

Fig. 4.7. The essential components of a diesel power plant.

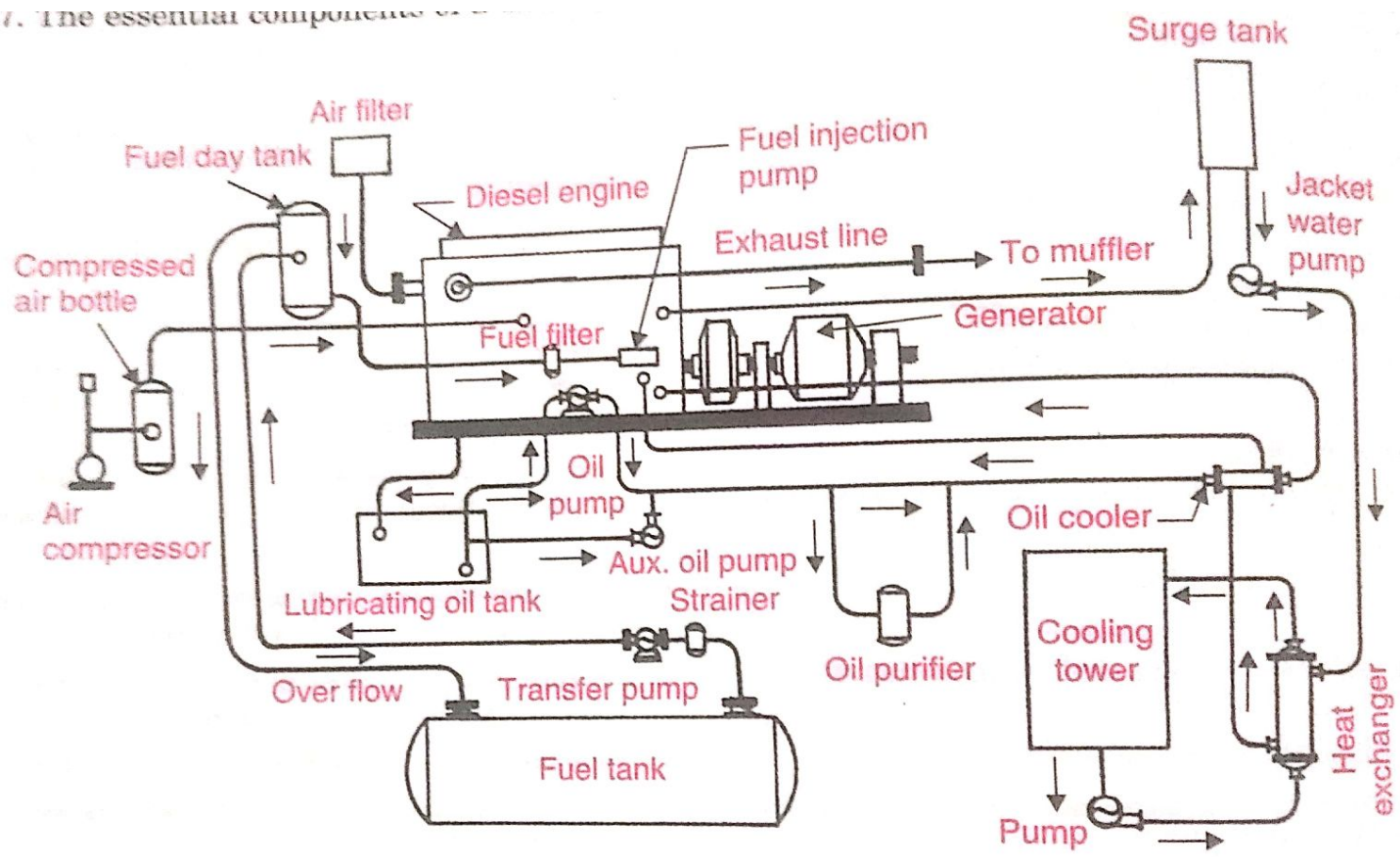


Fig. 4.7. Schematic arrangement of a diesel power plant.

- | | |
|---------------------------|-----------------------|
| 1. Engine | 2. Air intake system |
| 3. Exhaust system | 4. Fuel system |
| 5. Cooling system | 6. Lubrication system |
| 7. Engine starting system | 8. Governing system. |

Essential Components of a Diesel Plant

- ① Engine
- ② Air Intake System
- ③ Exhaust System
- ④ Fuel System
- ⑤ Cooling System
- ⑥ Lubrication System
- ⑦ Engine starting System
- ⑧ Governing System.

Engine is the main component which is coupled to the generator for generating current.

Air Intake System

It conveys fresh air to:

- 1) Air intake manifold in 4 stroke engine
- 2) The scavenging pump inlet of a two stroke engine
- 3) The supercharger inlet of a supercharged engine

Sunday 31

AUGUST 2011						
SUN	MON	TUE	WED	THUR	FRI	SAT
	1	2	3	4	5	6
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	13	14	15	16	17	18
	19	20	21	22	23	24
	25	26	27	28	29	30
	31					

Entire air intake system begins with an intake located outside the building provided with a filter to catch the dust

Important

01

Monday
AUGUST

Exhaust System

The purpose of exhaust system is to discharge the engine exhaust to the atmosphere outside the building. The exhaust manifold connects the engine cylinder exhaust outlet to the exhaust pipe which is provided with a muffler to reduce pressure in the exhaust line and eliminate most of the noise which may result if gases are discharged to the atmosphere directly. This exhaust pipe should be short in length with minimum of bends and should have one or two flexible tubing sections which take up the effect of expansion, as well as engine isolate the system from engine vibration.

Important

AUGUST

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Fuel System

The fuel oil may be transferred at the plant site from outside by trucks, rail road tank cars or barge and tankers. From tank car or truck to the storage tanks the fuel is transferred by small pumps to small service storage tanks known as engine day tanks. Every flow line is made workable & practicable by some components like passes, shut offs drain lines, strainers, relief valves etc

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Fuel Injection System

The mechanical heart of the Diesel engine is the fuel injection system. A very small quantity of fuel with measured quantity, injected, atomized and mixed with combustion air, that too at a very fast speed.

important

SEPTEMBER						
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03

Wednesday
AUGUST

Functions of Fuel Injection System

- ① Filter the fuel.
- ② Measure the correct quantity of fuel to be injected.
- ③ Proper time of fuel injection
- ④ Control the rate of fuel injection
- ⑤ Atomize & break up the fuel into fine particles
- ⑥ Properly distribute the fuel in the combustion chamber

Type of FIP (Fuel Injection Pump)

1. Common Rail System
2. Individual Pump Injection System
3. Distributor.

Fig.

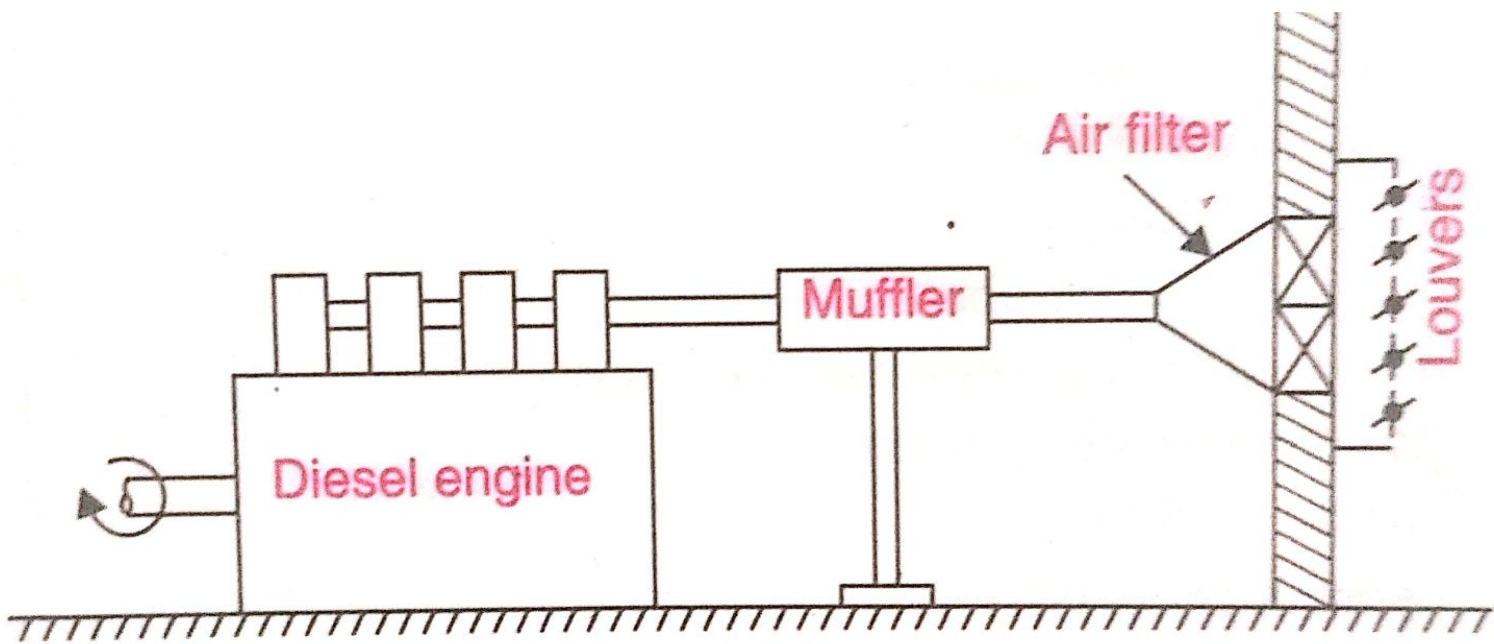


Fig. 4.8. Air intake system.

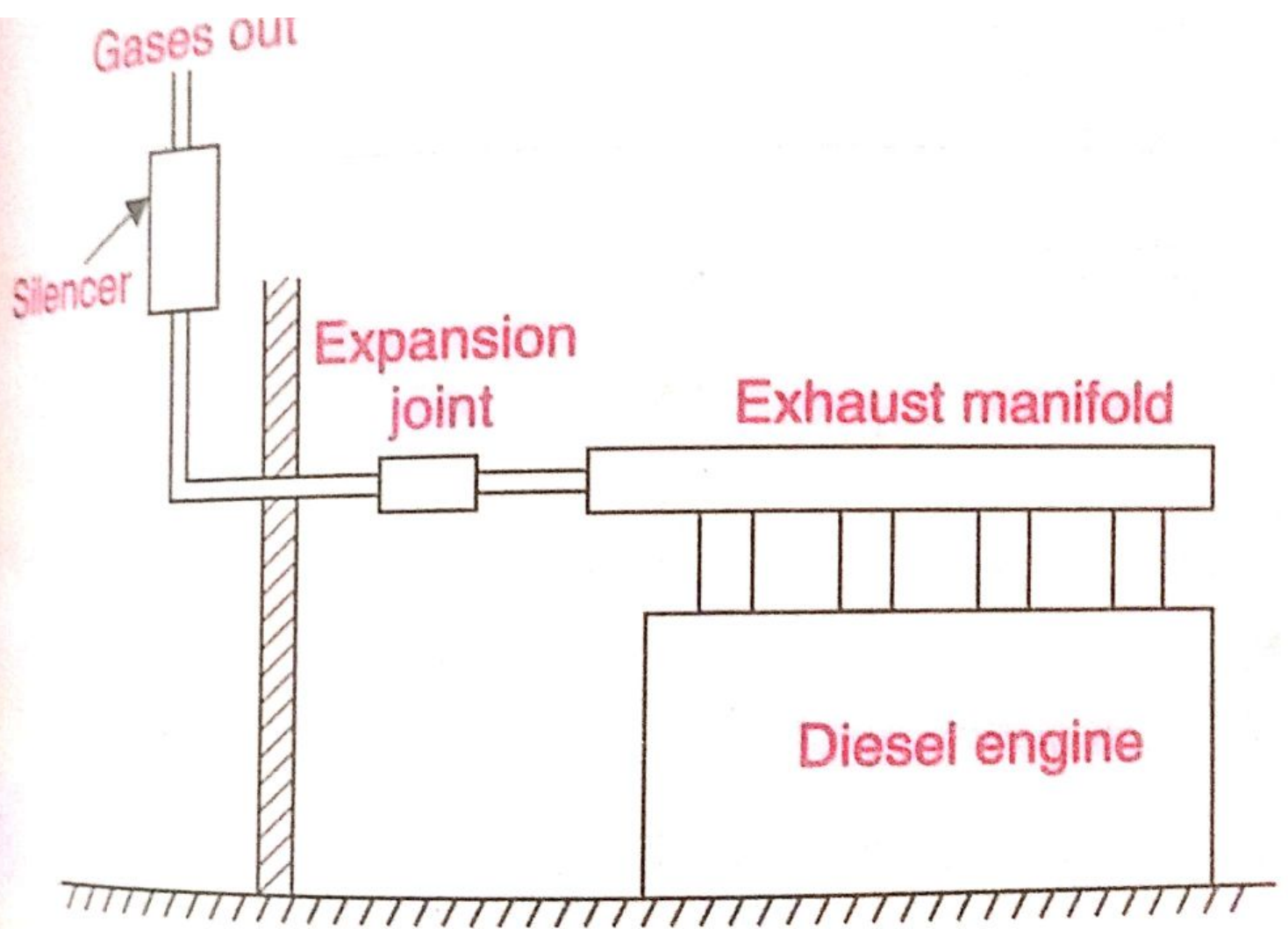


Fig. 4.9. Exhaust system.

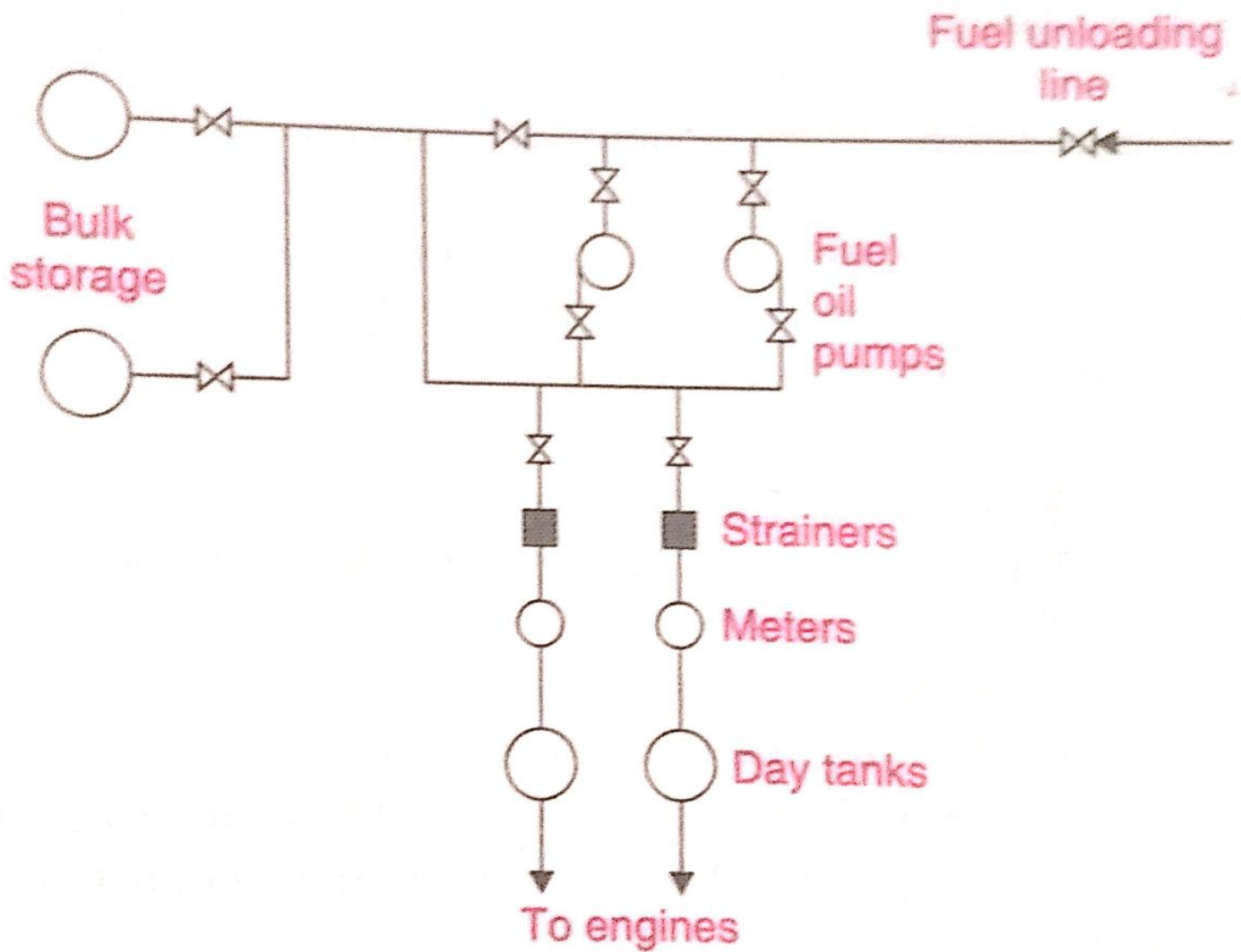


Fig. 4.10. System of fuel storage for a diesel power plant.

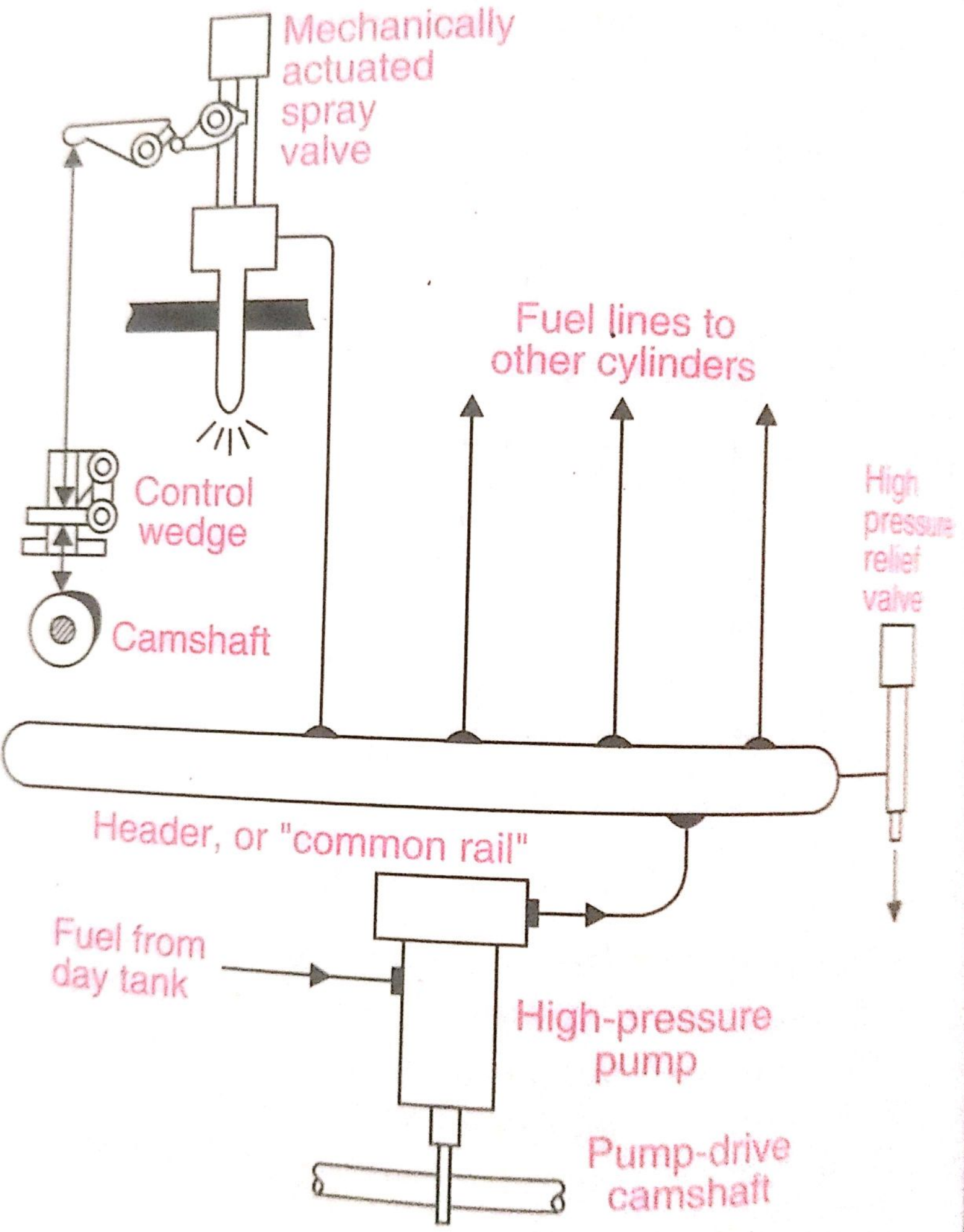
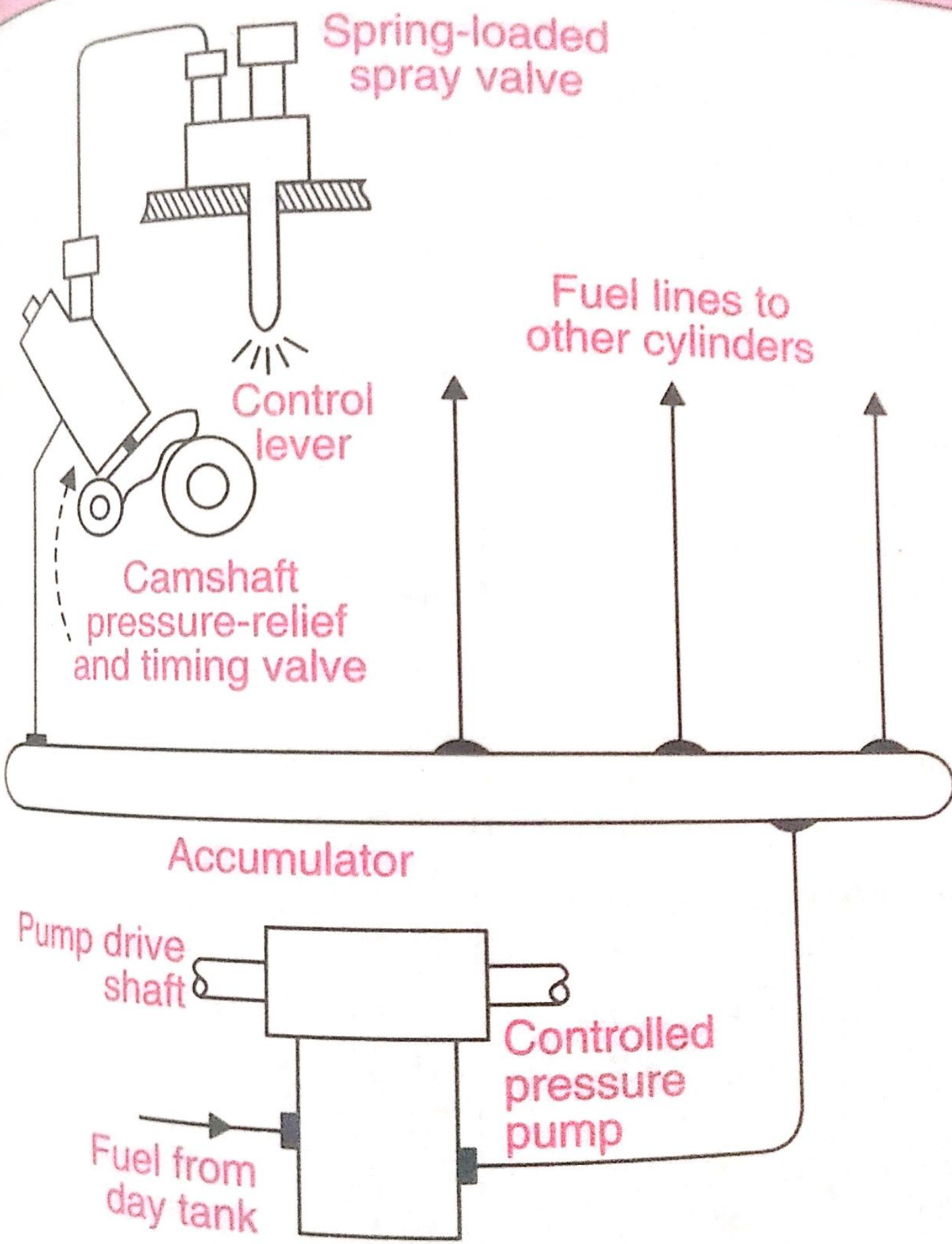


Fig. 4.11

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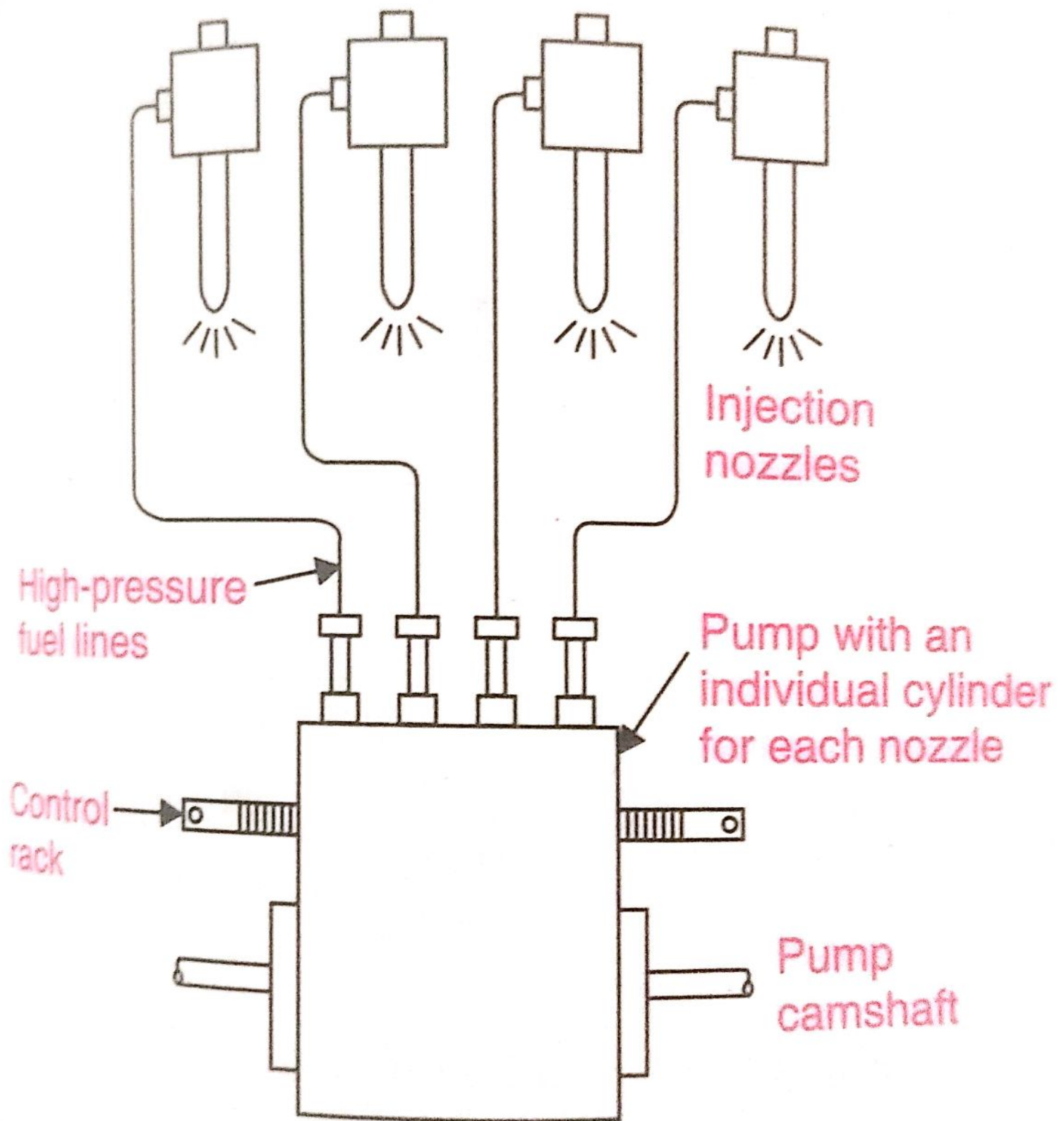


Fig. 4.13. Individual pump injection system.

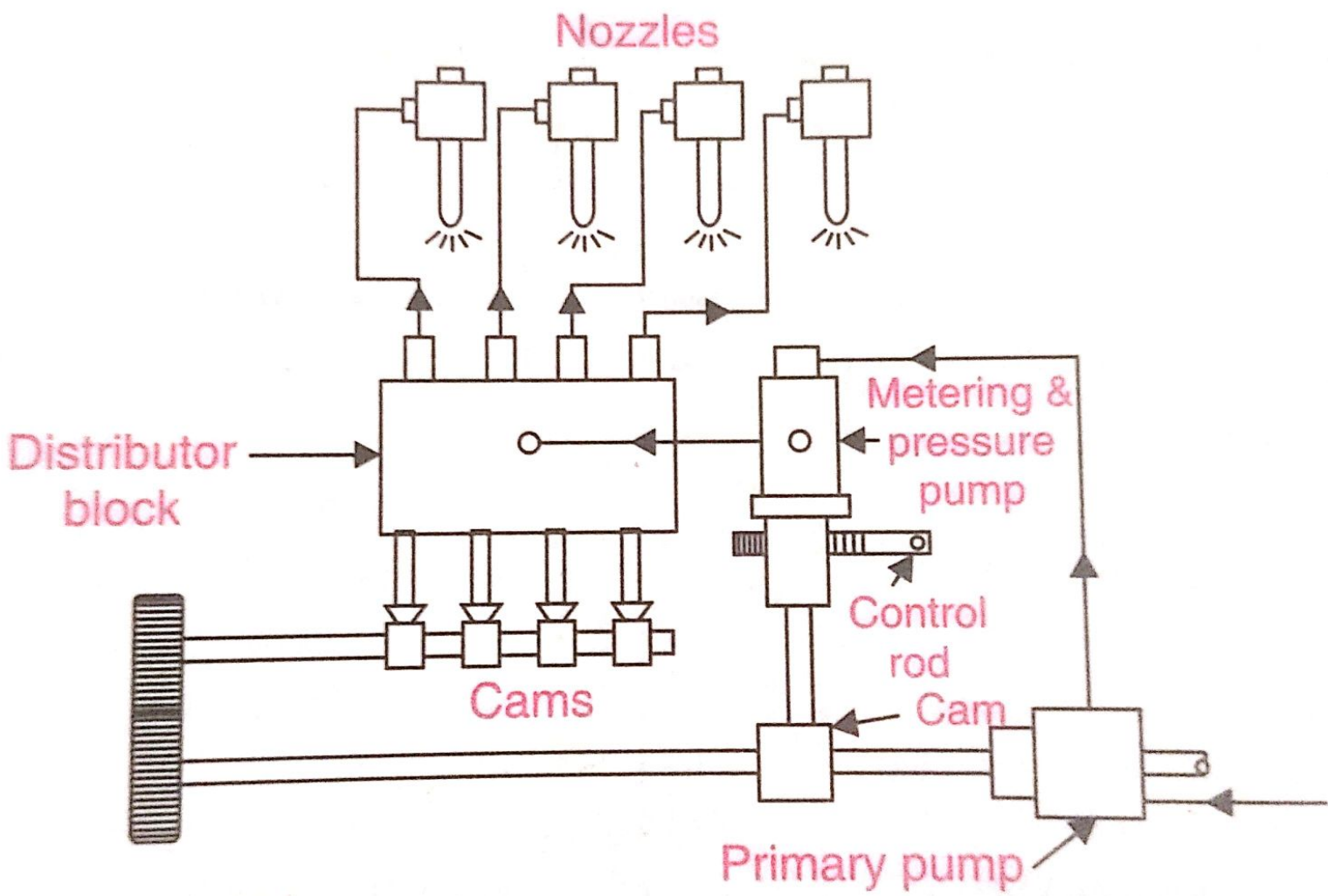


Fig. 4.14. Distributor system.