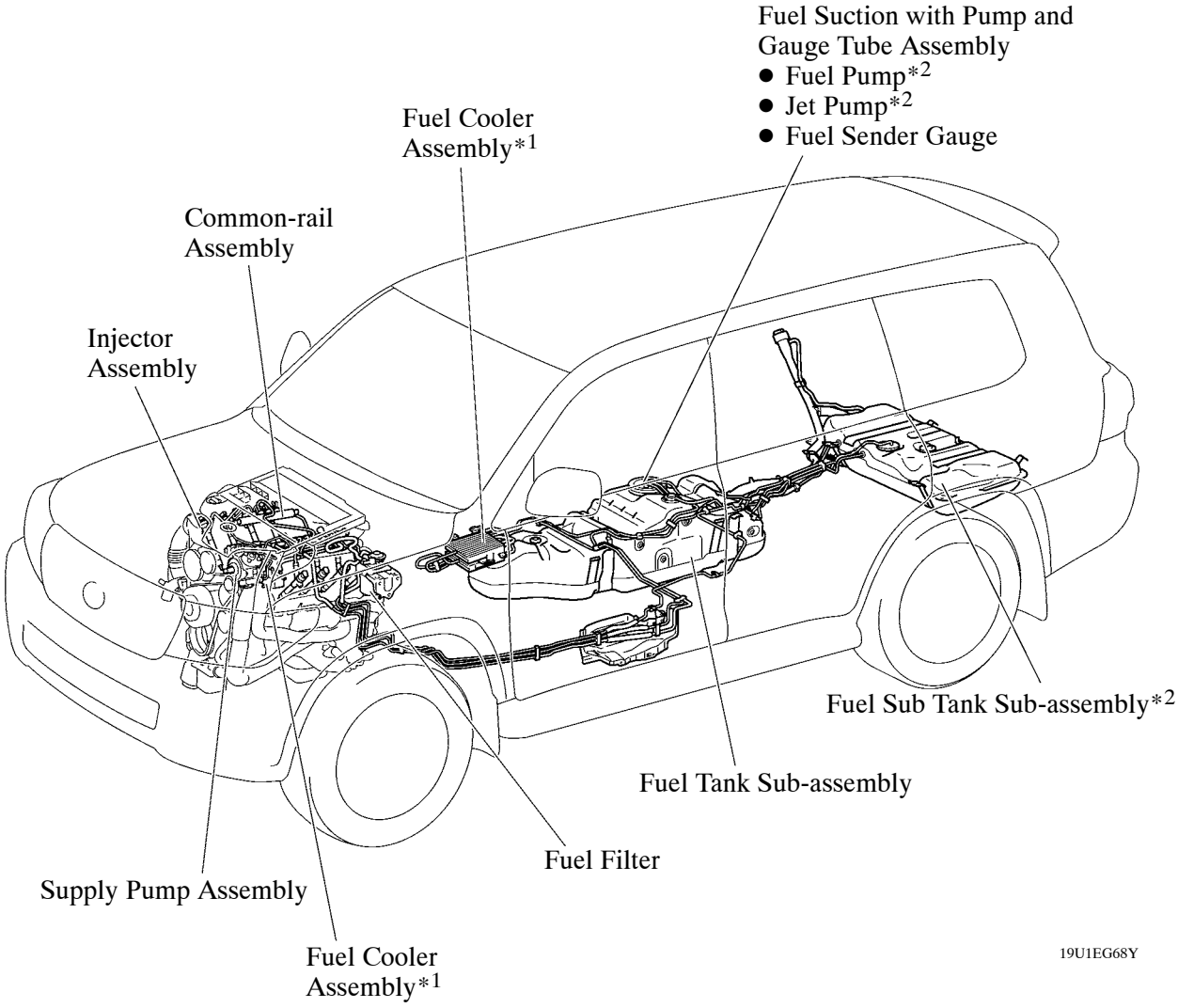
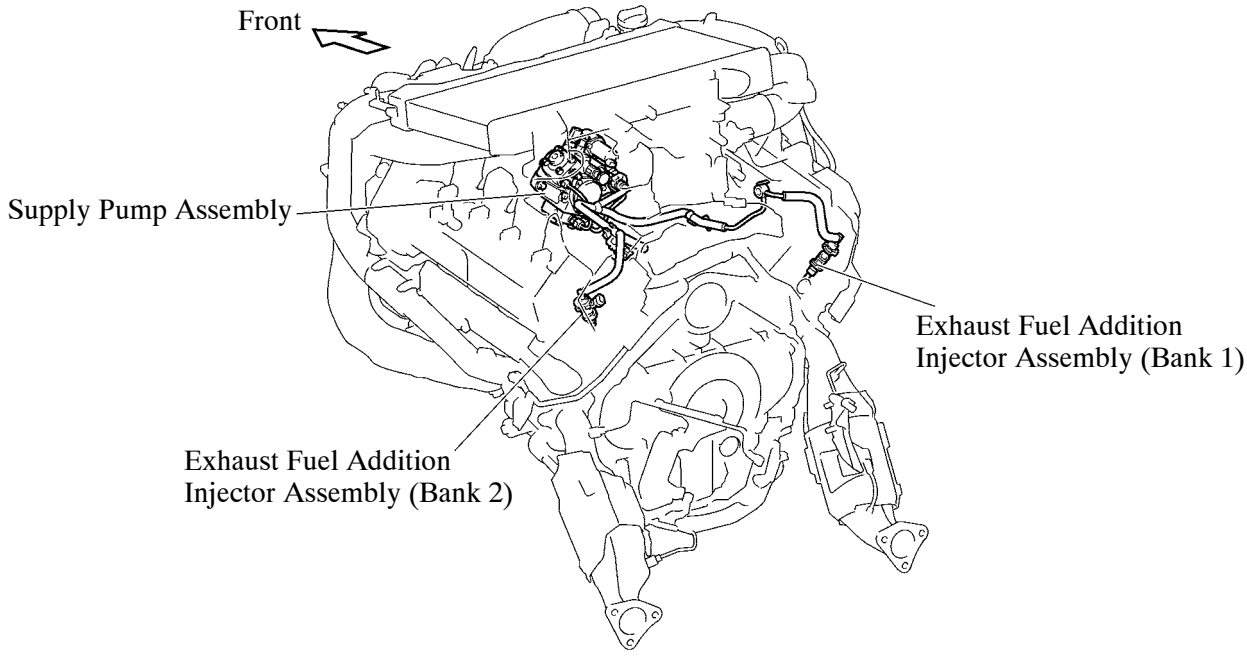
■ FUEL SYSTEM

1. General

- On the models compliant with EURO 5 emission regulations, a fuel pressure discharge valve is used.
- On the models compliant with EURO 5 emission regulations, 8 piezo type injector assemblies are used.
- On the models compliant with EURO 5 emission regulations, 2 exhaust fuel addition injector assemblies are used.
- On the models compliant with EURO 5 emission regulations, a fuel feeding pipe for the exhaust fuel addition injector assembly is provided on the supply pump assembly.



*1: Except models compliant with EURO 5 emission regulations
*2: Models with dual fuel tank



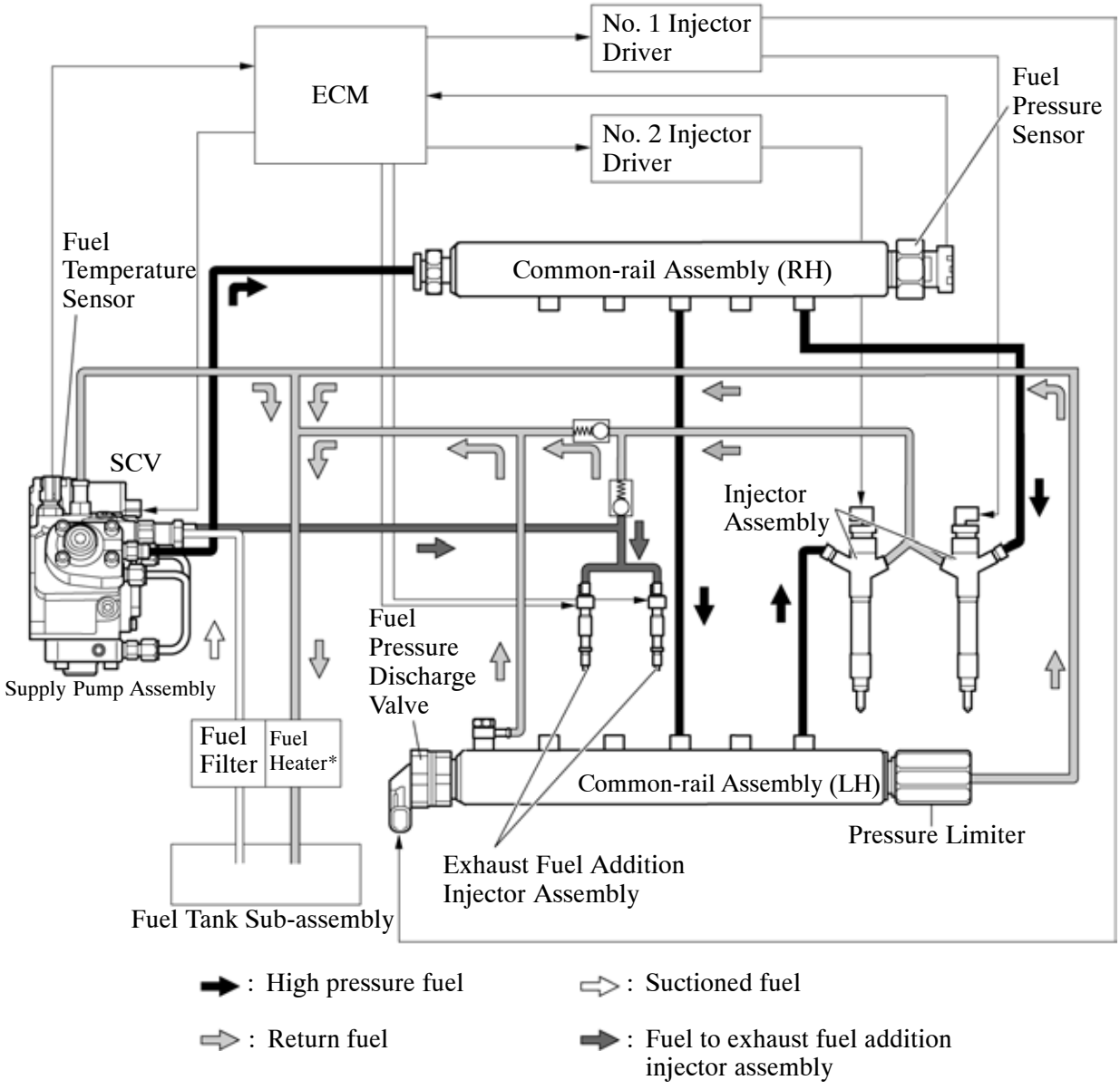
Models Compliant with EURO 5 Emission Regulations

19U1EG69Y

2. Common-rail System

On the models compliant with EURO 5 emission regulations, a common-rail with the fuel pressure discharge valve and s piezo type injector assembly with maximum injection pressure of 200 MPa are used to improve driveability and reduce Noise and Vibration (NV).

▶ System Diagram ◀



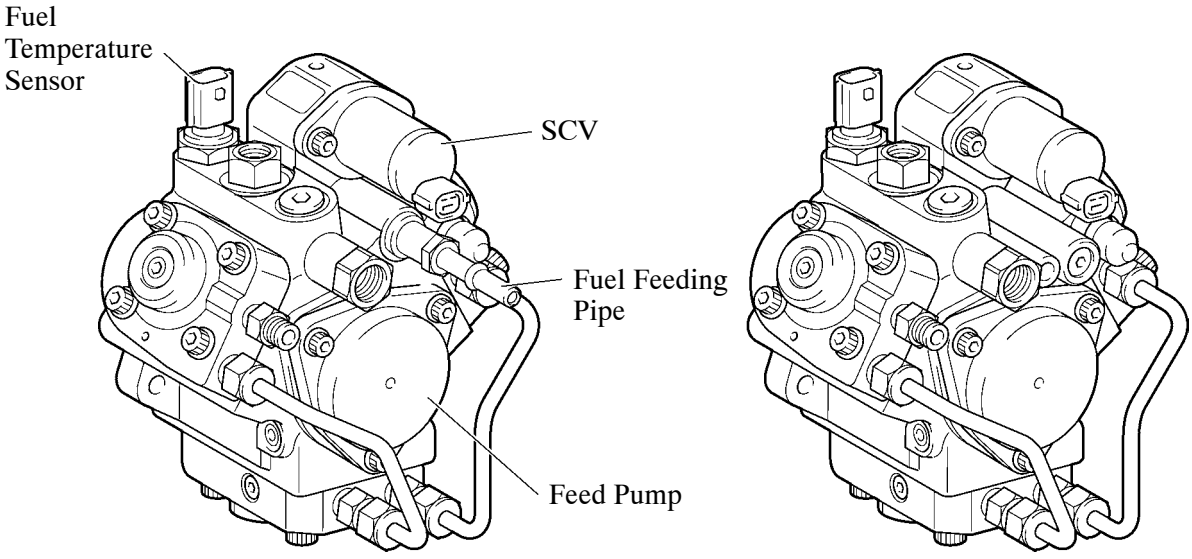
Models Compliant with EURO 5 Emission Regulations

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*: Models with fuel heater

3. Supply Pump Assembly

- On the models compliant with EURO 5 emission regulations, a fuel feeding pipe is provided on the supply pump assembly to supply fuel to the exhaust fuel addition injector assembly. The function, structure and operation are the same as those of the conventional supply pump assembly.



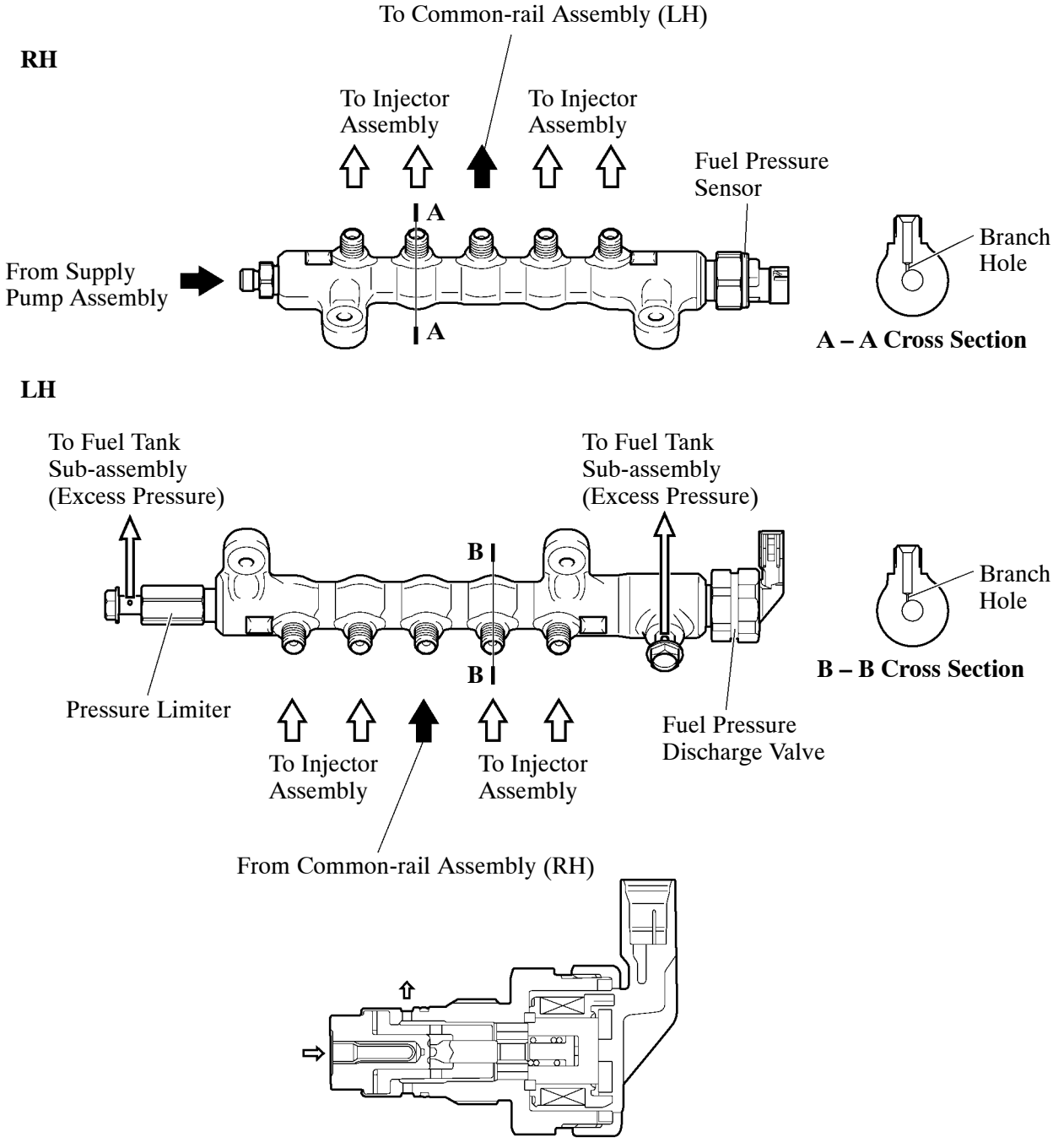
Models Compliant with EURO 5 Emission Regulations

Except Models Compliant with EURO 5 Emission Regulations

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4. Common-rail Assembly

- On the models compliant with EURO 5 emission regulations, a fuel pressure discharge valve is used.
- The fuel pressure discharge valve regulates the fuel pressure within the fuel pressure range normally. In the fuel pressure discharge valve, the plunger opens and closes in accordance with the actuation signals from the injector driver. Thus, it regulates pressure by releasing excess pressure from the common-rail assembly.
- A pressure limiter mechanically relieves the pressure if the internal pressure of the common-rail assembly rises abnormally.



Fuel Pressure Discharge Valve Cross Section

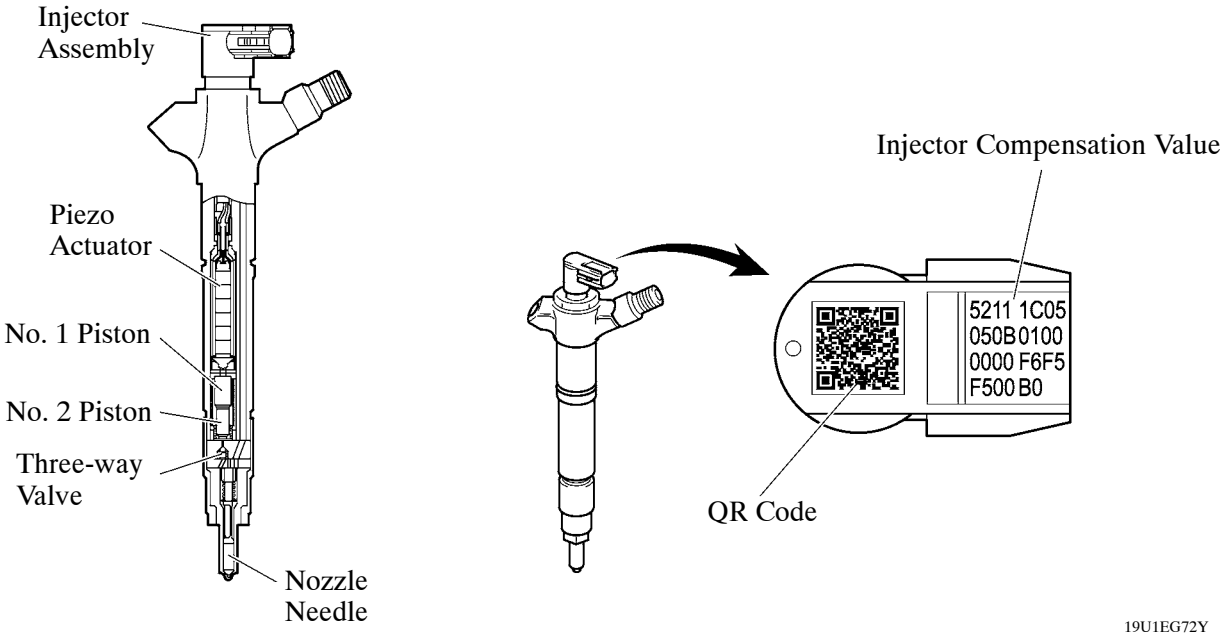
Models Compliant with EURO 5 Emission Regulations

19U1EG71Y

5. Injector Assembly

General

On the models compliant with EURO 5 emission regulations, 8 piezo type injector assemblies are used. Each injector assembly consists of a nozzle needle, 2 pistons, a three-way valve and a piezo actuator.



Operation

(1) When current is applied to the piezo actuator, the No. 1 piston, No. 2 piston and three-way valve are pushed down.

(2) The orifice on the upper part of the three-way valve opens and the fuel in the control chamber flows out.

(3) The fuel pressure in the control chamber drops.

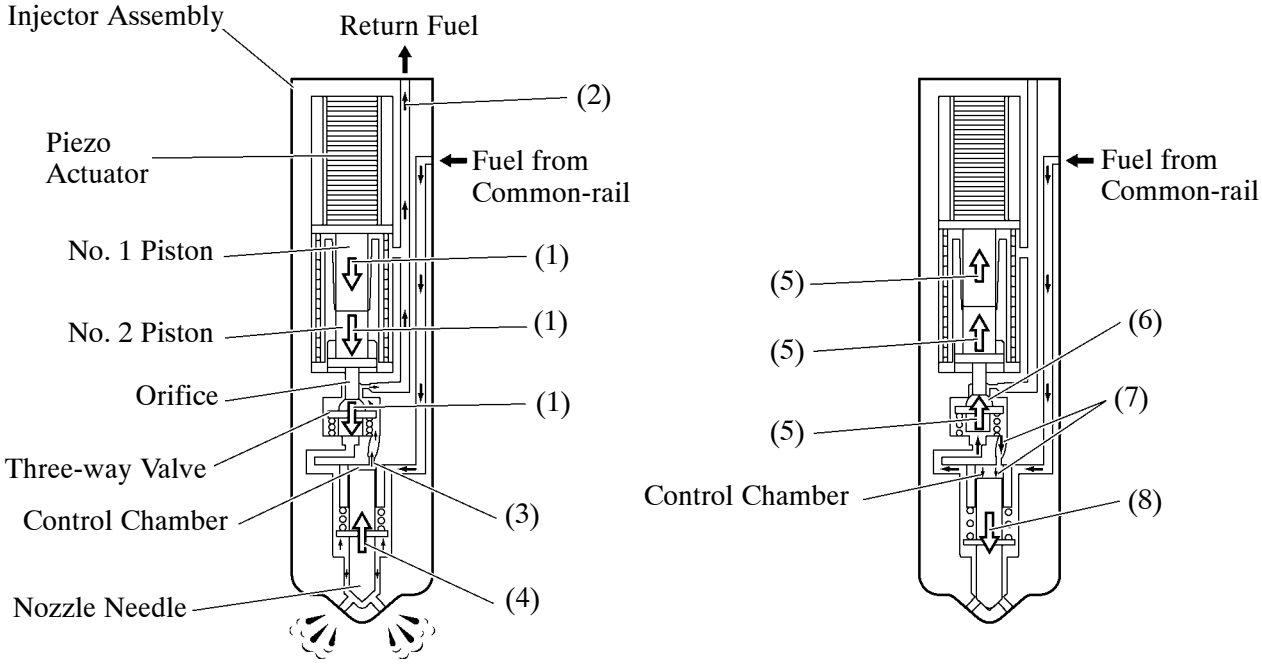
(4) As a result, the nozzle needle is pushed up due to fuel pressure, causing fuel injection.

(5) Current to the piezo actuator is shut off and the No. 1 and No. 2 pistons and the three-way valve are pushed up due to spring tension.

(6) The orifice on the upper part of the three-way valve closes to stop fuel flow.

(7) The fuel pressure in the control chamber rises.

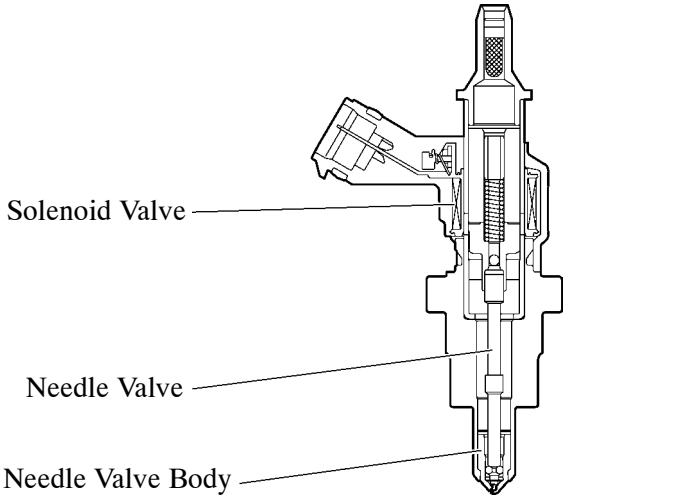
(8) As a result, the nozzle needle goes down to stop fuel injection.



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6. Exhaust Fuel Addition Injector Assembly

- An exhaust fuel addition injector assembly is installed on each cylinder head. This injector supplies additional fuel into the exhaust port and maintains the proper catalyst temperature for the purpose of PM recovery.
- An exhaust fuel addition injector assembly consists of a needle valve body, a needle valve, and a solenoid valve.



19U1EG49I