

---

# FUEL SYSTEM

---

## MULTIPOINT FUEL INJECTION

### CONTENTS

1. SPECIFICATIONS .....	13A-1-1
SERVICE SPECIFICATIONS .....	13A-1-1
TORQUE SPECIFICATIONS .....	13A-1-1
2. INJECTORS AND THROTTLE BODY .....	13A-2-1

**1. SPECIFICATIONS****SERVICE SPECIFICATIONS**

	Standard
Injector coil resistance [at 20°C (68°F)]	
Standard type .....	2 – 3 Ω
Highmic type .....	13 – 16 Ω

**TORQUE SPECIFICATIONS**

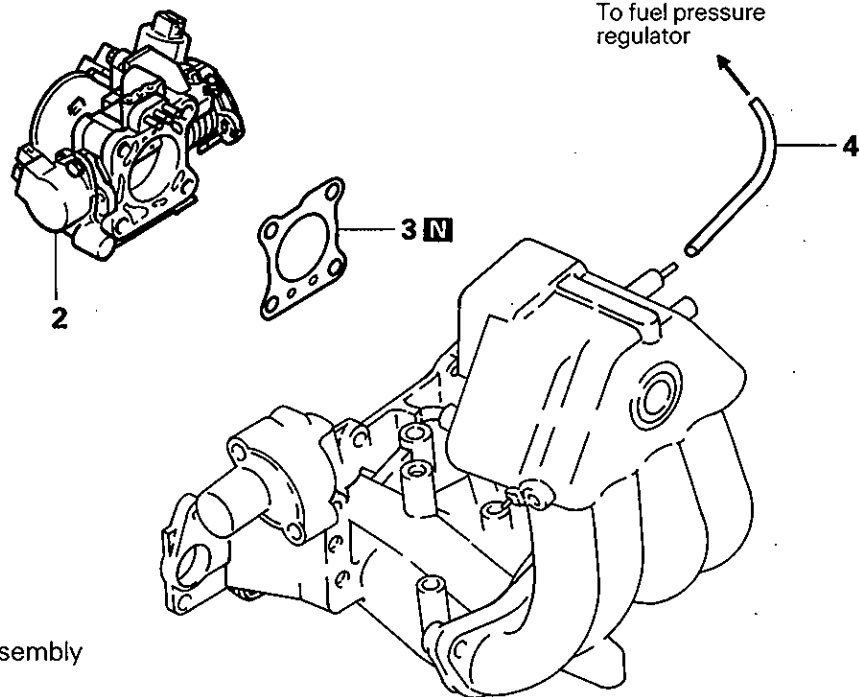
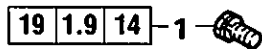
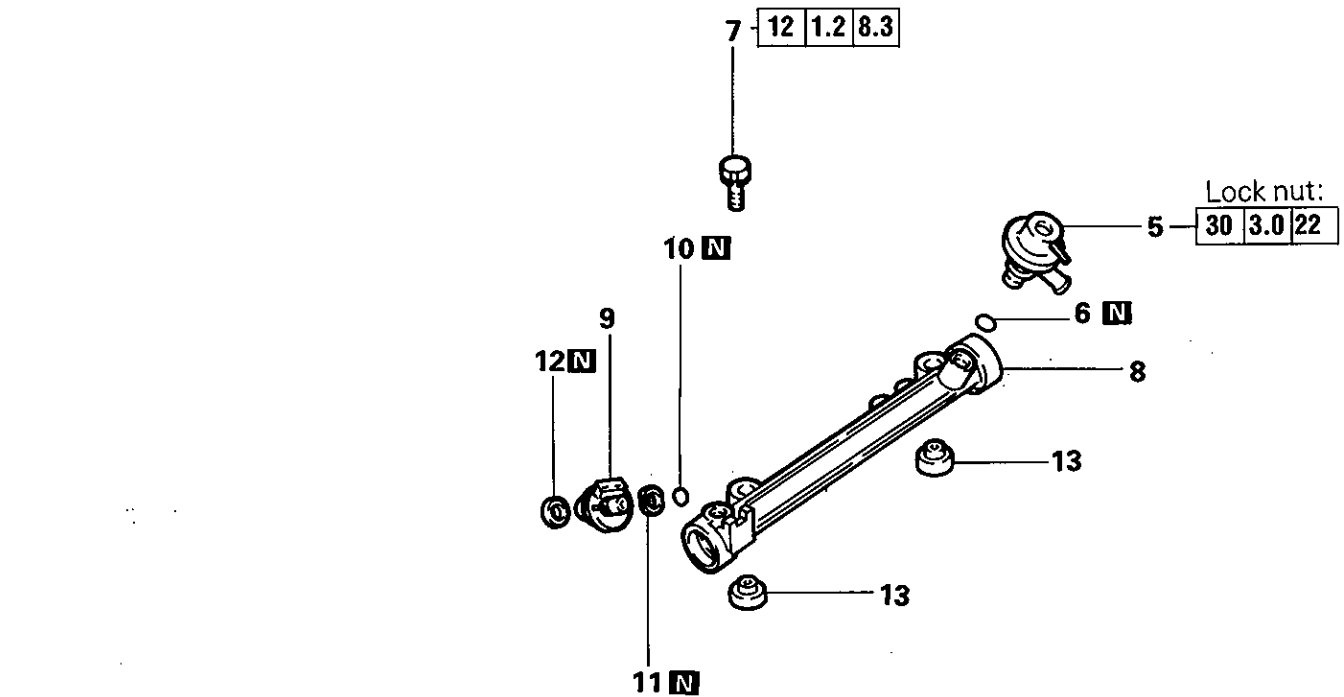
	Nm	Torque kgm	ft.lbs.
Delivery pipe attaching bolt .....	12	1.2	8.3
Fuel pressure regulator lock nut .....	30	3.0	22
(Screw-on type)			
Fuel pressure regulator attaching bolt .....	9	0.9	6.6
(Flange type)			
Throttle body assembly attaching bolt			
Bolt with head mark "4" .....	12	1.2	8.3
Bolt with head mark "7" .....	19	1.9	14
Fuel return pipe .....	10	1.0	7.2
Throttle body assembly attaching nut .....	19	1.9	14
Throttle position sensor attaching screw .....	2.0	0.2	1.5
Idle speed control servo attaching screw .....	3.5	0.35	2.5

---

## NOTES

## 2. INJECTORS AND THROTTLE BODY

### REMOVAL AND INSTALLATION – 4G64 for L300

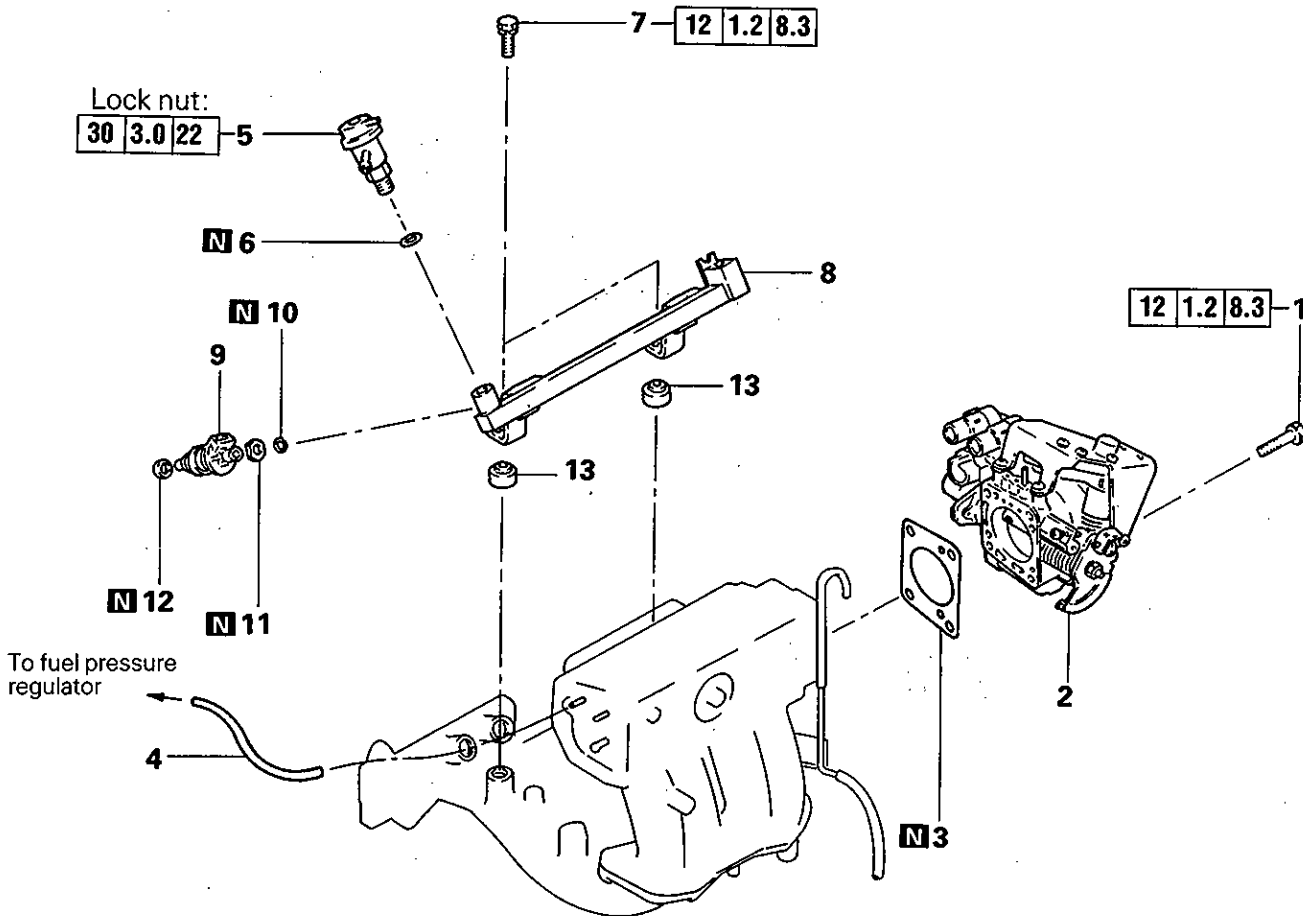


#### Removal steps

- 1. Bolt
- ◊A◊ 2. Throttle body assembly
- ▶D▶ 3. Gasket
- ▶C▶ 4. Vacuum hose
- ▶C▶ 5. Fuel pressure regulator
- 6. O-ring
- 7. Bolt
- ◊B◊ 8. Delivery pipe
- ◊B◊ ▶A▶ 9. Injector
- 10. O-ring
- 11. Grommet
- 12. Insulator
- 13. Insulator

# 13A-2-2 MULTIPOINT FUEL INJECTION – Injectors and Throttle Body

## REMOVAL AND INSTALLATION – 4G64 for Galant VX Hardtop, Sapporo

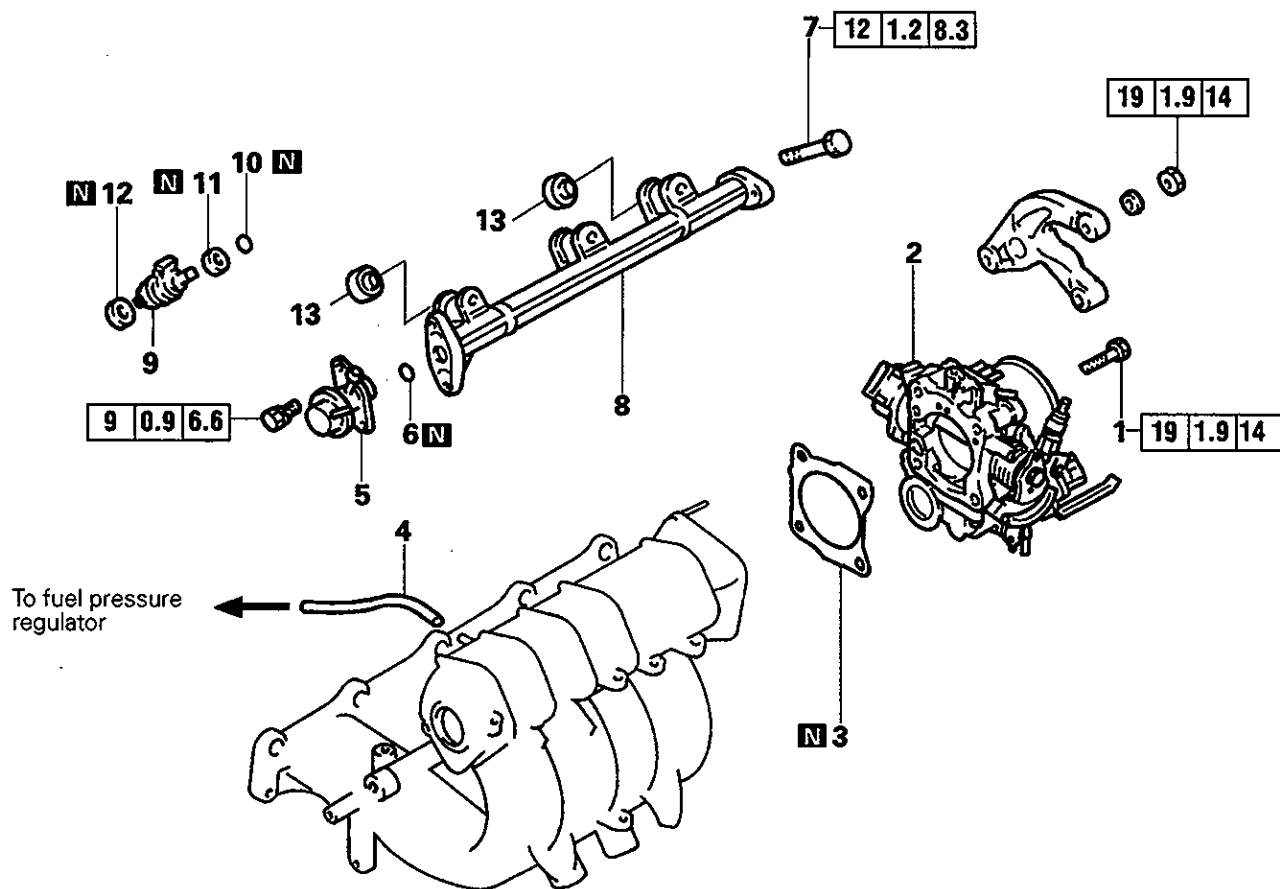


### Removal steps

1. Bolt
- ◊A◊ 2. Throttle body assembly
- ◊D◊ 3. Gasket
4. Vacuum hose
- ◊C◊ 5. Fuel pressure regulator
6. O-ring
7. Bolt
- ◊B◊ 8. Delivery pipe
- ◊B◊ ◊A◊ 9. Injector
10. O-ring
11. Grommet
12. Insulator
13. Insulator

6FU0164

REMOVAL AND INSTALLATION – 4G61 (DOHC), 4G67 (DOHC) AND 4G63 (DOHC)

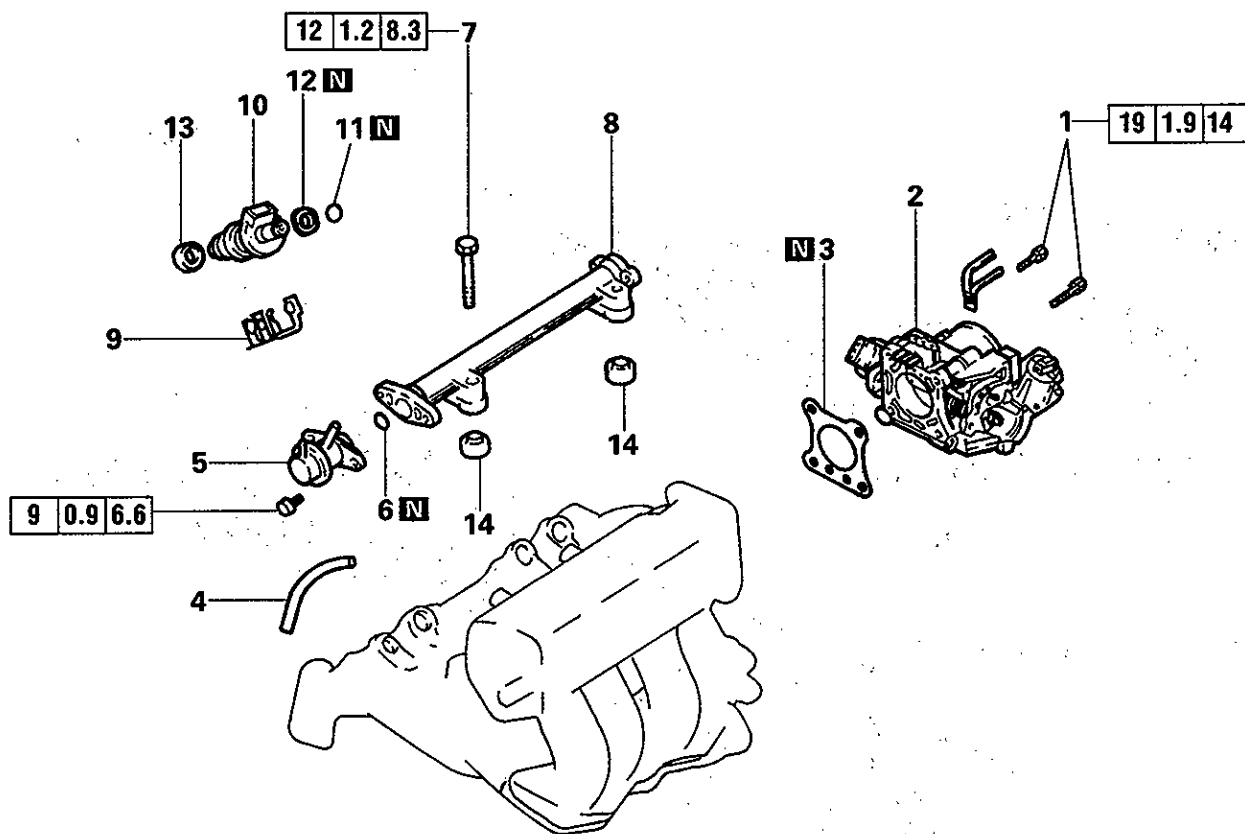


**Removal steps**

- 1. Bolt
- ◇A◇ 2. Throttle body assembly
- ▶D▶ 3. Gasket
- 4. Vacuum hose
- ▶C▶ 5. Fuel pressure regulator
- 6. O-ring
- 7. Bolt
- ◇B◇ 8. Delivery pipe
- ◇B◇▶A▶ 9. Injector
- 10. O-ring
- 11. Grommet
- 12. Insulator
- 13. Insulator

# 13A-2-4 MULTIPOINT FUEL INJECTION – Injectors and Throttle Body

## REMOVAL AND INSTALLATION – 4G13, 4G15, 4G37, 4G91, 4G92, 4G93, 4G63 for Galant, Space Wagon and 4G64 for Space Wagon

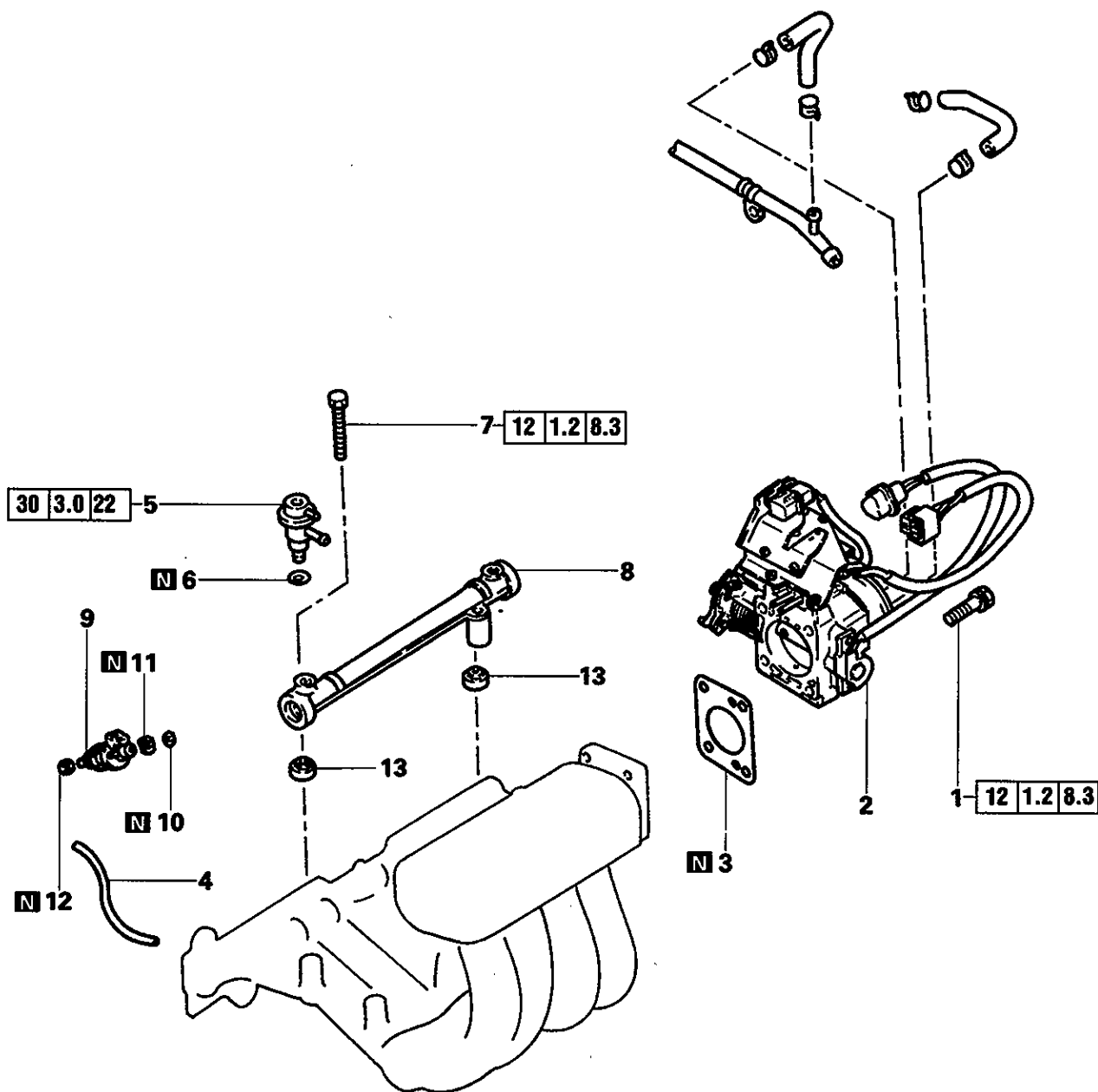


### Removal steps

1. Bolt
2. Throttle body assembly
- ◆D◆ 3. Gasket
4. Vacuum hose
- ◆C◆ 5. Fuel pressure regulator
6. O-ring
7. Bolt
- ◁A◇ 8. Delivery pipe
- ◆B◆ 9. Injector support (4G13 and 4G64 for 1994 and subsequent models, 4G93 for 1993 and preceding models)
- ◁A◇◆A◆ 10. Injector
11. O-ring
12. Grommet
13. Insulator
14. Insulator

1FU0672

REMOVAL AND INSTALLATION - 4G63 for Space Wagon

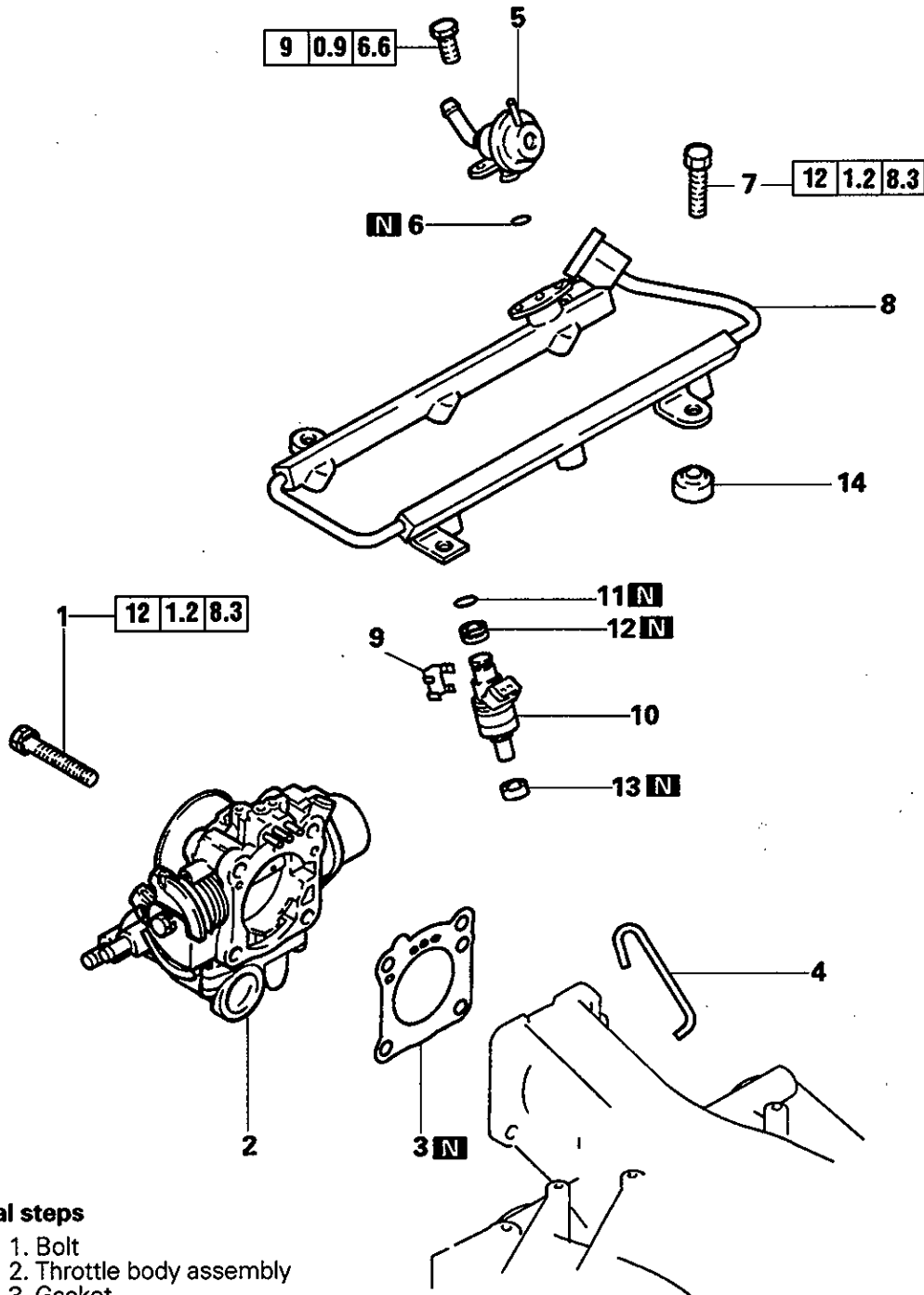


**Removal steps**

- 1. Bolt
- ⟨A⟩ 2. Throttle body assembly
- ↗D↖ 3. Gasket
- 4. Vacuum hose
- ↗C↖ 5. Fuel pressure regulator
- 6. O-ring
- 7. Bolt
- ⟨B⟩ 8. Delivery pipe
- ⟨B⟩ ↗A↖ 9. Injector
- 10. O-ring
- 11. Grommet
- 12. Insulator
- 13. Insulator



REMOVAL AND INSTALLATION – 6G72 for Pajero, 6G72 for L200

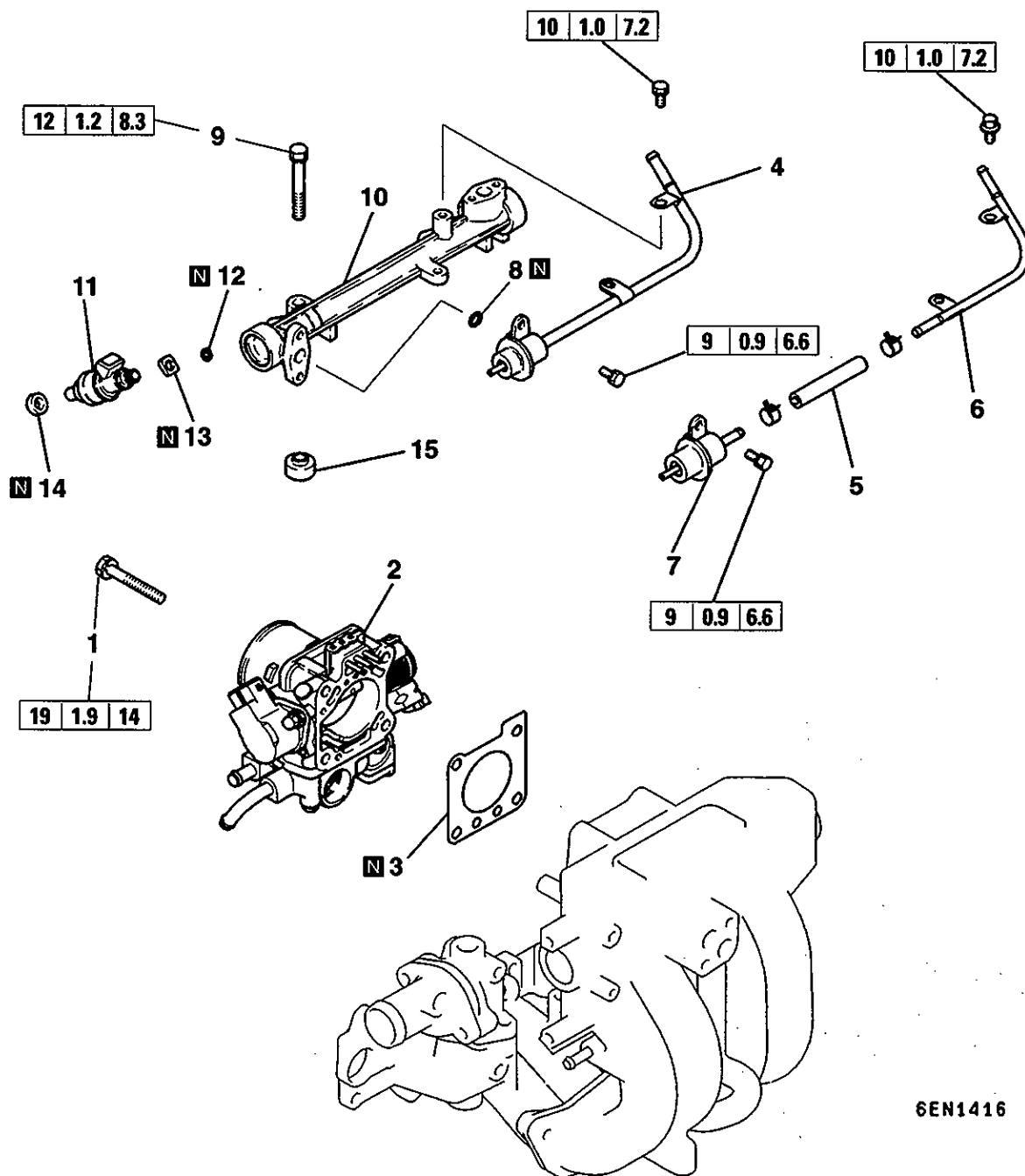


**Removal steps**

- 1. Bolt
- ◁A▷ 2. Throttle body assembly
- ▷D◁ 3. Gasket
- 4. Vacuum hose
- ▷C◁ 5. Fuel pressure regulator
- 6. O-ring
- 7. Bolt
- ◁B▷ 8. Delivery pipe
- ▷B◁ 9. Injector support  
(1995 and later Pajero/Montero)
- ◁B▷ ▷A◁ 10. Injector
- 11. O-ring
- 12. Grommet
- 13. Insulator
- 14. Insulator

7FU1563

REMOVAL AND INSTALLATION – 4G64 (SOHC 8-VALVE) for Pajero/Montero and 4G64 (SOHC 8-VALVE) for L200



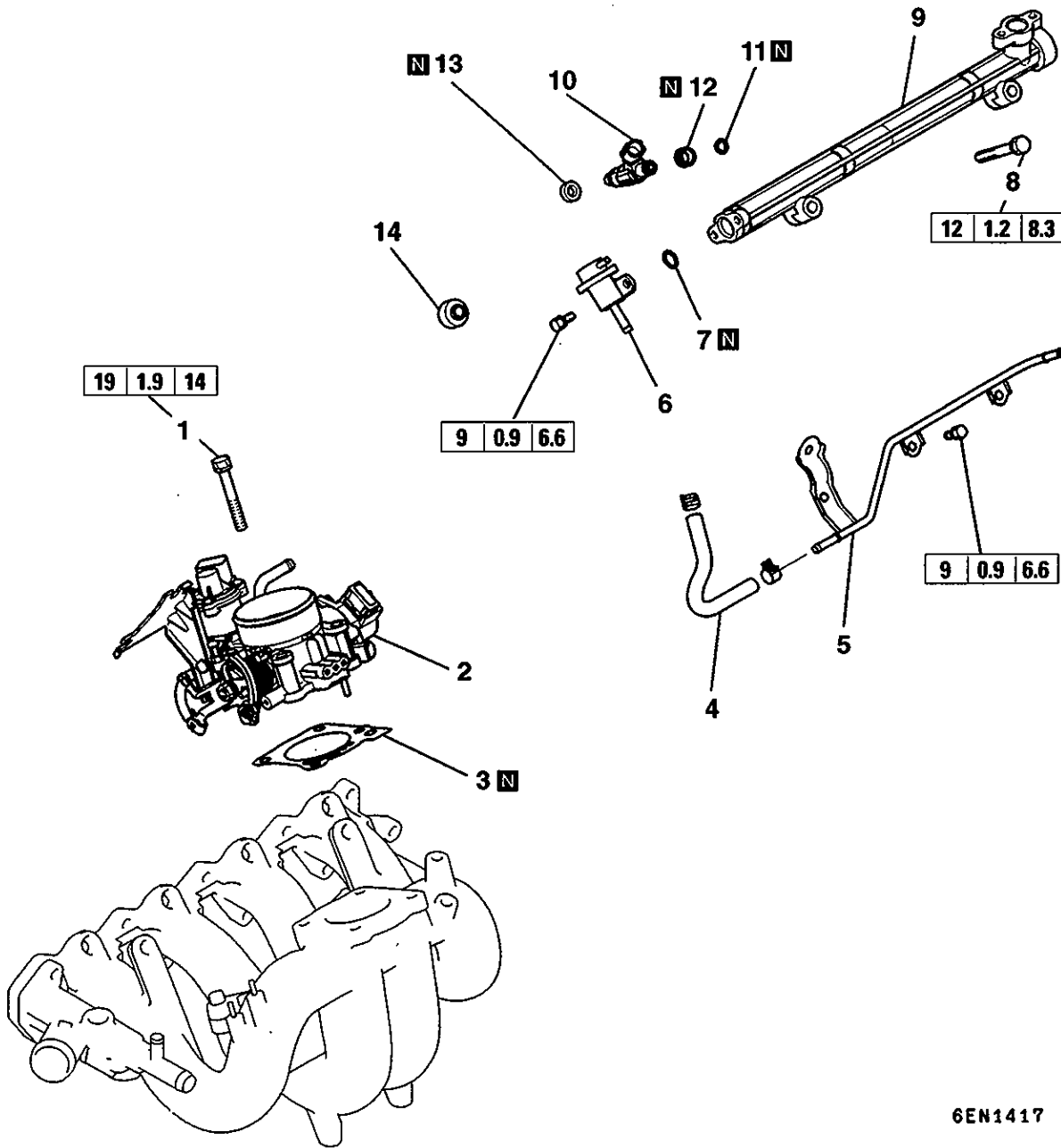
6EN1416

**Removal steps**

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>1. Bolt</li> <li>◊A◊ 2. Throttle body assembly</li> <li>▶C◄ 3. Gasket</li> <li>4. Fuel pressure regulator (Pajero/Montero – up to Oct. 1993, and L200)</li> <li>5. Fuel hose</li> <li>▶B◄ 6. Fuel return pipe (Pajero/Montero – from Nov. 1993)</li> <li>7. Fuel pressure regulator (Pajero/Montero – from Nov. 1993)</li> </ul> | <ul style="list-style-type: none"> <li>8. O-ring</li> <li>9. Bolt</li> <li>◊B◄ 10. Delivery pipe</li> <li>◊B◄▶A◄ 11. Injector</li> <li>12. O-ring</li> <li>13. Grommet</li> <li>14. Insulator</li> <li>15. Insulator</li> </ul> |
|---|---|

# 13A-2-7a MULTIPOINT FUEL INJECTION – Injectors and Throttle Body

## REMOVAL AND INSTALLATION – 4G6 (SOHC 16-VALVE) for L400 and 4G6 (SOHC 16-VALVE) for L300

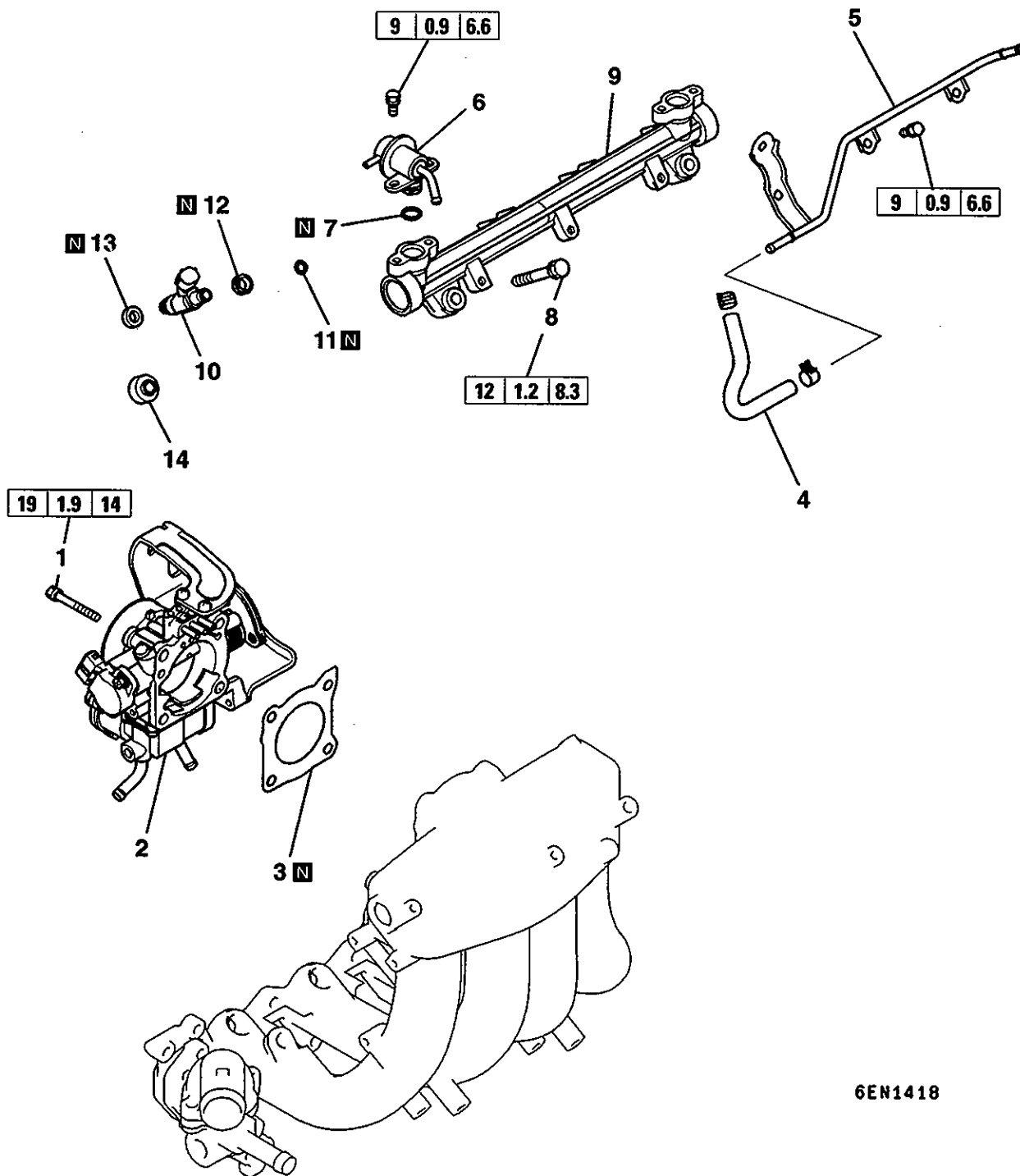


6EN1417

### Removal steps

- |  |   |
|--|---|
| <p>1. Bolt</p> <p>◁A▷ 2. Throttle body assembly</p> <p>▷C◁ 3. Gasket</p> <p>4. Fuel hose</p> <p>5. Fuel return pipe</p> <p>▷B◁ 6. Fuel pressure regulator</p> <p>7. O-ring</p> | <p>8. Bolt</p> <p>9. Delivery pipe</p> <p>◁B▷ ◁A▷ 10. Injector</p> <p>11. O-ring</p> <p>12. Grommet</p> <p>13. Insulator</p> <p>14. Insulator</p> |
|--|---|

REMOVAL AND INSTALLATION – 4G64 (SOHC 16-VALVE) for Pajero/Montero

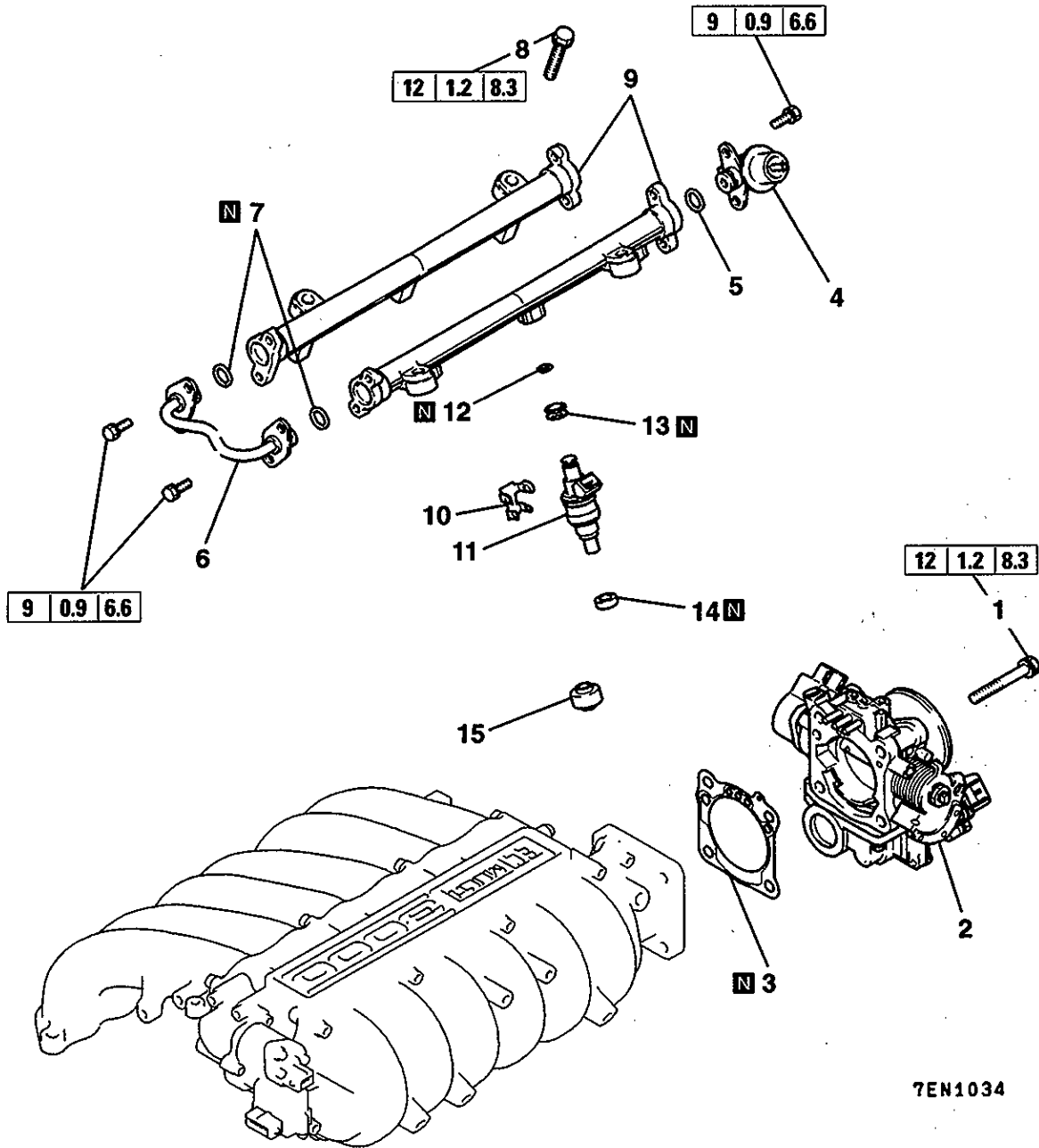


6EN1418

**Removal steps**

- |                                |                      |
|--------------------------------|----------------------|
| 1. Bolt                        | 8. Bolt              |
| ↙A↘ 2. Throttle body assembly  | ↙B↘ 9. Delivery pipe |
| ↙C↘ 3. Gasket                  | ↙B↘ ↙A↘ 10. Injector |
| 4. Fuel hose                   | 11. O-ring           |
| 5. Fuel return pipe            | 12. Grommet          |
| ↙B↘ 6. Fuel pressure regulator | 13. Insulator        |
| 7. O-ring                      | 14. Insulator        |

REMOVAL AND INSTALLATION – 6A12, 6G72 for Diamante, Sigma, Magna and 3000GT, 6G73 for Galant

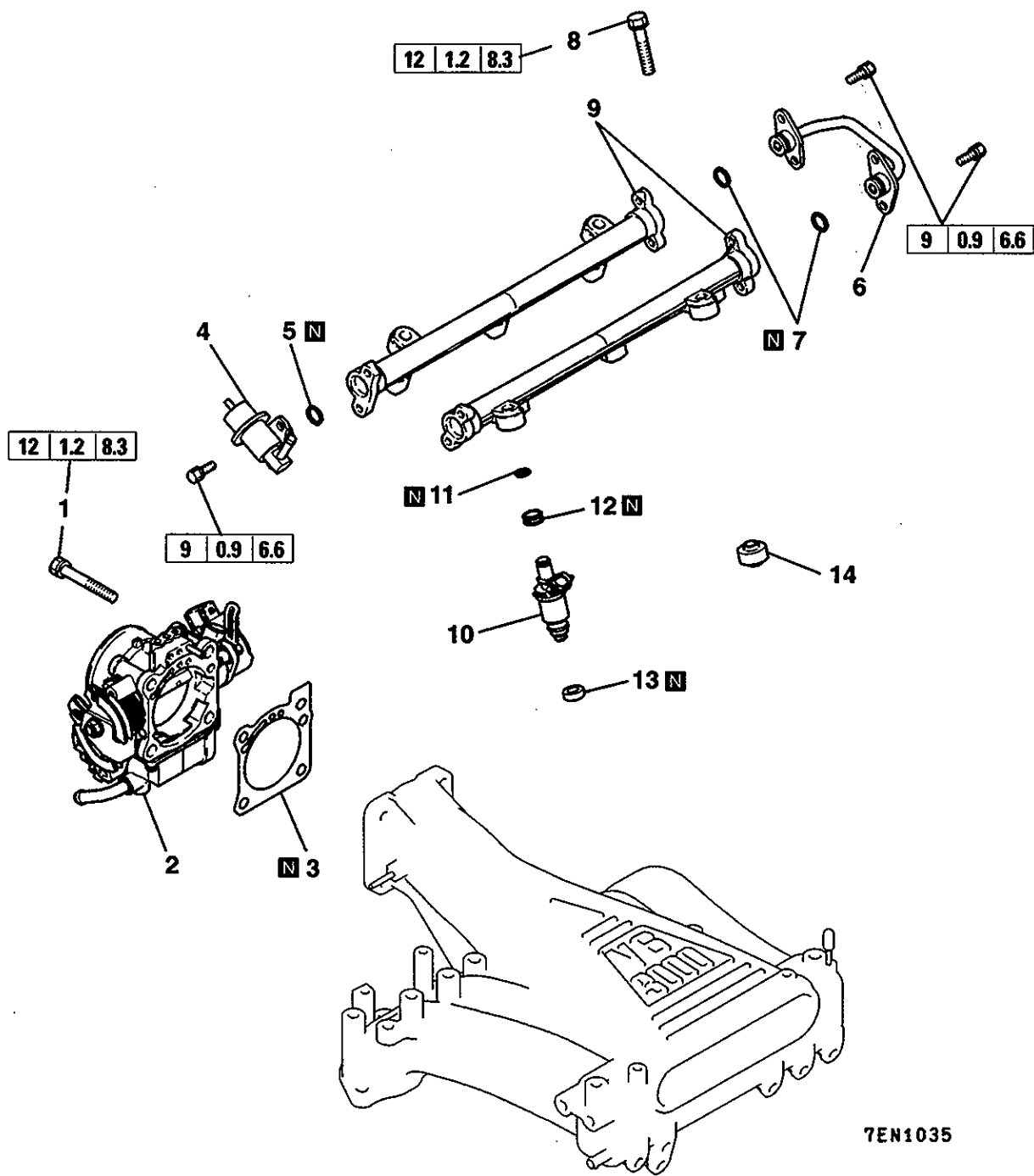


7EN1034

**Removal steps**

- |   |   |
|---|---|
| <p>1. Bolt<br/>                 ◁A▷ 2. Throttle body assembly<br/>                 ▷D▷ 3. Gasket<br/>                 ▷C▷ 4. Fuel pressure regulator<br/>                 5. O-ring<br/>                 6. Fuel pipe<br/>                 7. O-ring<br/>                 8. Bolt</p> | <p>◁B▷ 9. Delivery pipe<br/>                 ▷B▷ 10. Injector support (Up to 1995 model)<br/>                 ◁B▷ ▷A▷ 11. Injector<br/>                 12. O-ring<br/>                 13. Grommet<br/>                 14. Insulator<br/>                 15. Insulator</p> |
|---|---|

**REMOVAL AND INSTALLATION – 6G72 (SOHC – 24-VALVE) for Pajero/Montero and L400**



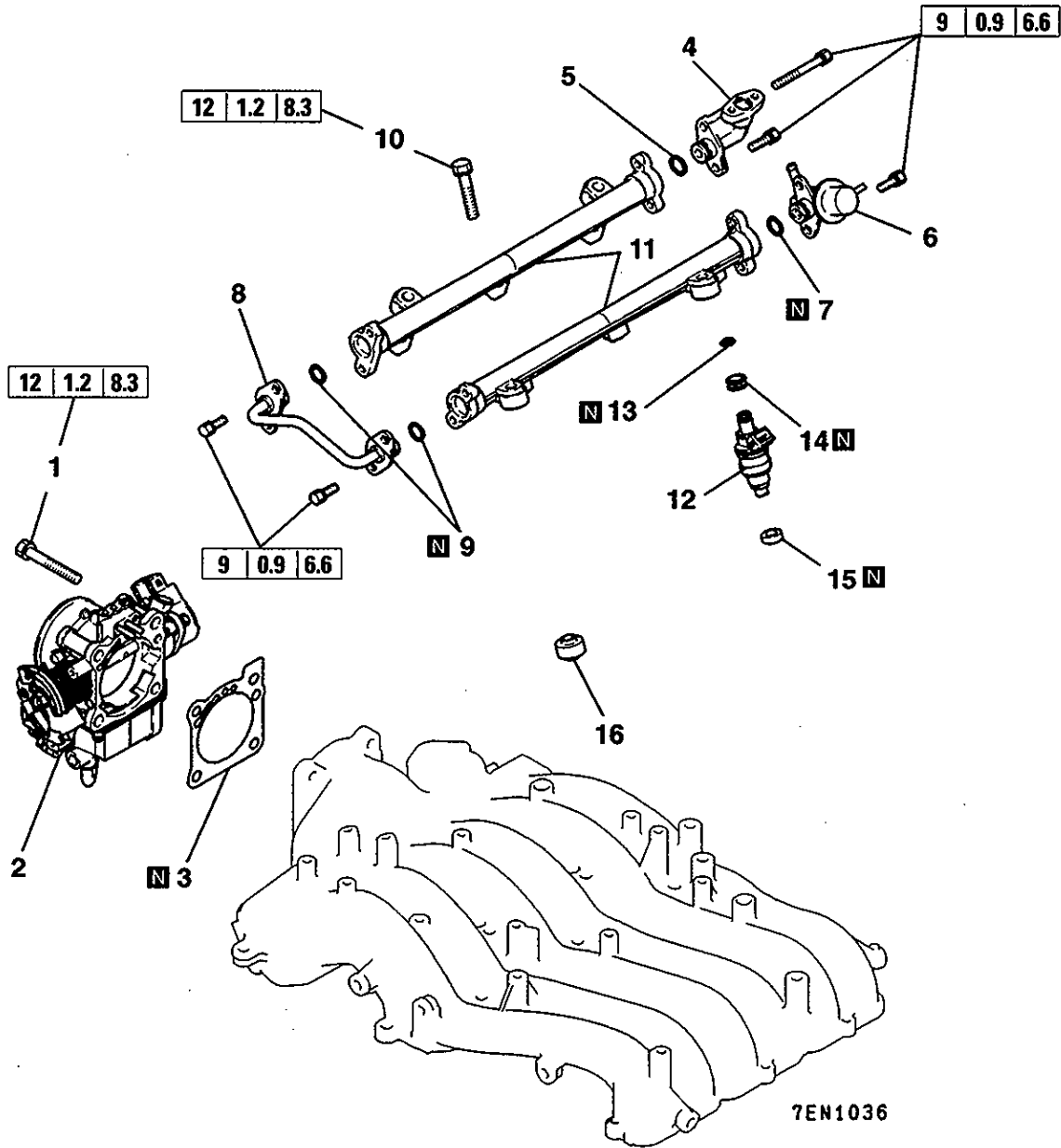
**Removal steps**

- 1. Bolt
- ◁A▷ 2. Throttle body assembly
- ▷C◁ 3. Gasket
- ▷B◁ 4. Fuel pressure regulator
- 5. O-ring
- 6. Fuel pipe
- 7. O-ring

- 8. Bolt
- ◁B▷ 9. Delivery pipe
- ◁B▷ ▷A◁ 10. Injector
- 11. O-ring
- 12. Grommet
- 13. Insulator
- 14. Insulator

7EN1035

## REMOVAL AND INSTALLATION – 6G74



### Removal steps

- 1. Bolt
- ◊A◊ 2. Throttle body assembly
- ◊C◊ 3. Gasket
- ◊B◊ 4. Fuel inlet fitting
- 5. O-ring
- ◊B◊ 6. Fuel pressure regulator
- 7. O-ring
- 8. Fuel pipe

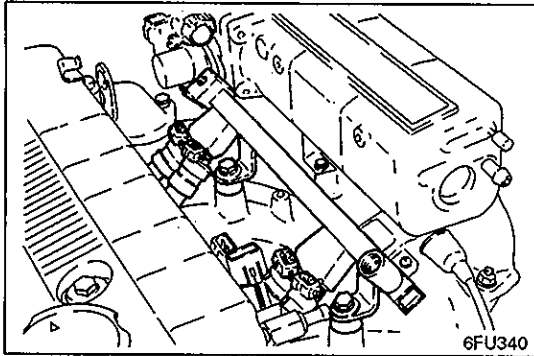
- 9. O-ring
- 10. Bolt
- ◊B◊ 11. Delivery pipe
- ◊B◊ ◊A◊ 12. Injector
- 13. O-ring
- 14. Grommet
- 15. Insulator
- 16. Insulator

**SERVICE POINTS OF REMOVAL**

**◁A▷ REMOVAL OF THROTTLE BODY ASSEMBLY**

- (1) Do not remove the throttle valve.
- (2) Clean all parts with shop towel. Do not use solvent to clean the following parts:
  - Throttle position sensor
  - Variable resistor
  - Idle-speed control servo

If these parts are immersed in solvent, their insulation will deteriorate. Wipe them only with a cloth.



**◁B▷ REMOVAL OF DELIVERY PIPE / INJECTORS**

- (1) When removing the delivery pipe assembly, the injectors are likely to come loose. Take care not to drop the injectors.

**INSPECTION**

The inspection of the throttle position sensor, idle speed control servo, motor position sensor and idle position switch is covered in Group 13 – Fuel of the applicable chassis Workshop Manual.

**INJECTORS**

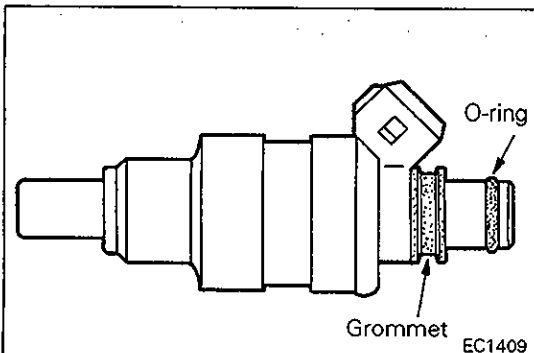
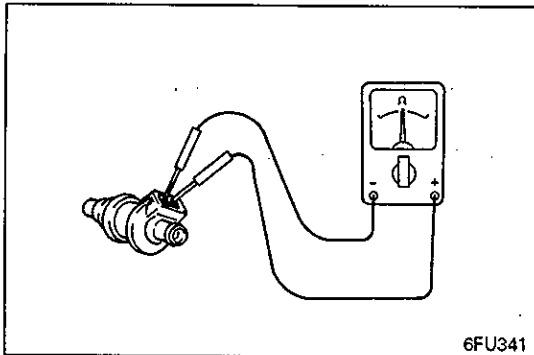
- (1) Measure resistance of the injector coils using a circuit tester.

**Standard value:**

**Standard type** ..... 2 – 3 Ω [at 20°C (68°F)]

**Hiohmic type** ..... 13 – 16 Ω [at 20°C (68°F)]

- (2) If the resistance is out of specification, replace the injector.



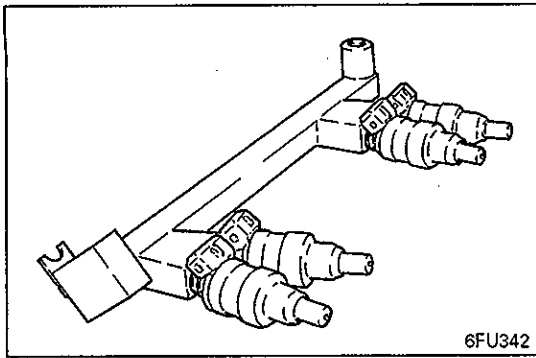
**SERVICE POINTS OF INSTALLATION**

**▷A◁ INSTALLATION OF INJECTORS**

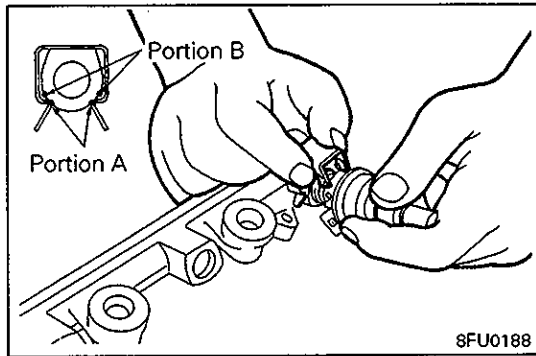
- (1) Fit a new grommet and O-ring on the injector.
- (2) Coat the O-ring with oil.



## 13A-2-10 MULTIPOINT FUEL INJECTION – Injectors and Throttle Body

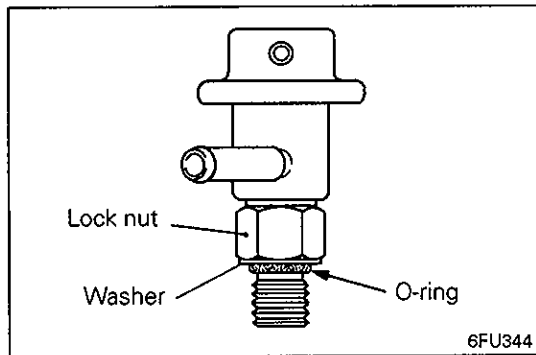


- (3) Install the injector onto the delivery pipe while turning the injector in both directions. Make sure that the injector turns smoothly.  
If the injector does not turn smoothly, the cause is the O-ring which can bind in the delivery pipe.



### ▶◀ INSTALLATION OF INJECTOR SUPPORT

- (1) Install the injector support onto the injector, aligning the projections of the injector support with the recesses in the injector.
- (2) Confirm that the injector support is in close contact with the delivery pipe. Confirm also that the portion A of the support is positioned as shown with respect to the portion B of the delivery pipe.

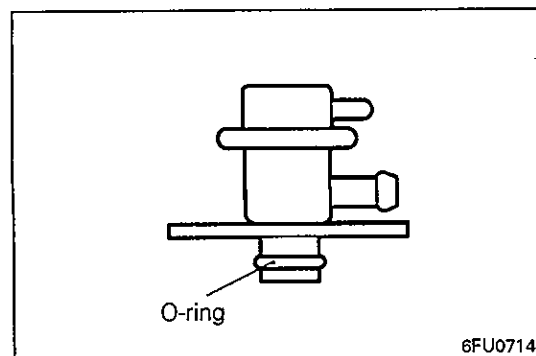


### ▶◀ INSTALLATION OF FUEL PRESSURE REGULATOR – Screw-on type

- (1) Back off the lock nut until it stops against the regulator.
- (2) Install a new O-ring onto the regulator.
- (3) Coat the O-ring with oil.
- (4) Install the pressure regulator onto the delivery pipe by turning the regulator with fingers.

- (5) Turn back the regulator until its nipple is correctly positioned (within one turn).
- (6) Secure the regulator in position by tightening the lock nut to the specified torque.

**Tightening torque: 30 Nm (3 kgm, 22 ft.lbs.)**



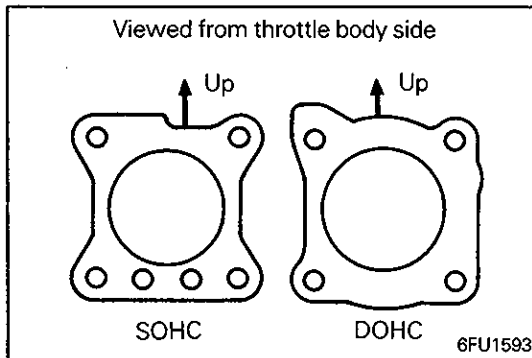
### ▶◀ INSTALLATION OF FUEL PRESSURE REGULATOR – Flange type

- (1) Install a new O-ring on the regulator.
- (2) Coat the new O-ring with oil.

- (3) With its nipple correctly positioned, insert the pressure regulator squarely into the delivery pipe.
- (4) Make sure that the fuel pressure regulator turns smoothly. Then, align the threaded holes and tighten the bolts to specification.

If the regulator does not turn smoothly, the cause is the O-ring which can bind in the delivery pipe.

**Tightening torque: 9 Nm (0.9 kgm, 6.6 ft.lbs.)**



## ◆◆ INSTALLATION OF GASKET

The gasket should be installed in the specified direction. Install correctly as shown in the illustration.

---

## NOTES