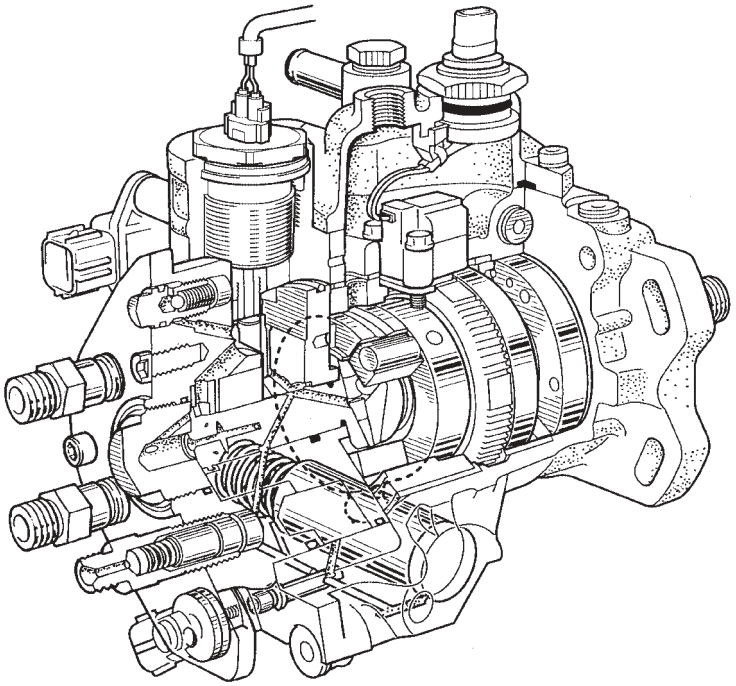
■FUEL SYSTEM

1. Injection Pump

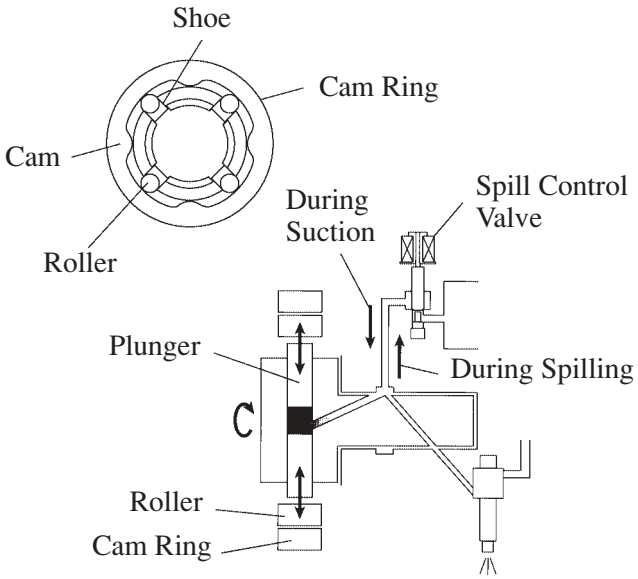
General

An electronically controlled distributor type injection pump has been adopted. A radial plunger type that produces a higher injection pressure than the previous axial plunger type has been adopted. As a result, it has become possible for the injected fuel to become finely atomized in order to realize both improved engine performance and reduced exhaust emissions.
In the axial plunger type pump, the rollers slip as they roll along the cam plate. Because this slippage does not occur in a radial plunger type pump, it can inject fuel at higher pressure.



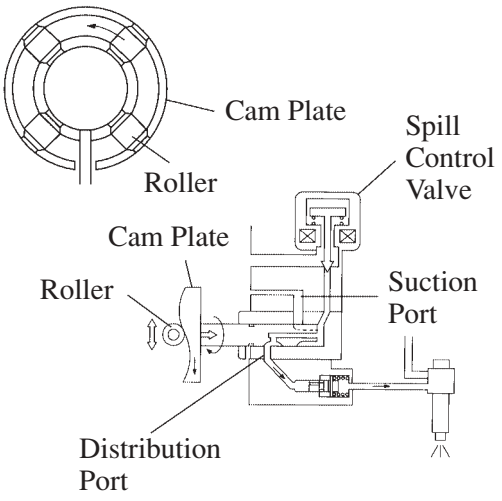
Radial Plunger Type Injection Pump

225EG36



Radial Plunger Type

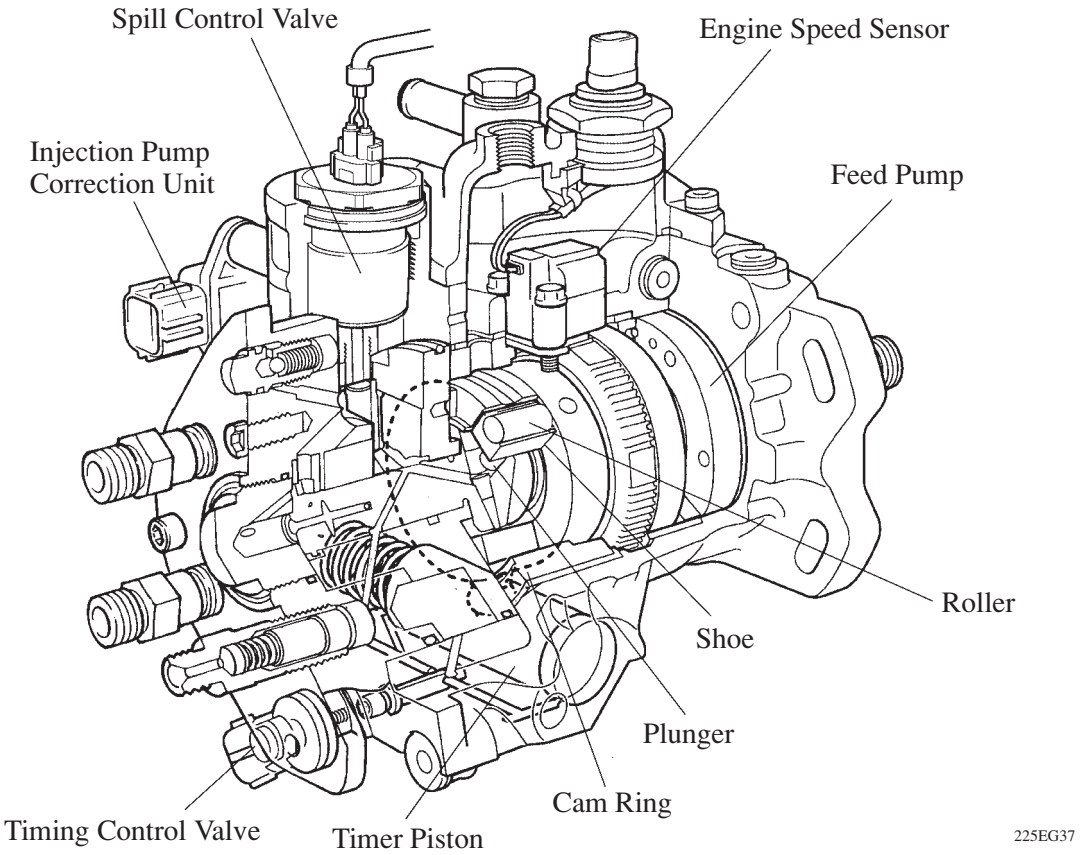
DNEG13



Axial Plunger Type

147EG93

Construction and Operation



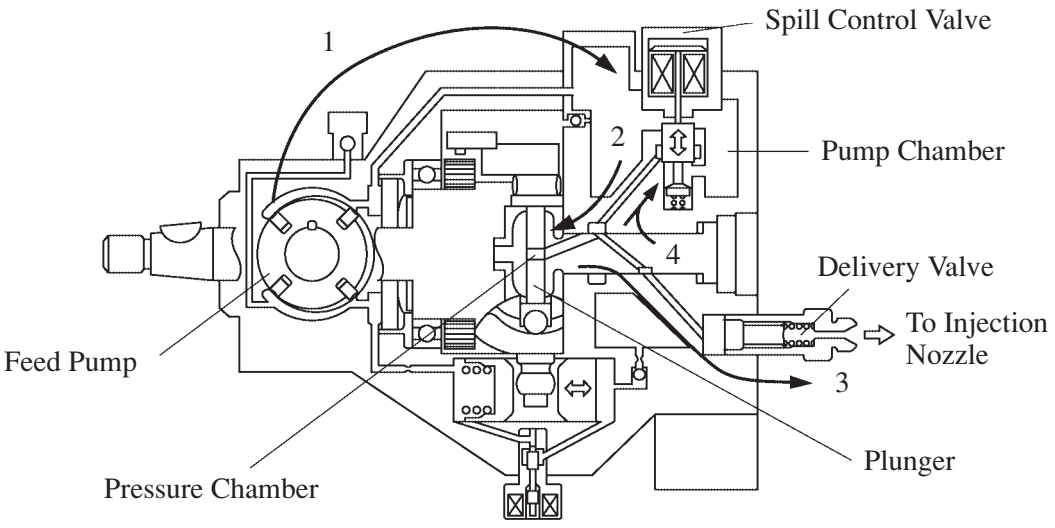
1) Operation Outline

1: The feed pump delivers the fuel from the fuel tank to the pump chamber and maintains its pressure between 1.5 – 2.0 MPa.

2: When the spill control valve opens, the fuel fills the pressure chamber.

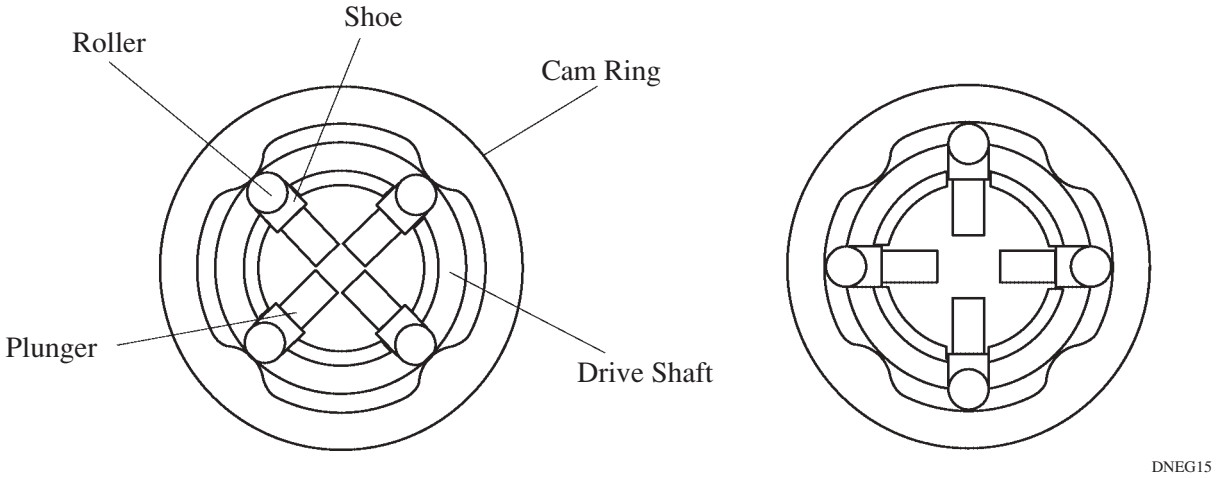
3: After the spill control valve closes, fuel that is charged in the pressure chamber is compressed by the plunger. Passing through the delivery valve and injection pipe, the pressurized fuel is pumped to the injection nozzle and injection starts.

4: As the spill control valve opens and the pressure in the pressure chamber drops, the injection of fuel is completed.



2) High-Pressure Generation Mechanism

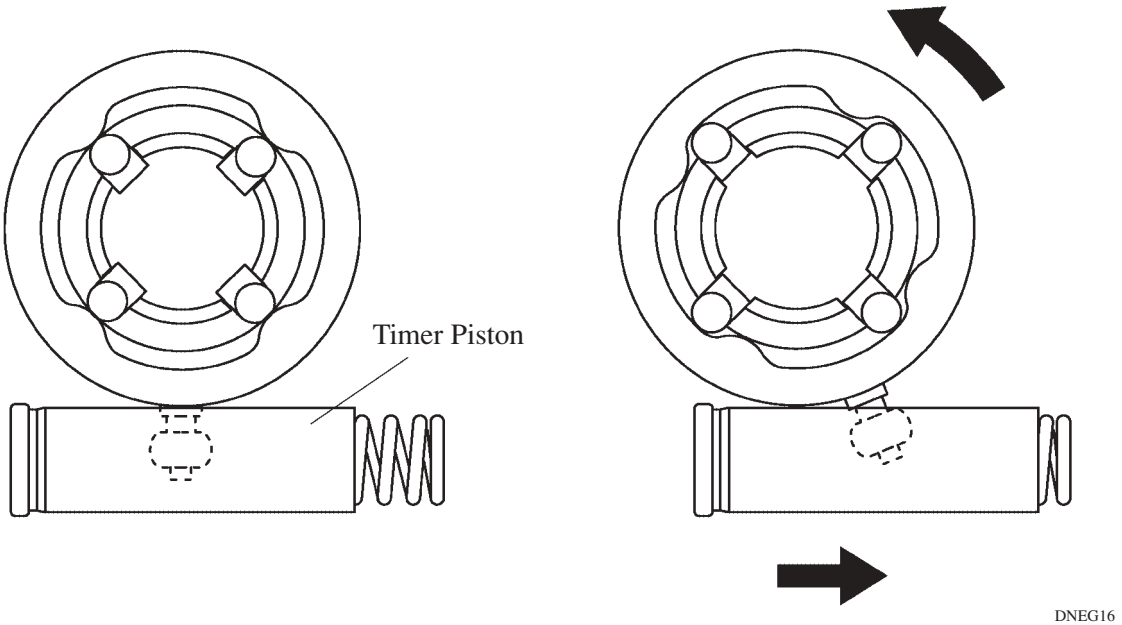
This mechanism consists of a cam ring, drive shaft, rollers, shoes and plungers. As the drive shaft rotates, the shoes, rollers and the plungers that are attached to the shaft rotate along the inside of the cam ring. At that time, the protrusions on the cam ring cause the 4 rollers and plungers to move simultaneously to the center, causing the fuel pressure to increase.



During Generation of High Pressure **During Suction**

3) Timer Mechanism

The movement of the timer piston, which is linked to the cam ring, causes the cam ring to oscillate. As a result, the relational positions of the drive shaft and the cam ring change, which causes the plunger to compress the fuel, thus changing the injection timing starting position.



Most Retarded Timing **During Operation**

2. Injection Nozzle

- 2-stage injection nozzles are used. For this model, the amount of pre-lift has been decreased to reduce the combustion sound.
- In the previous injection nozzle, the fuel that accumulates in portion "A" in the illustration enters the combustion chamber even after the injection of fuel has ended. Because this is prevented by VCO (Valve Covered Orifice) nozzle, the discharge of white smoke and exhaust odor has been reduced.
- The needle seat has been shaped more gently to improve the nozzle's durability.

▶ Specification ◀

Type	Multiple-Orifice Type
Orifice Diameter mm	0.195
Number of Orifices	6
Valve-Opening Pressure MPa (kgf/cm^2)	17.65 (180)
	25.50 (260)

