W04D-J, S05C-B, S05C-TA ENGINES

■FUEL SYSTEM

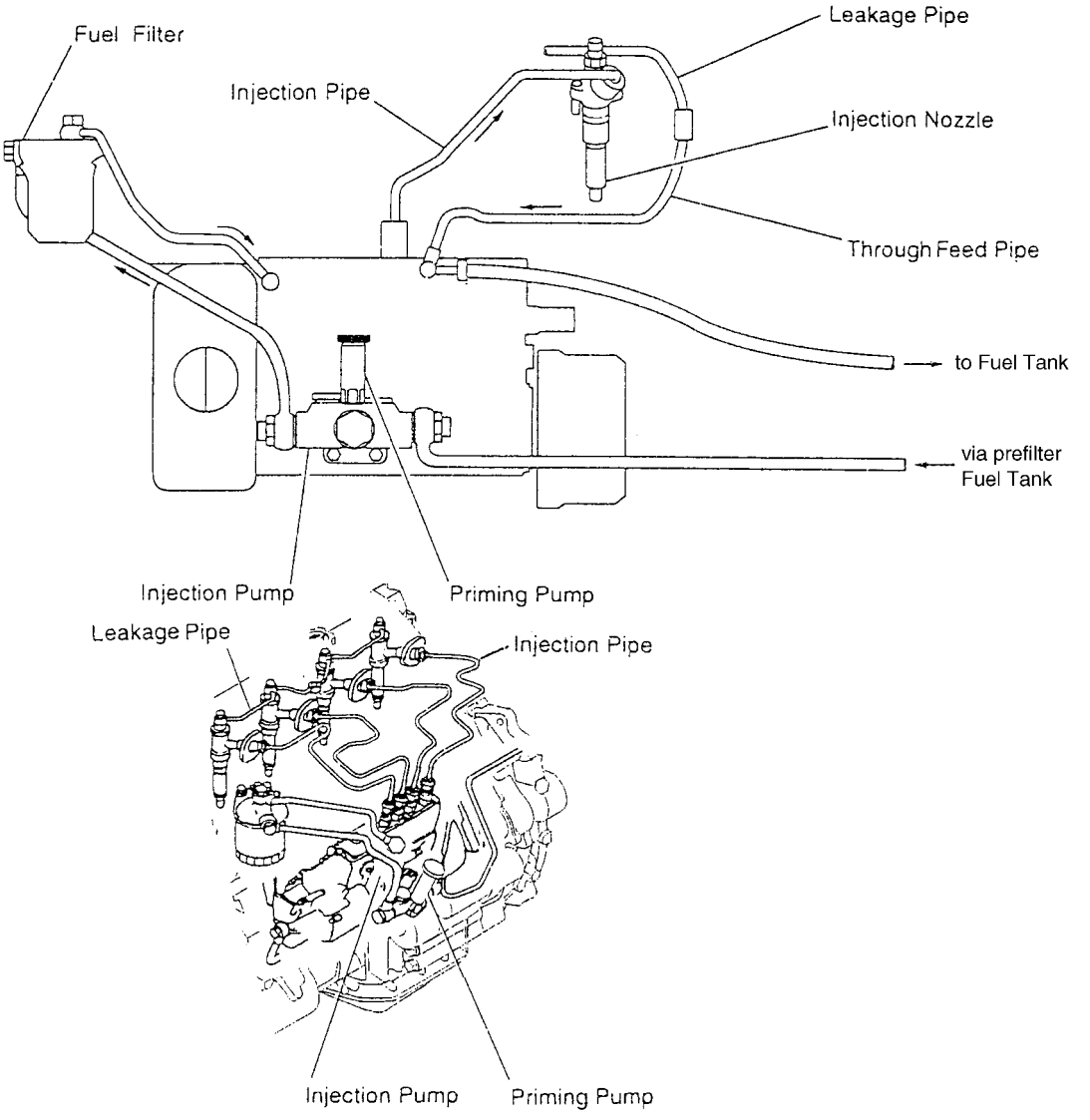
1. General

- The injection pump and injection nozzle were selected according to each engine's displacement to combine high output with low emissions and fuel economy.

▶ Injection Pump Specifications ◀

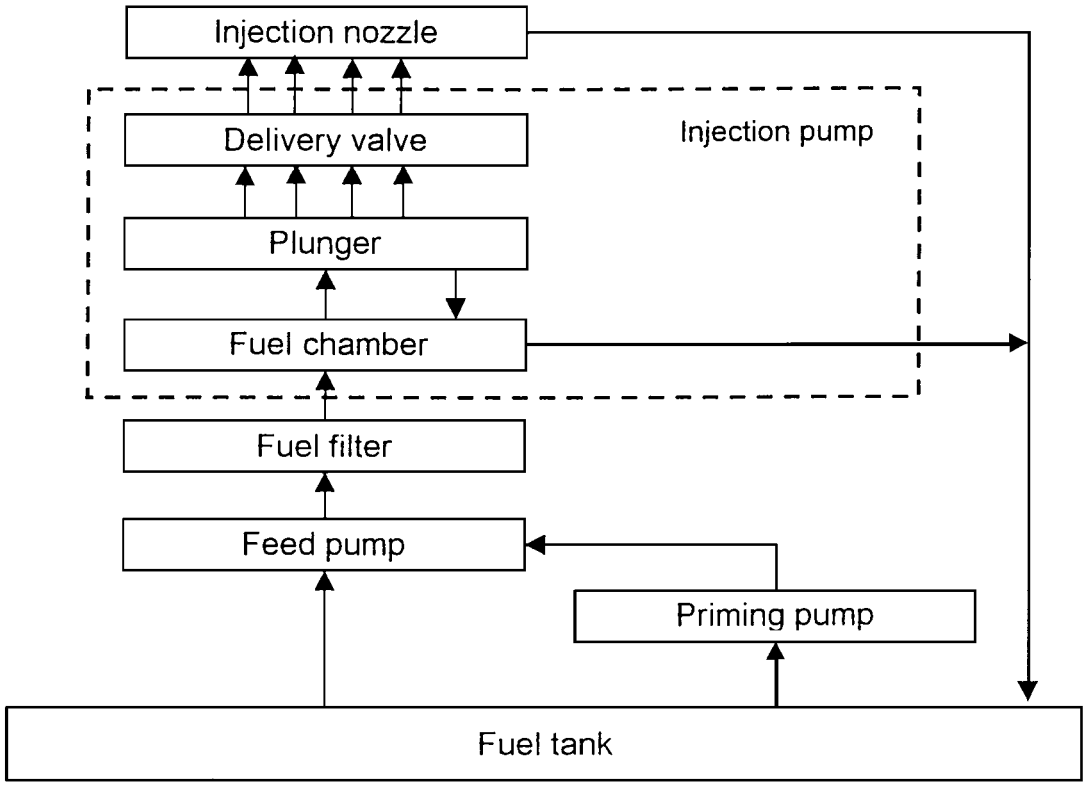
Engine Type	S05C-B, S05C-TA	W04D-J
Maker	DENSO	←
Injection Pump Type	In-line NB type	In-line A type
Governor type	R901	R801
Timer type	Centrifugal type (SBI)	Centrifugal type (SBO)
Feed pump type	Piston pump	←
Injection timing	14° BTDC	9° BTDC

▶ Fuel System Diagram ◀



▶ Fuel Flow ◀

W04D-J, S05C-B, S05C-TA ENGINES



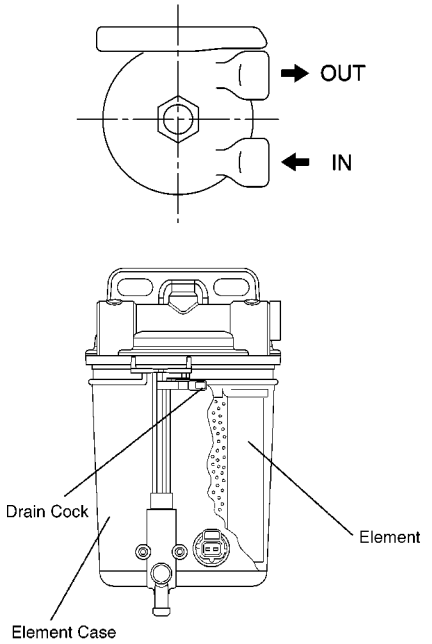
2. Fuel Filter

- A fuel filter was equipped on the W04D-J, S05C-B, S05C-TA, S05C-TB. And a prefilter with sedimenter was equipped on the chassis frame. When the water in the sedimenter reaches a predetermined level, the level warning switch turns on and illuminates a warning light in the combination meter.

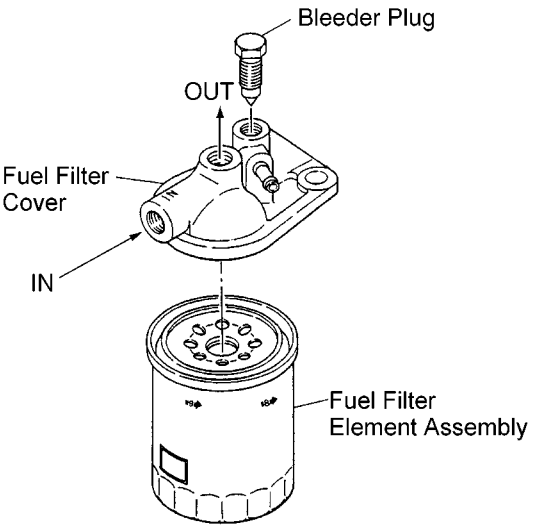
▶ Fuel Filter Specifications ◀

	PREFILTER with SEDIMENTER	FUEL FILTER
Filter Type	Filter paper type	←
Filtration area [cm^2 (sq. in.)]	2,300 (356.5)	1,700 (263.5)

PREFILTER WITH SEDIMENTER



FUEL FILTER



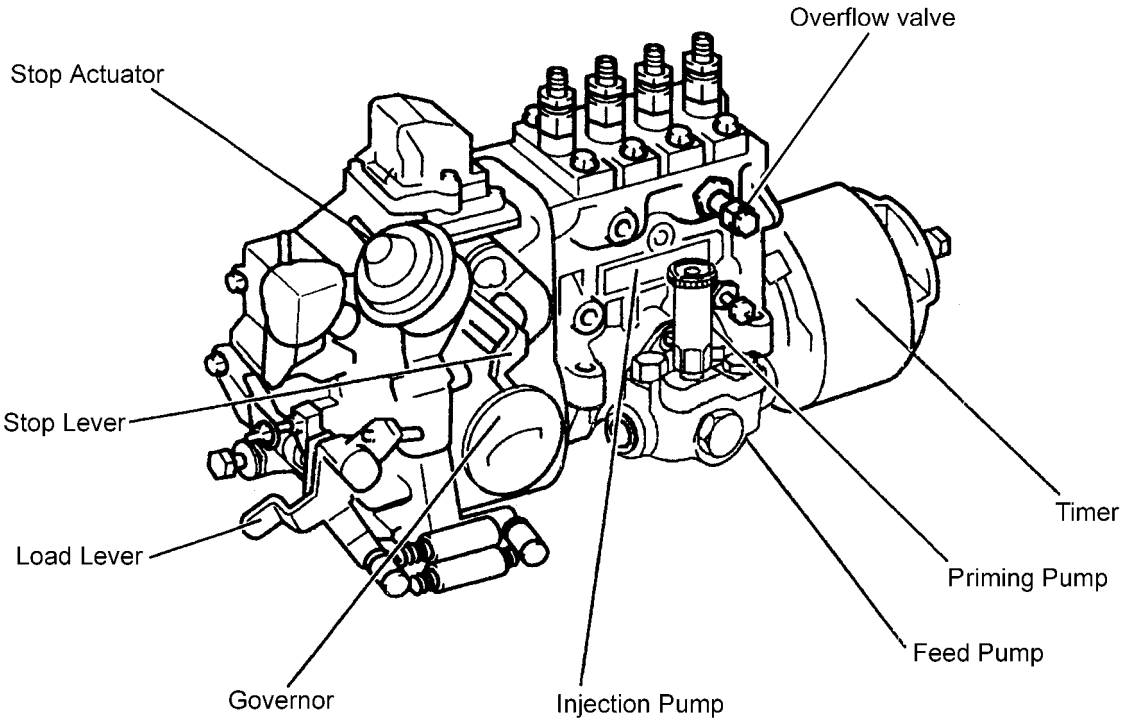
3. Injection Pump

Engine Type	Injection pump type	Governor type
S05C-B, S05C-TA	NB type	R901
W04D-J	A type	R801

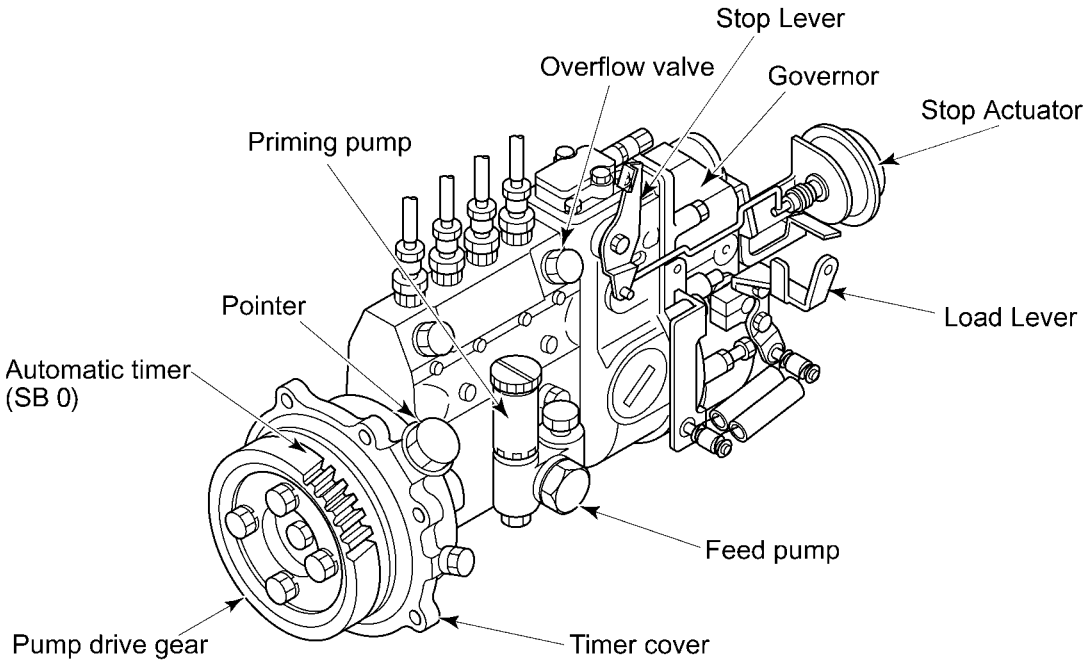
- The W04D-J, S05C-B and S05C-TA a large-displacement engine and it is equipped with an in-line type injection pump, which has a proven track record. This is a high-pressure injection pump that has four separate plungers that independently feed fuel into each cylinder. The NB & A type can handle particularly high pressures even for an in-line pump.
- A centrifugal type all-speed governor (R901 & R801) were adopted because of its full-range control of the injection volume under high-load conditions from the low-speed to the highspeed range. The R901 & R801 are a large-capacity governor developed for high-pressure service.
- The timer is arranged between the pump camshaft and the engine drive shaft. It controls the pump camshaft position according to the injection timing, which varies with the engine rpm. This is an automatic timer that uses the flyweight centrifugal force to advance or delay the injection timing as the engine speed respectively rises or falls.
- A pressure-feed type piston feed pump is installed on the side of the injection pump. In addition, a manual priming pump is provided on the side of injection pump for air bleeding* when servicing the system.

* An air bleeding plug is provided on the fuel filter.

[NB Type Injection Pump for S05C-B, S05C-TA]



[A Type Injection Pump for W04D-J]



NOTICE

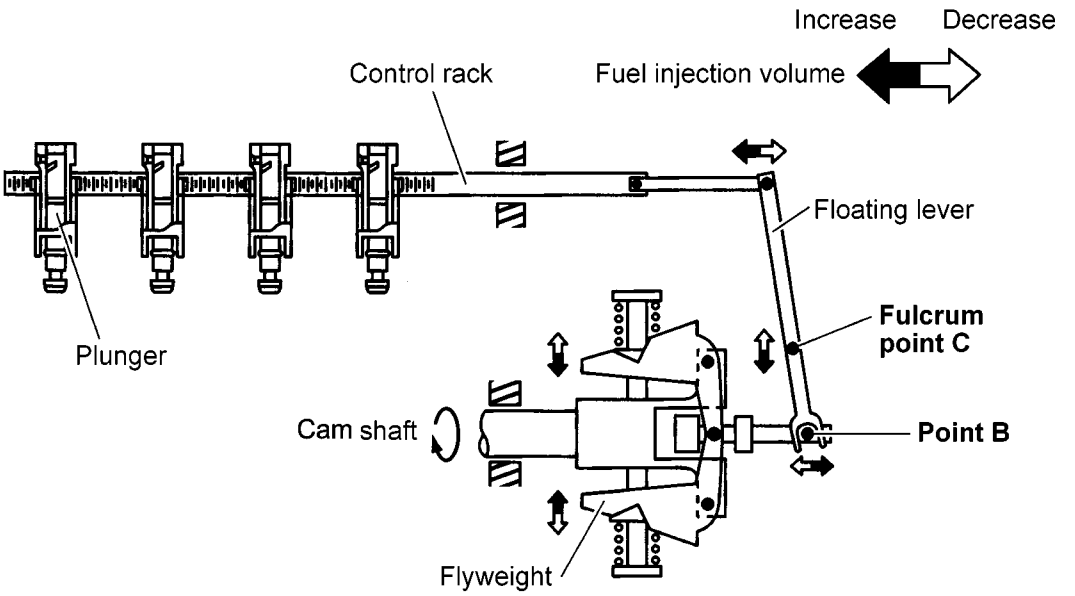
Although engine oil is used to lubricate the pump unit, fuel is used to lubricate and cool the plungers. No fuel other than the specified fuel must therefore be used.

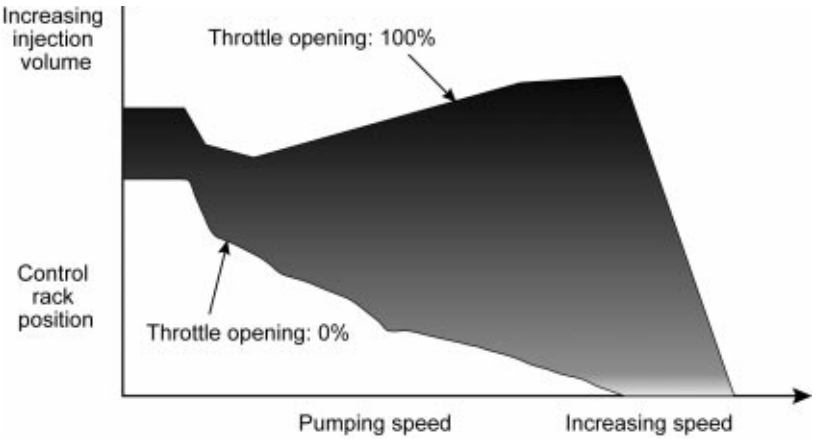
▶ Governor ◀

[1] Construction

The governor controls the rack position and determines the fuel injection volume by means of an adjusting lever that feeds back, synchronously with the engine speed, the centrifugal force generated by the flyweight and the movement of the accelerator pedal. The governor controls the injection volume according to the throttle opening throughout the entire engine rpm range from idle speed to maximum speed.

R901 Governor





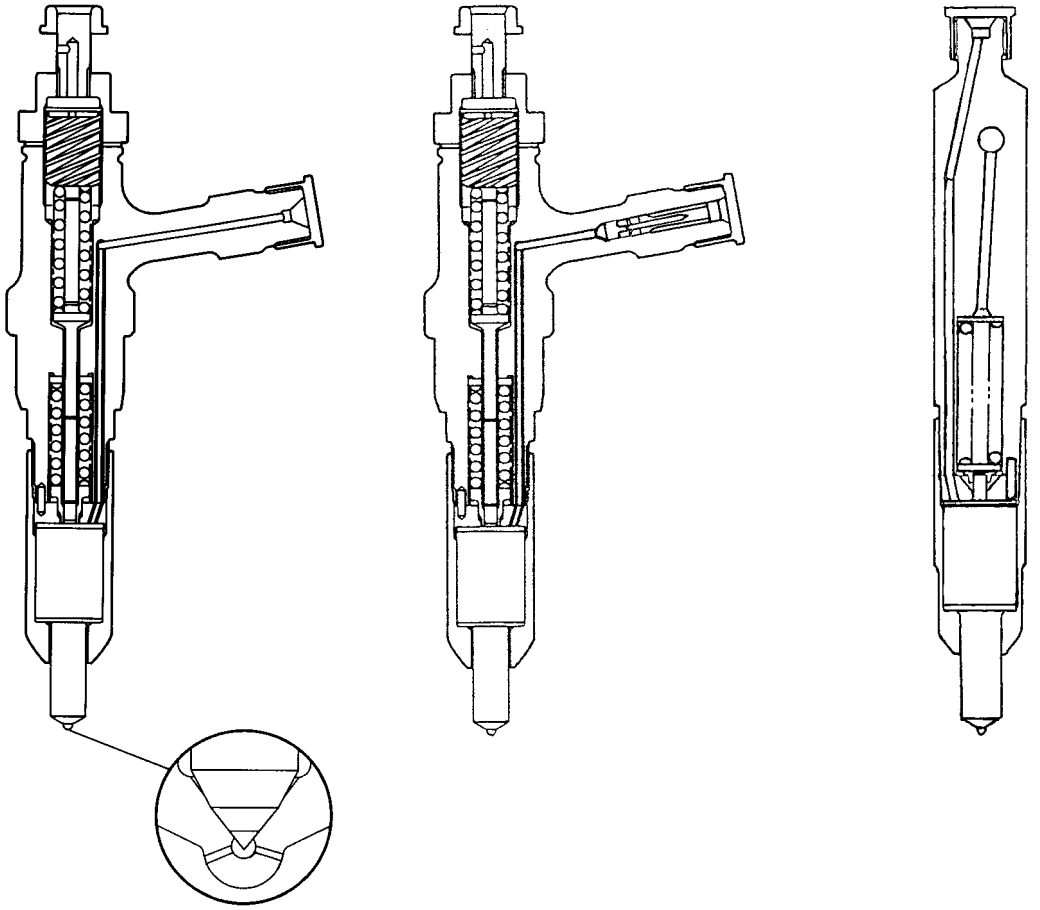
[2] Operation

- The adjusting lever, which is linked to the accelerator pedal movement, causes fulcrum point C to move up and down together with a groove in the cam plate, thereby varying the lever ratio of the floating lever (about 1.2:1 at idle rpm and 4.5:1 at maximum rpm).
- The flyweight, synchronized to the engine speed, simultaneously causes point B to move to the left and right and fulcrum point C up and down.
- The control rack position is controlled by varying the point B and point C positions according to the vehicle driving conditions. And the injection volume at full load is controlled by having a floating arm contact a stop cam.

4. Injection Nozzle

- The S05C-B and S05C-TA are equipped with 2-spring nozzles designed for direct injection engine.
- The W04D-J is eguipped with 1-spring nozzles designed for direct injection engine.

S05C-B **S05C-TA** **W04D-J**



▶ Injection Nozzle Specifications ◀

Condition	S05C-B	S05C-TA	W04D-J
Nozzle Type	Multi-hole type	←	←
Injection hole diameter [mm (in.)]	0.20 (0.008)	0.19 (0.007)	0.27 (0.011)
Number of injection holes	6	←	5
Valve opening pressure [MPa {kgf/cm^2}] (1st)	16.2 {165}	17.7 {180}	less
Valve opening pressure [MPa {kgf/cm^2}] (2nd)	21.6 {220}	24.5 {250}	21.6 {220}