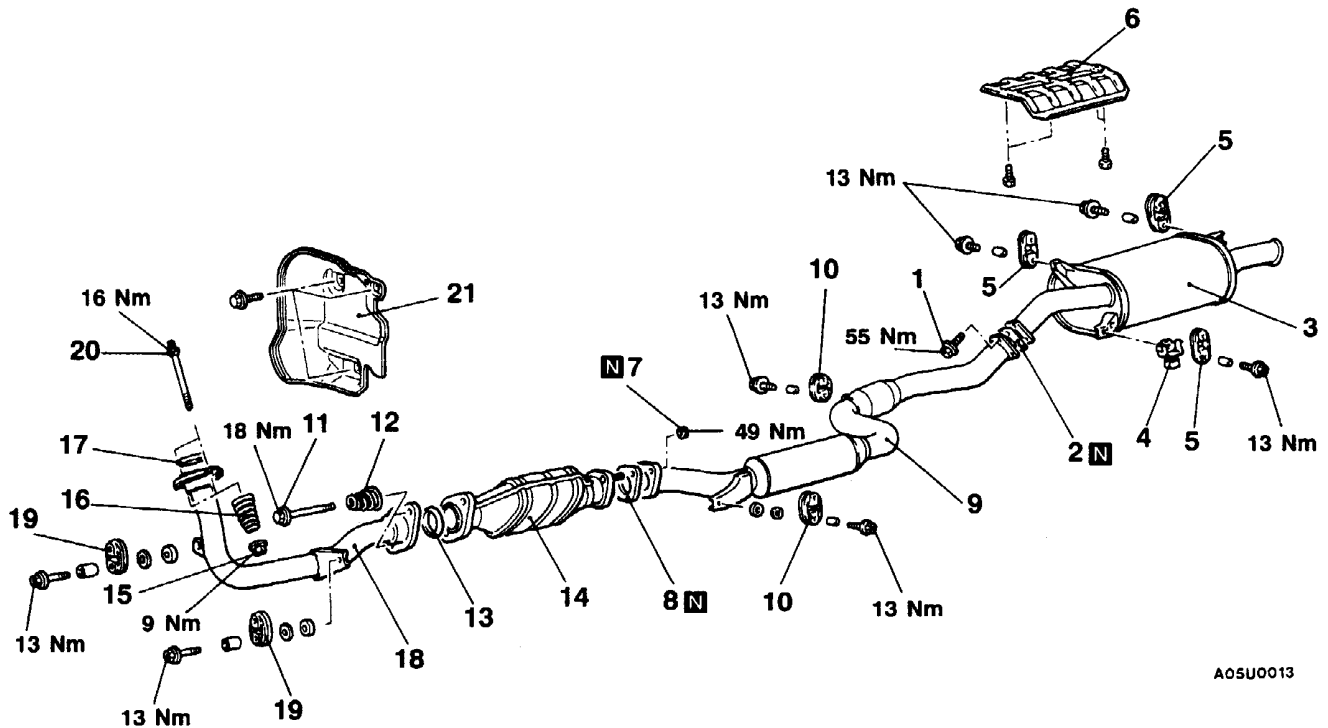
- 9. Eye bolt
- 10. Gasket
- 11. Water pipe
- 12. Circlip
- 13. Westgate assembly
- 14. Exhaust fitting
- 15. Turbocharger

## EXHAUST PIPE AND MAIN MUFFLER

## REMOVAL AND INSTALLATION

## Pre-removal and Post-installation Operation

- Under Cover Removal and Installation



A05U0013

**Main muffler removal steps**

1. Bolt
2. Gasket
3. Main muffler
4. Dynamic damper
5. Hanger
6. Rear floor heat protector panel

**Center exhaust pipe removal steps**

1. Bolt
2. Gasket
7. Self locking nuts
8. Gasket
9. Center exhaust pipe
10. Hanger
11. Flanged shoulder bolts
12. Conical spring
13. Sealing ring
14. Catalytic converter

**Downpipe assembly removal steps**

11. Flanged shoulder bolts
12. Conical spring
13. Sealing ring
15. Flange nuts
16. Spring
17. Sealing ring
18. Downpipe assembly
19. Hanger
20. Stud
21. Dash heat protector panel