

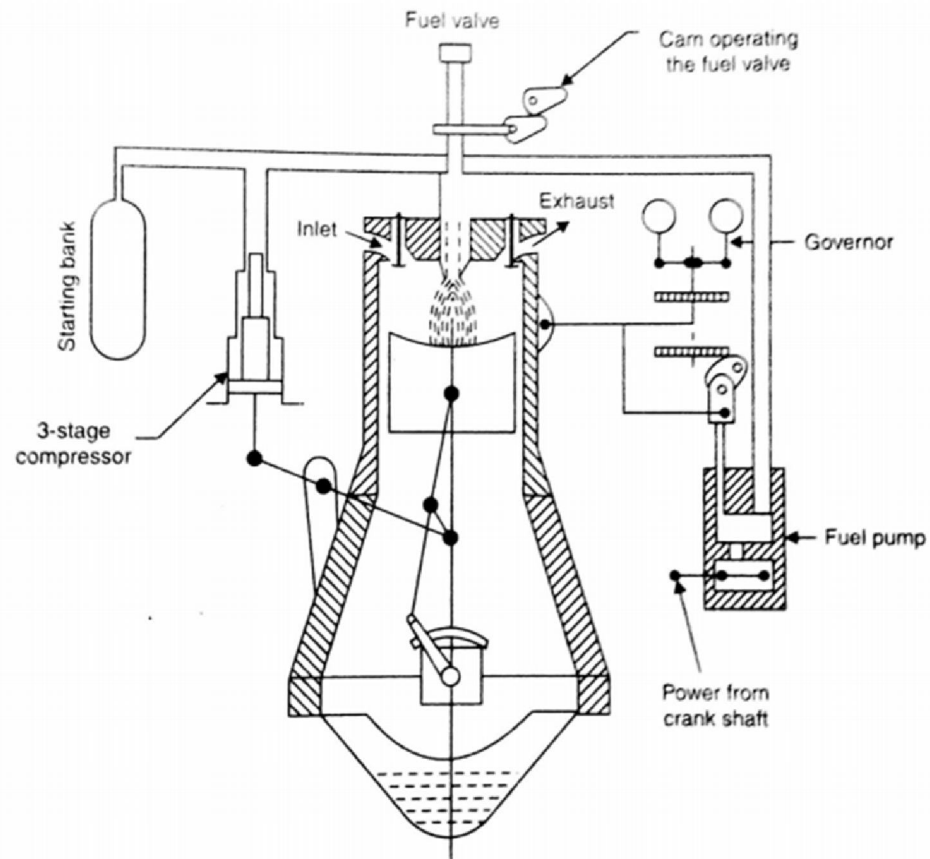
DIESEL FUEL SUPPLY SYSTEM

BY PROF. KUNALSINH KATHIA

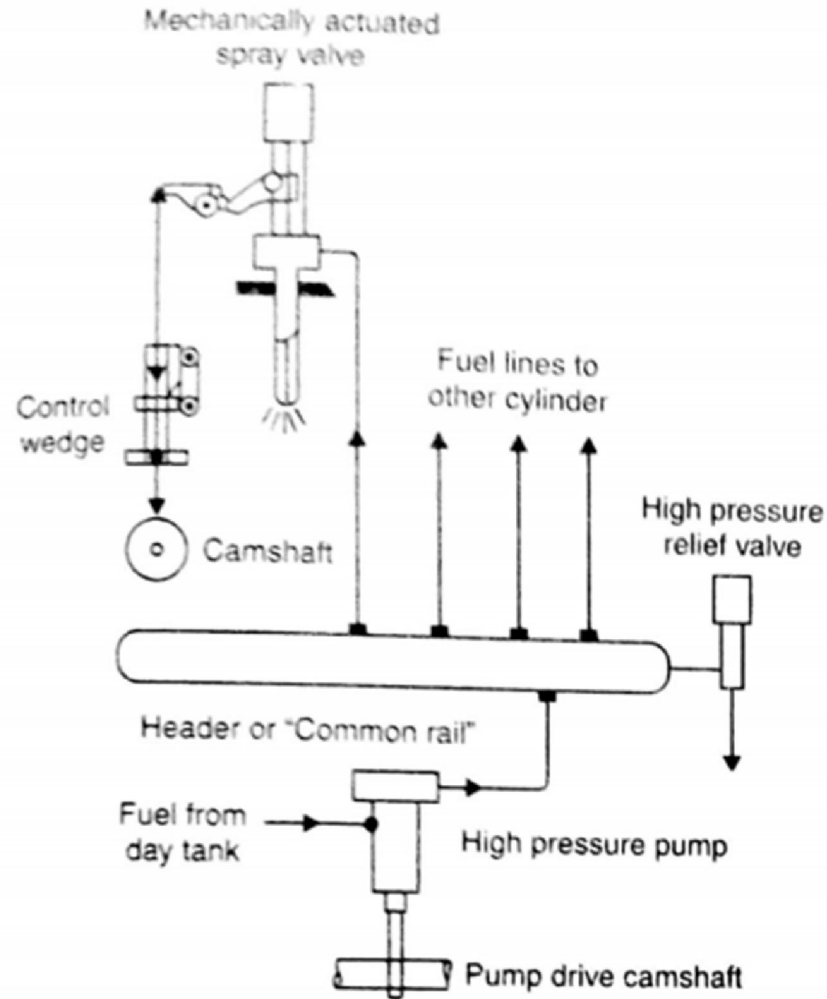
FUEL INJECTION AND METHODS OF FUEL INJECTION

- AIR INJECTION SYSTEM
- AIR LESS INJECTION SYSTEM
 - COMMON RAIL SYSTEM
 - DISTRIBUTOR SYSTEM
 - UNIT INJECTOR
 - INDIVIDUAL PUMP

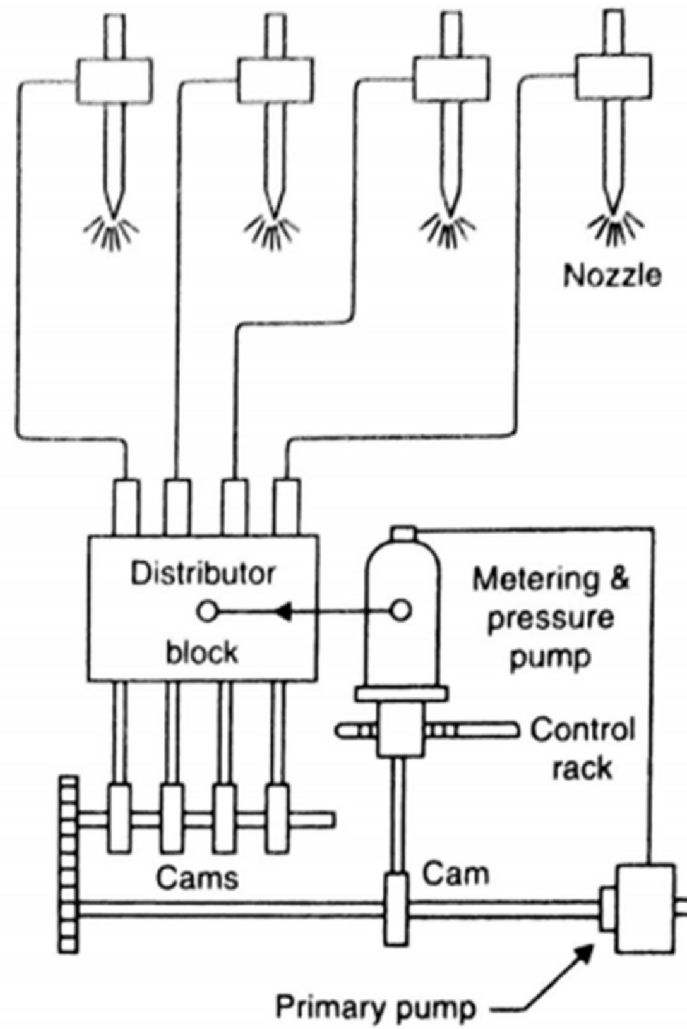
AIRLESS INJECTION SYSTEM



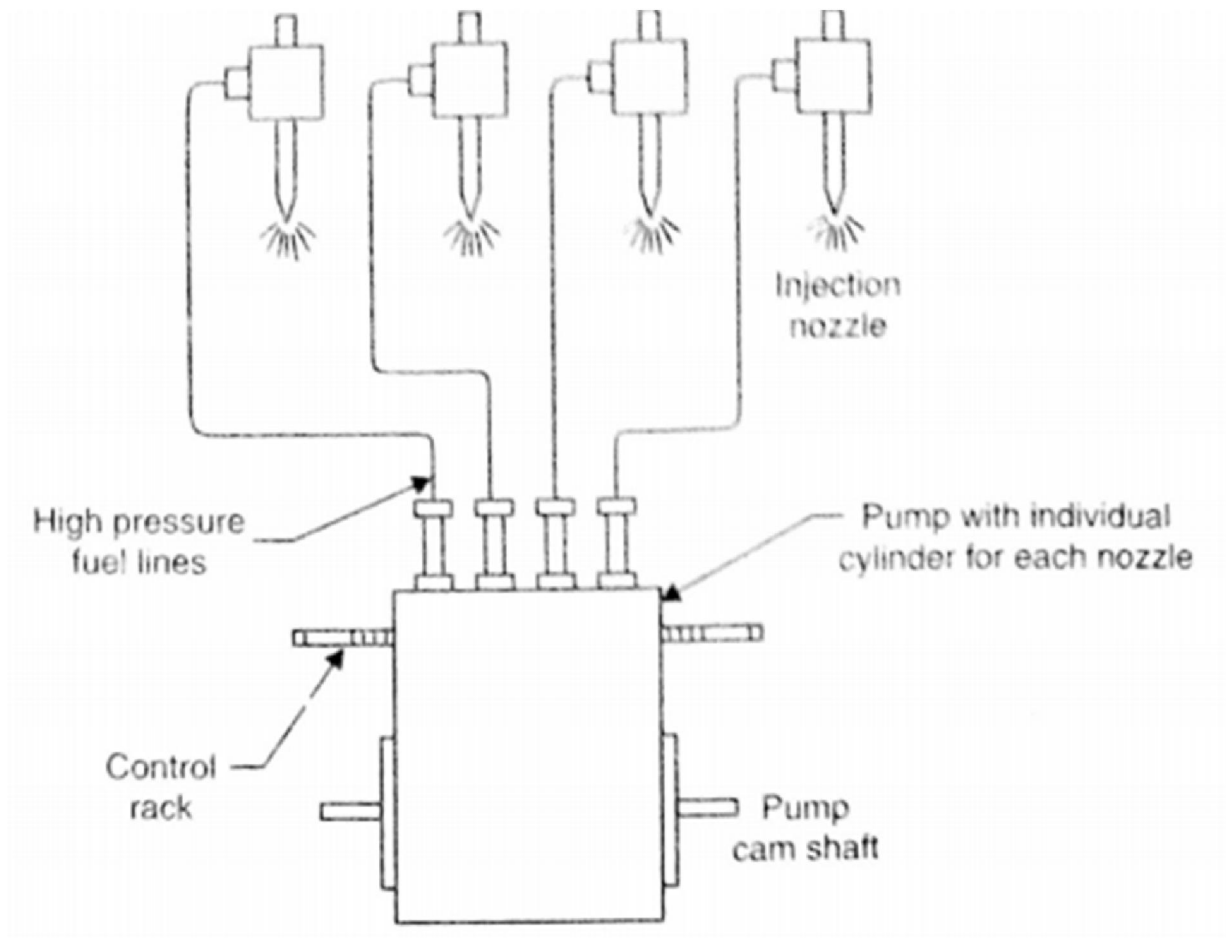
COMMON RAIL INJECTION SYSTEM



DISTRIBUTOR SYSTEM



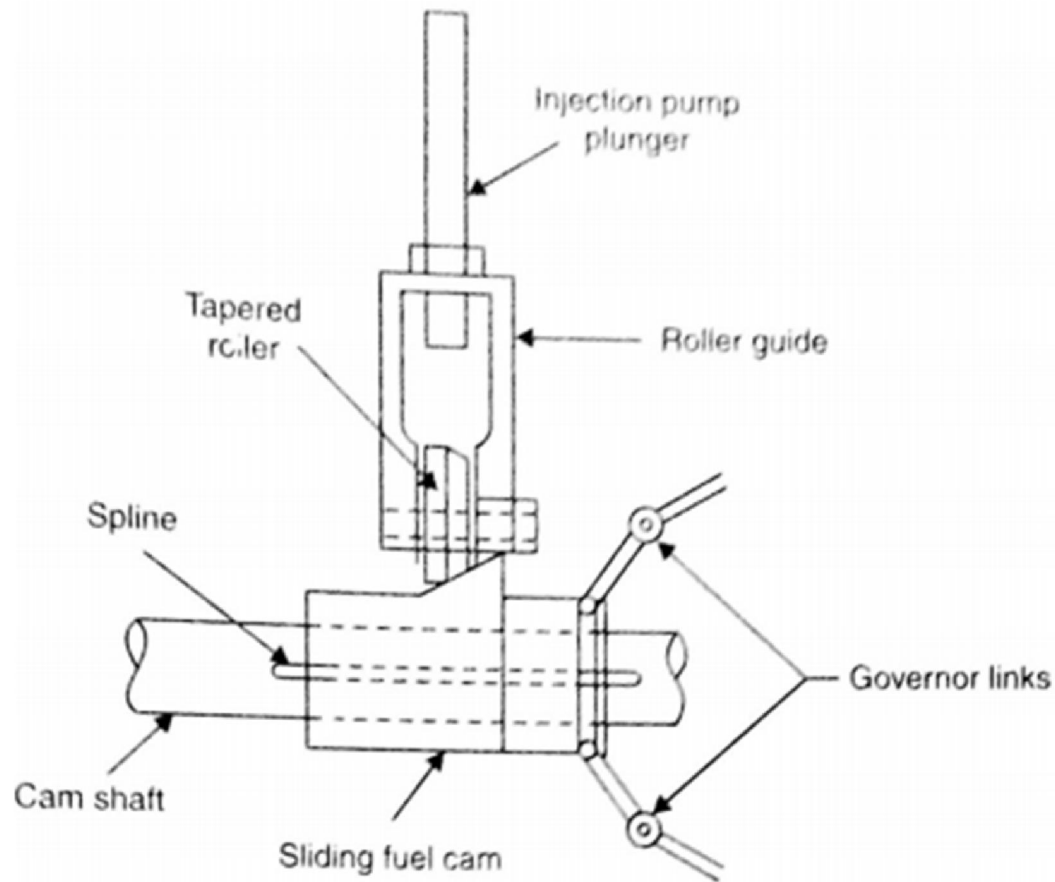
INDIVIDUAL PUMP SYSTEM



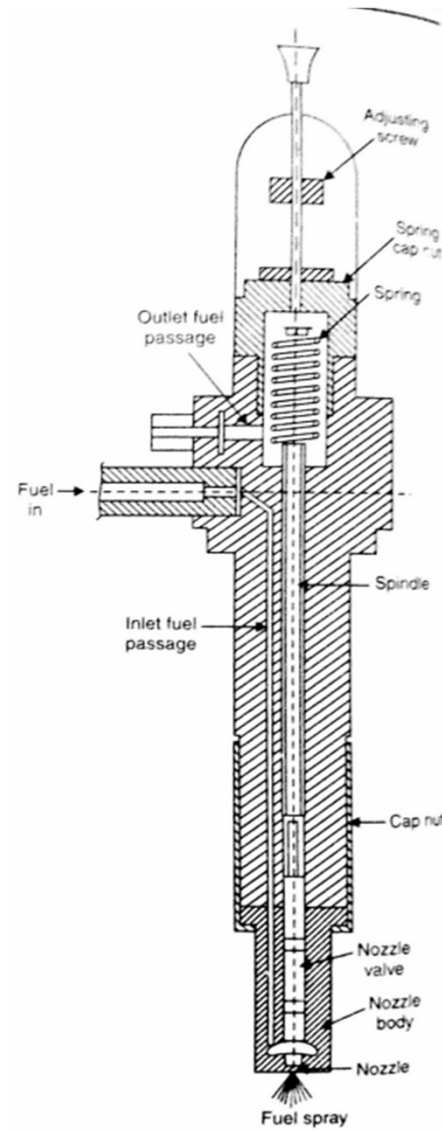
FUEL PUMPS

- VARIABLE PLUNGER STROKE
- SPILL VALVE CONTROL OR HELIX BYPASS PUMP

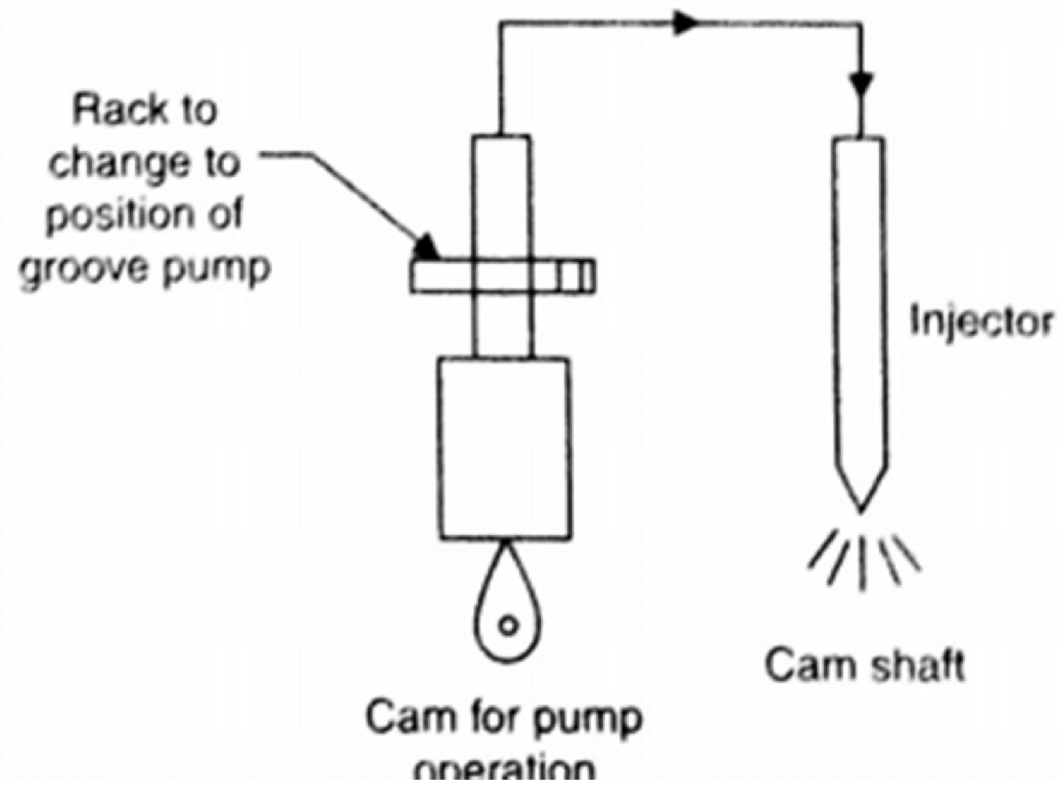
VARIABLE PLUNGER STROKE PUMP



FUEL ATOMIZER



HELIX BYPASS PUMP



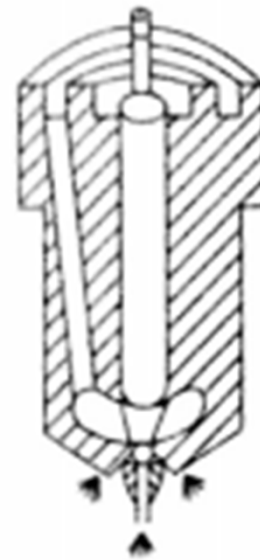
TYPES OF NOZZLES AND FUEL SPRAY PATTERNS

- SINGLE HOLE NOZZLE
- MULTIHOLE NOZZLE
- CIRCUMFERENTIAL ORIFICE
- PINTAL NOZZLE
- PINTAUX NOZZLE

SINGLE HOLE & MULTI HOLE

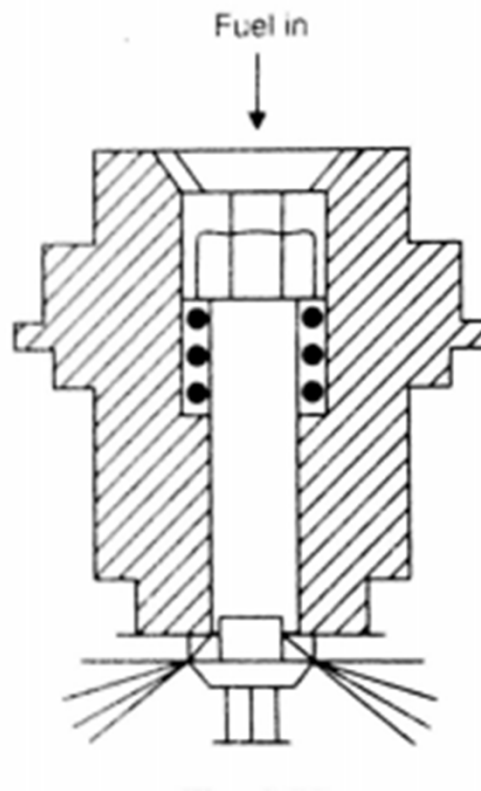


(a) Single hole nozzle

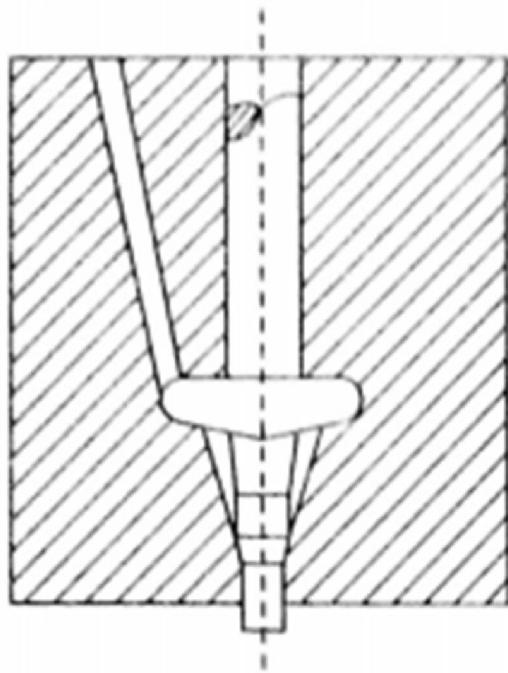


(b) Multihole nozzle

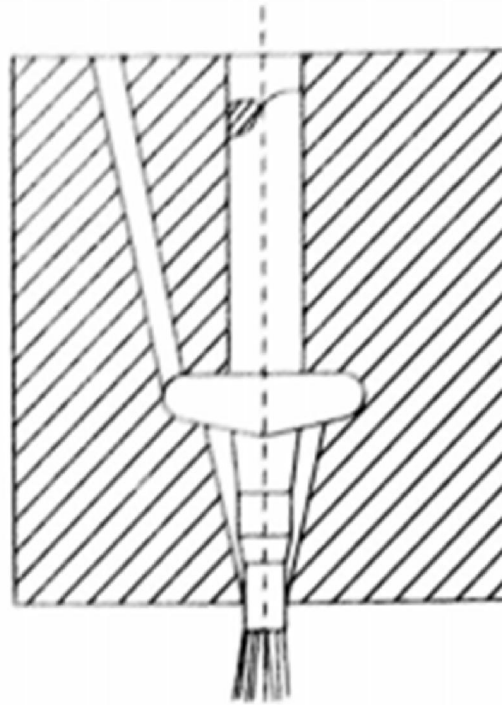
CIRCUMFERENTIAL ORIFICE



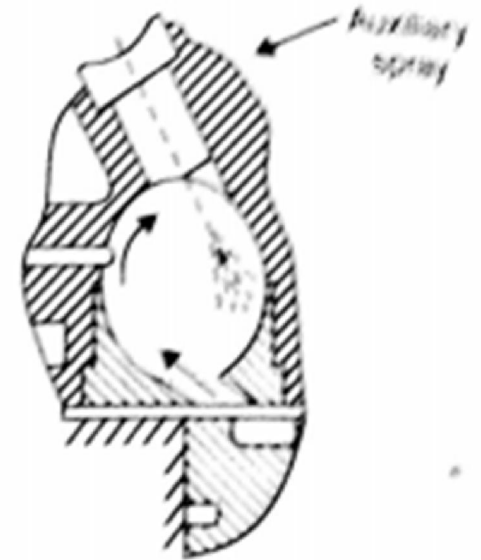
PINTLE NOZZLE



(a) Closed position

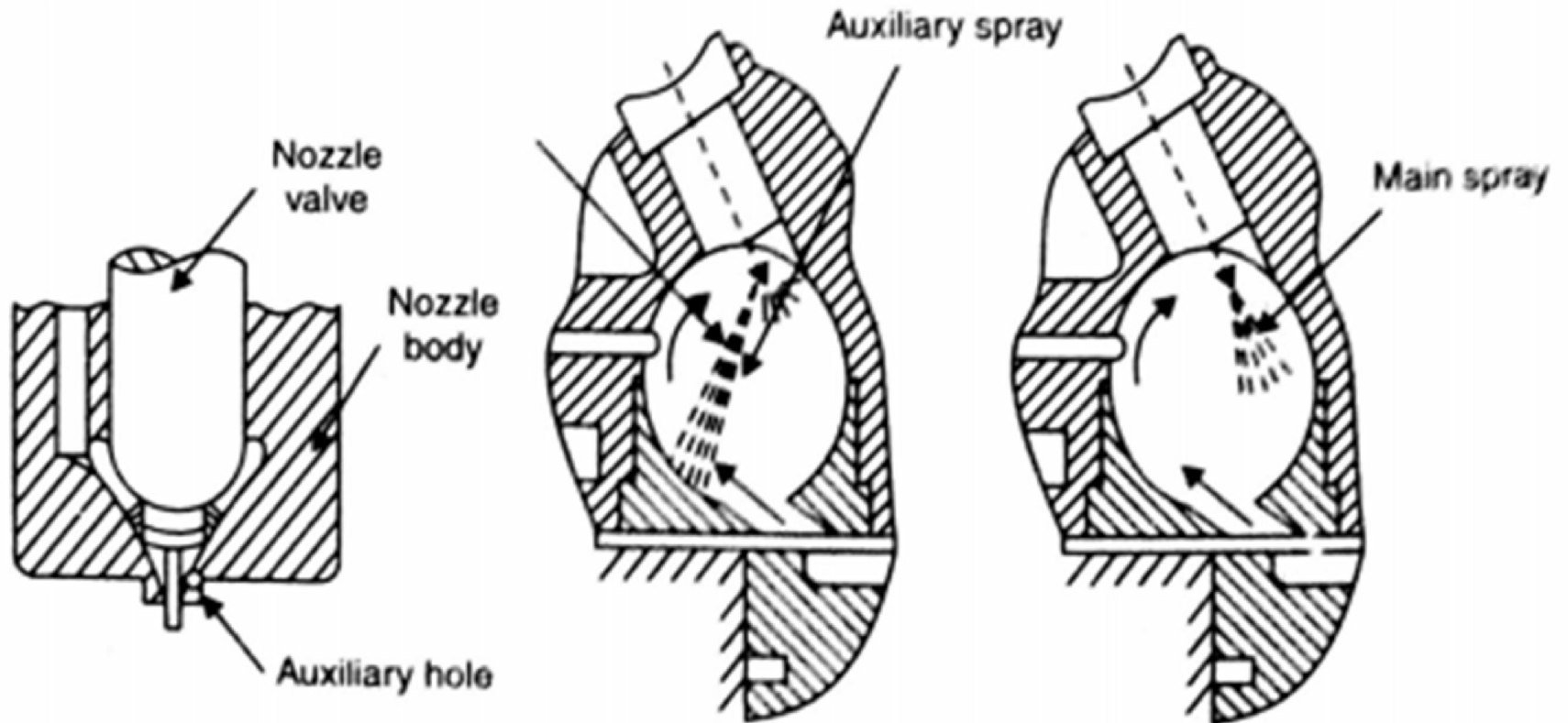


(b) Open position



(c) Fuel injection pattern

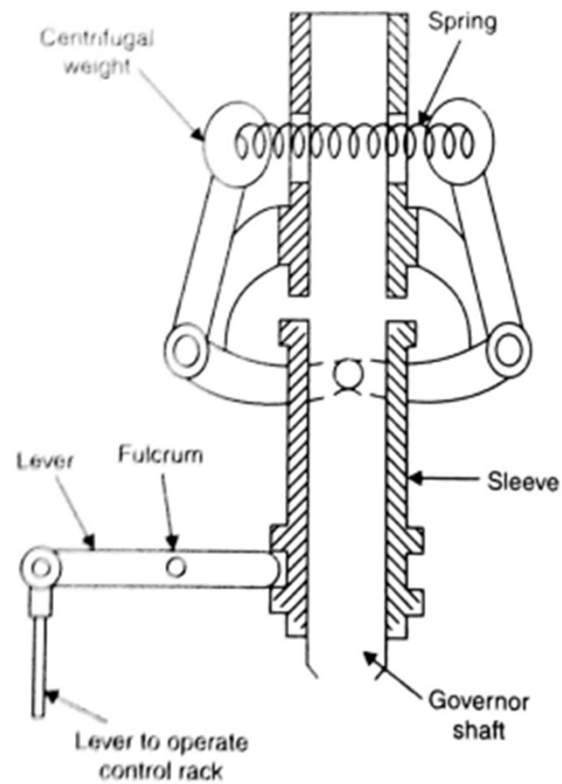
PINTAUX NOZZLE



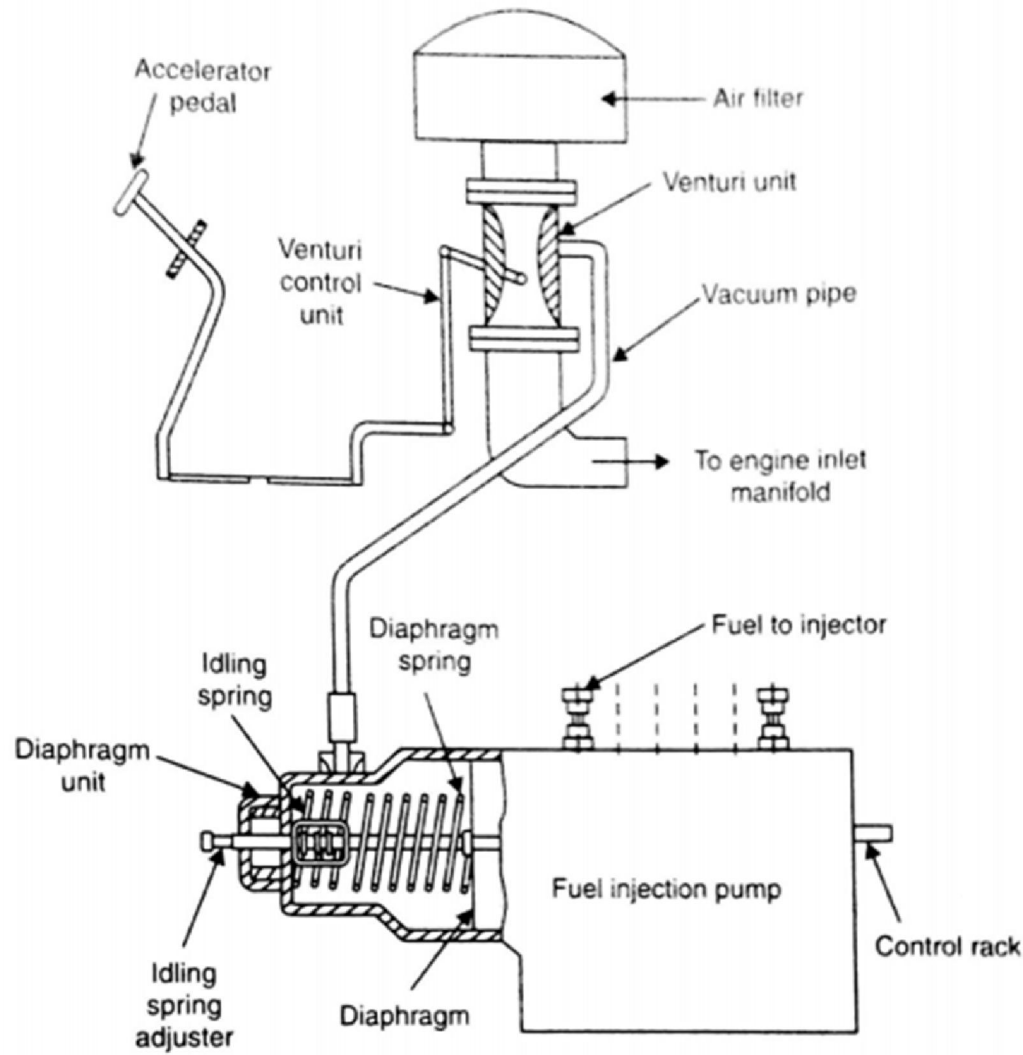
FUEL PUMP GOVERNERS

- MECHANICAL GOVERNER
- PNEUMATIC GOVERNER

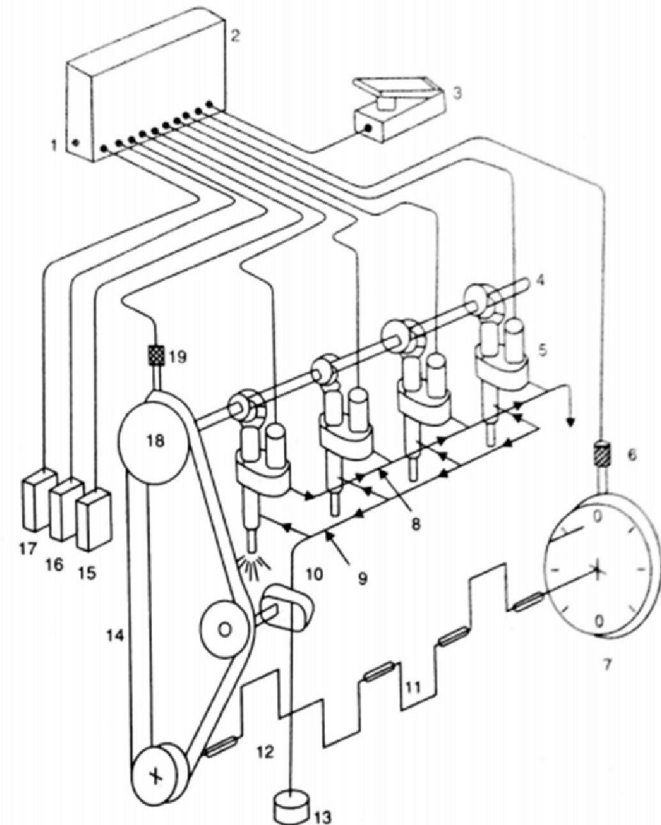
MECHANICAL GOVERNER



PNEUMATIC GOVERNER



TYPICAL ELECTRONICALLY CONTROLLED DIESEL INJECTION SYSTEM



- | | |
|---|--------------------------------------|
| 1. Battery supply (12 V or 24 V) | 2. Electronic control unit (ECU) |
| 3. (Accelerator pedal) | 4. Injector camshaft |
| 5. Injector unit | |
| 6. Magnetic transducer monitors engine speed and crankshaft position. | 8. Fuel return line |
| 7. Flywheel | 10. Fuel gear pump |
| 9. Fuel supply line | 12. Fuel pickup |
| 11. Crankshaft | 14. Timing belt |
| 13. Oil filter | 16. Coolant temperature connection |
| 15. Boost sensor connection | 18. Camshaft four-toothed gear wheel |
| 17. Other sensor connection | |
| 19. Magnetic transducer firing to maintain firing order. | |

