

The Future of Common Rail Injection Systems

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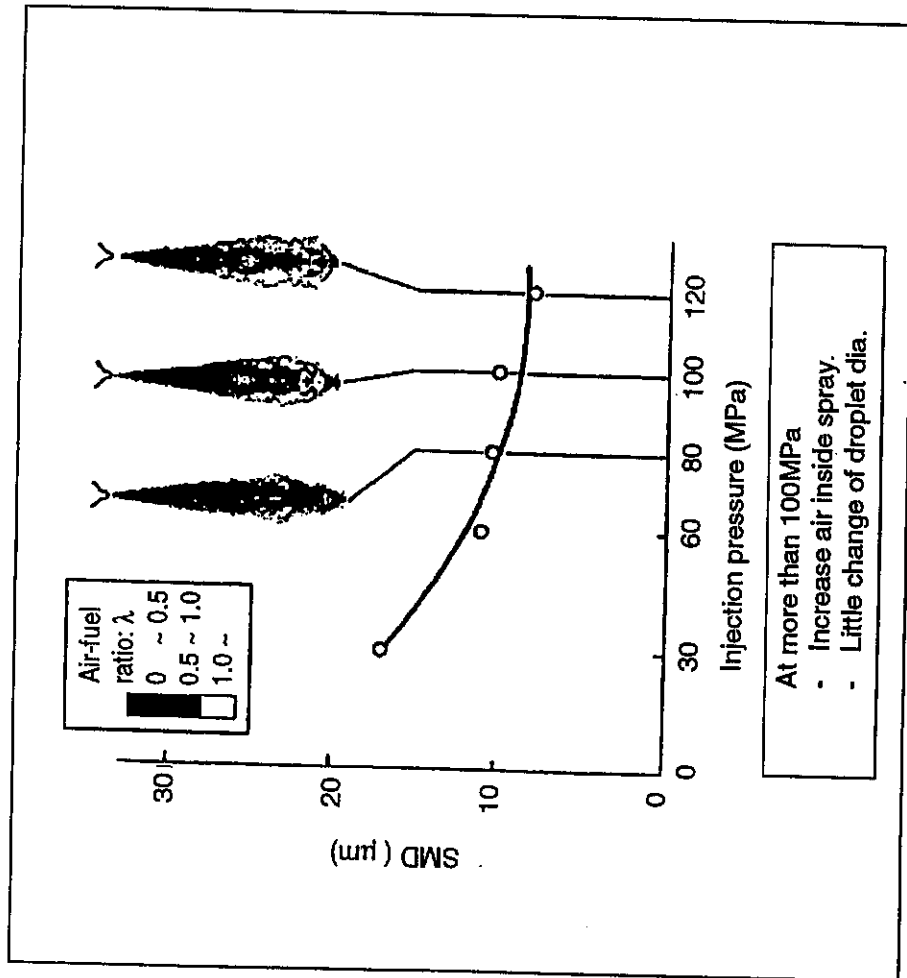


Figure 1: Effect of injection pressure on SMD and spray

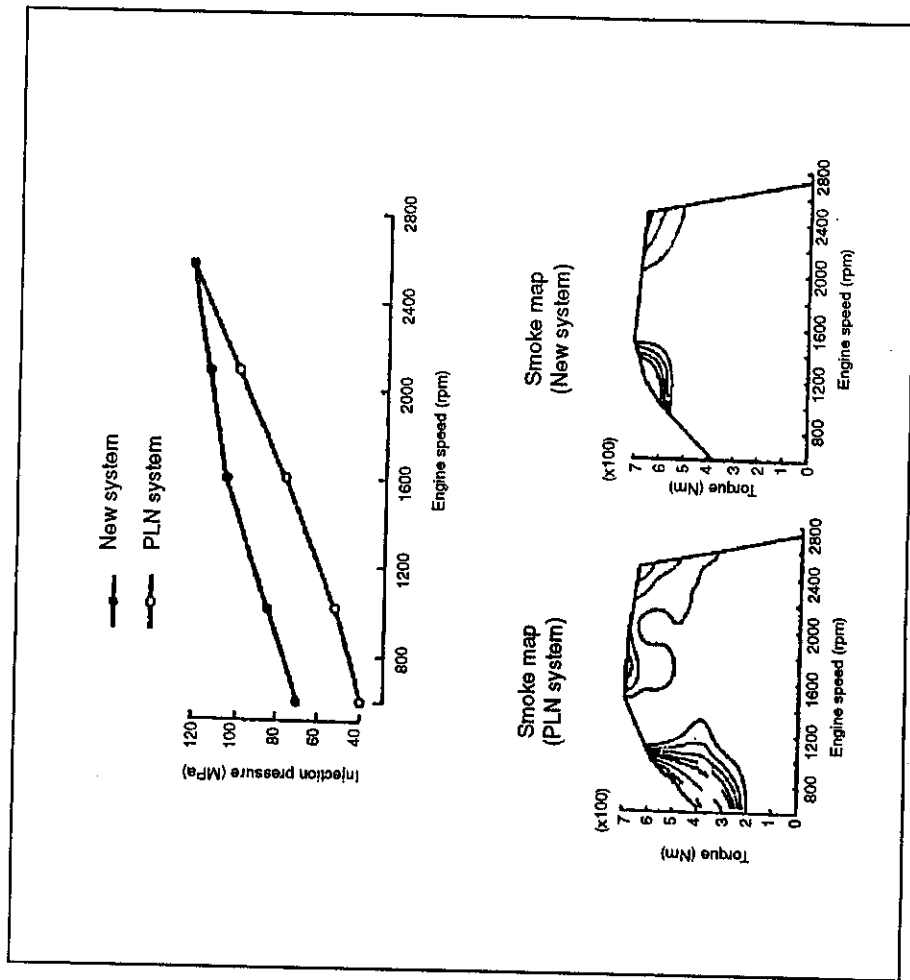


Figure 2: Comparison of smoke maps

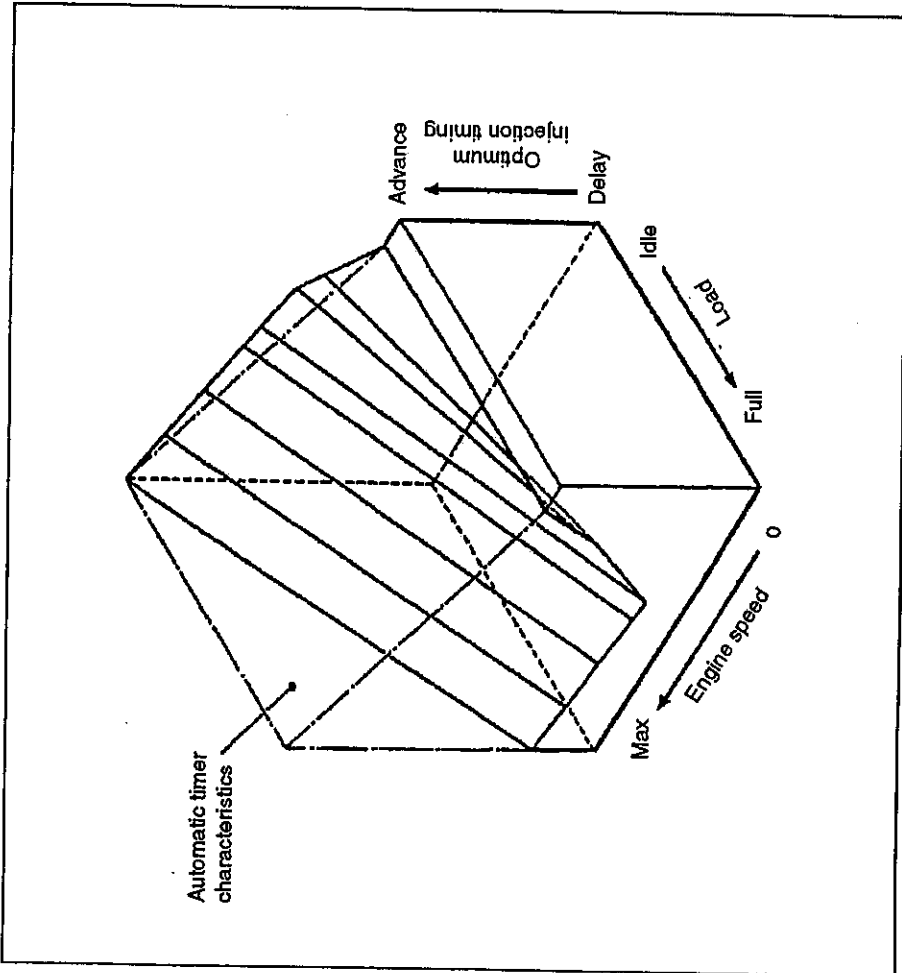


Figure 3: Example of optimum injection timing

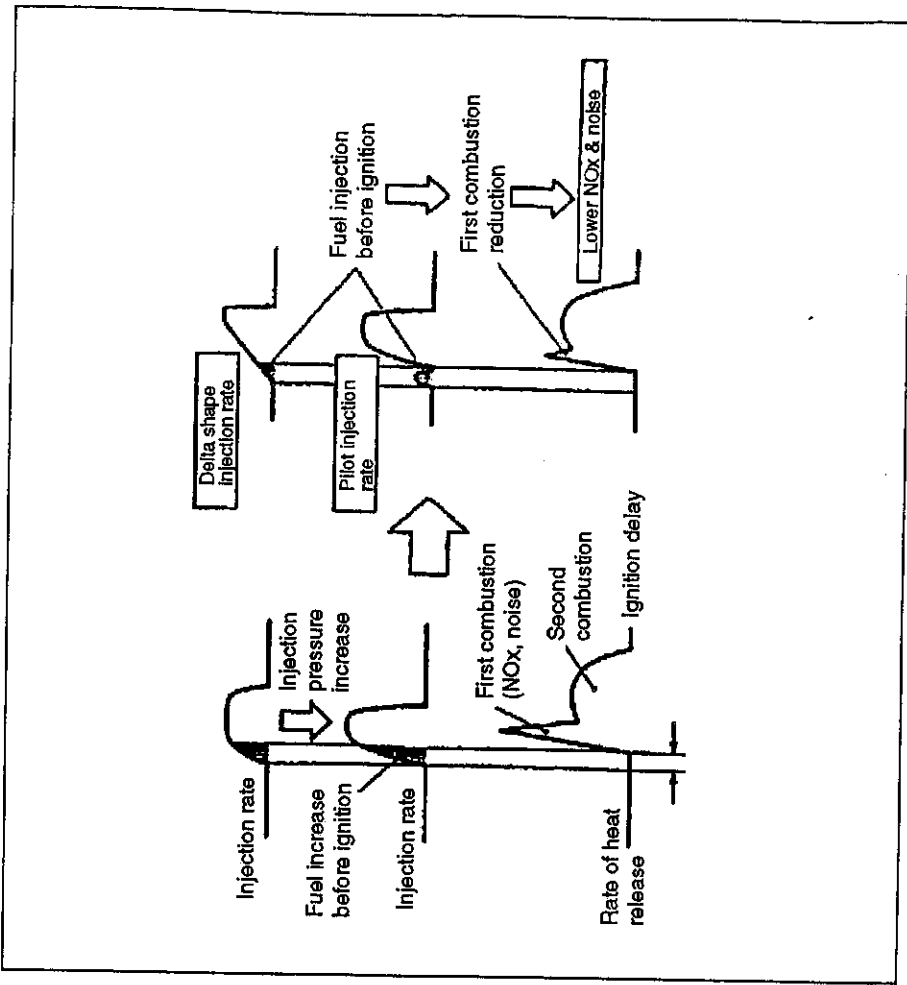


Figure 4: Effect of injection rate control

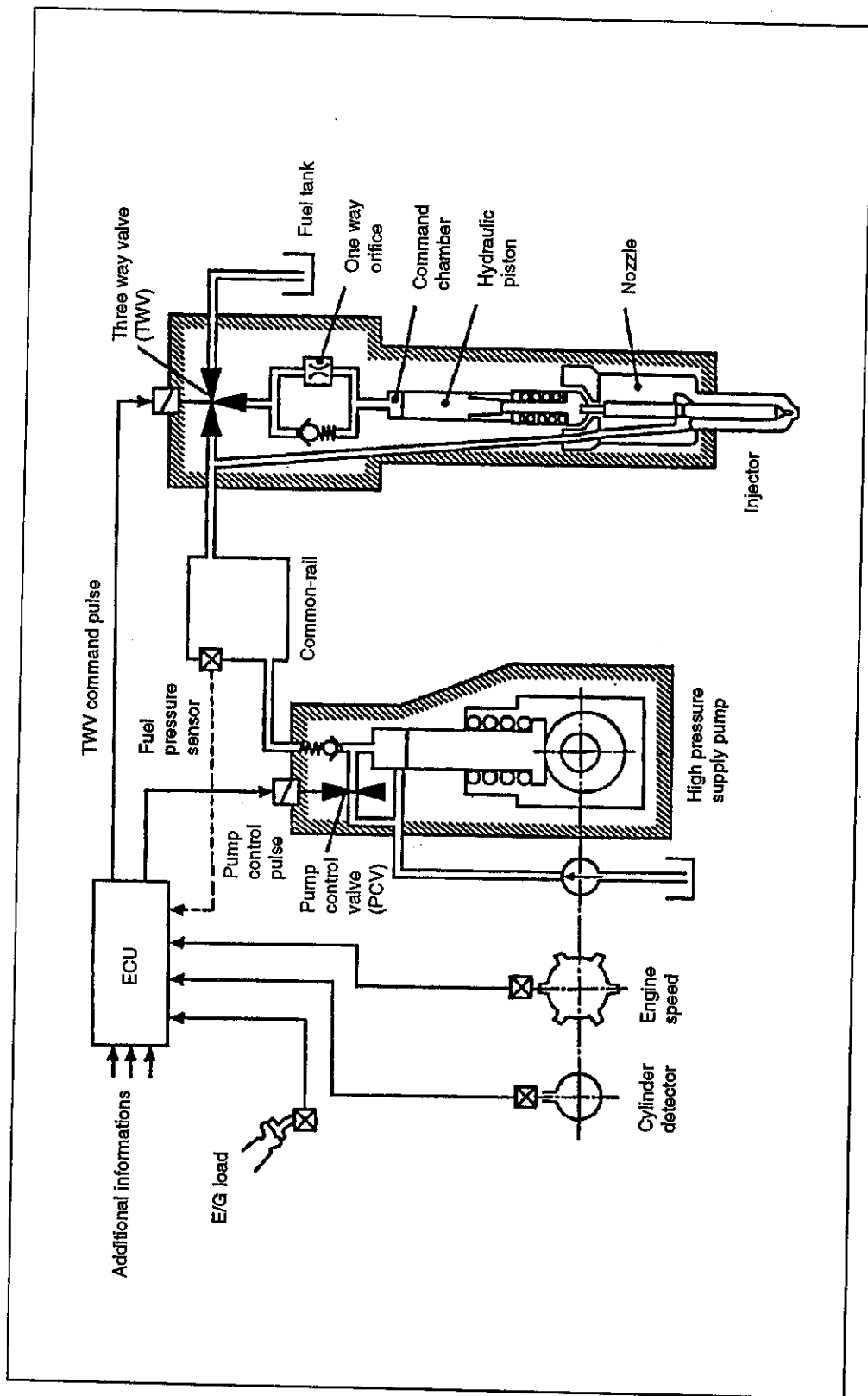


Figure 5: Schematic diagram of ECD-U2 system

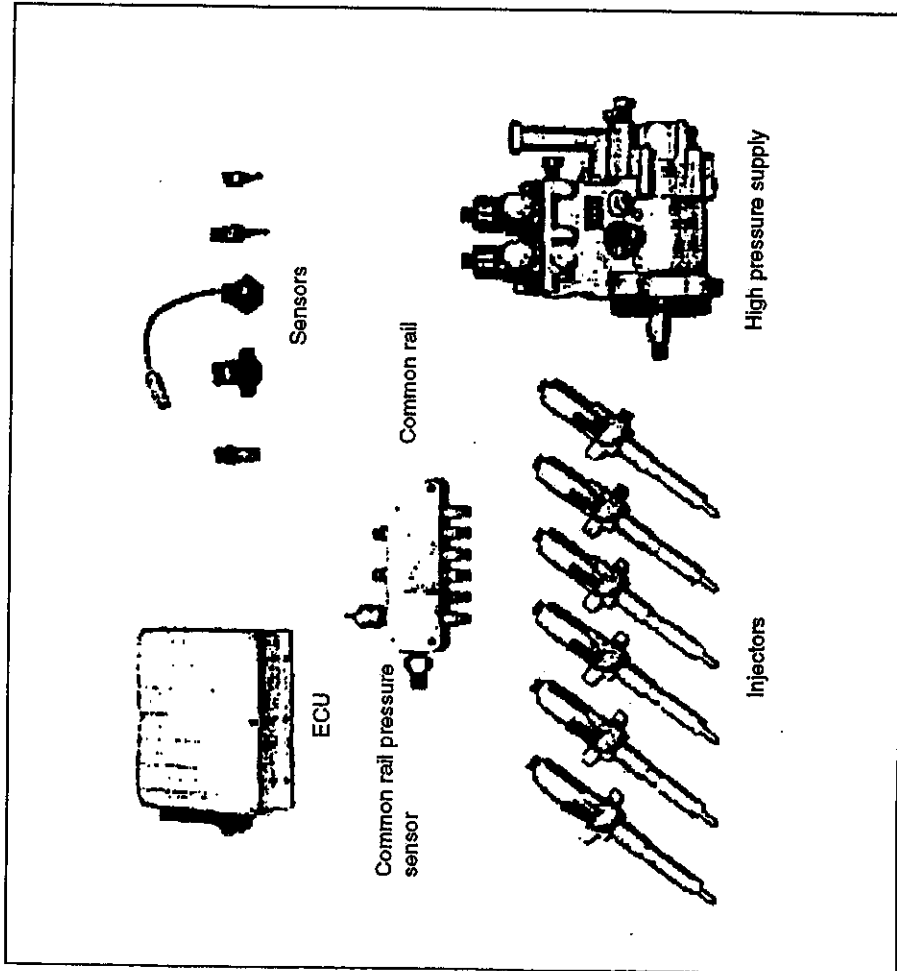


Figure 6: Whole system overview

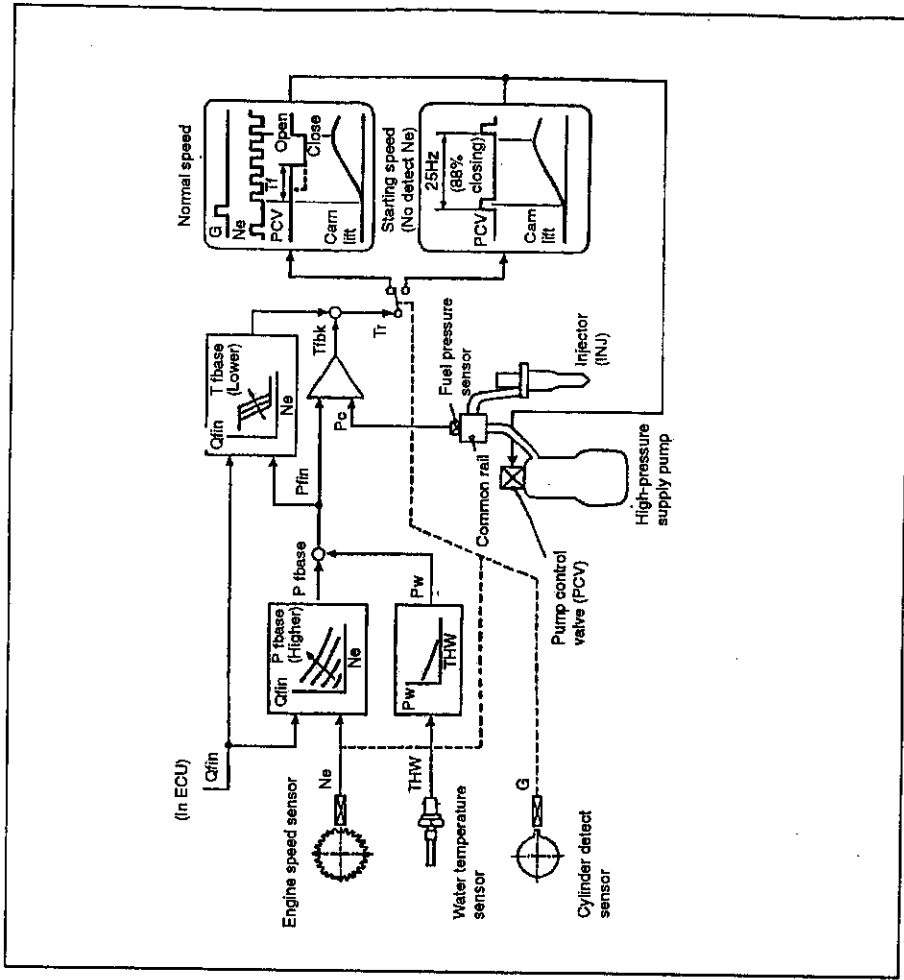


Figure 7: Block diagram of injection pressure control

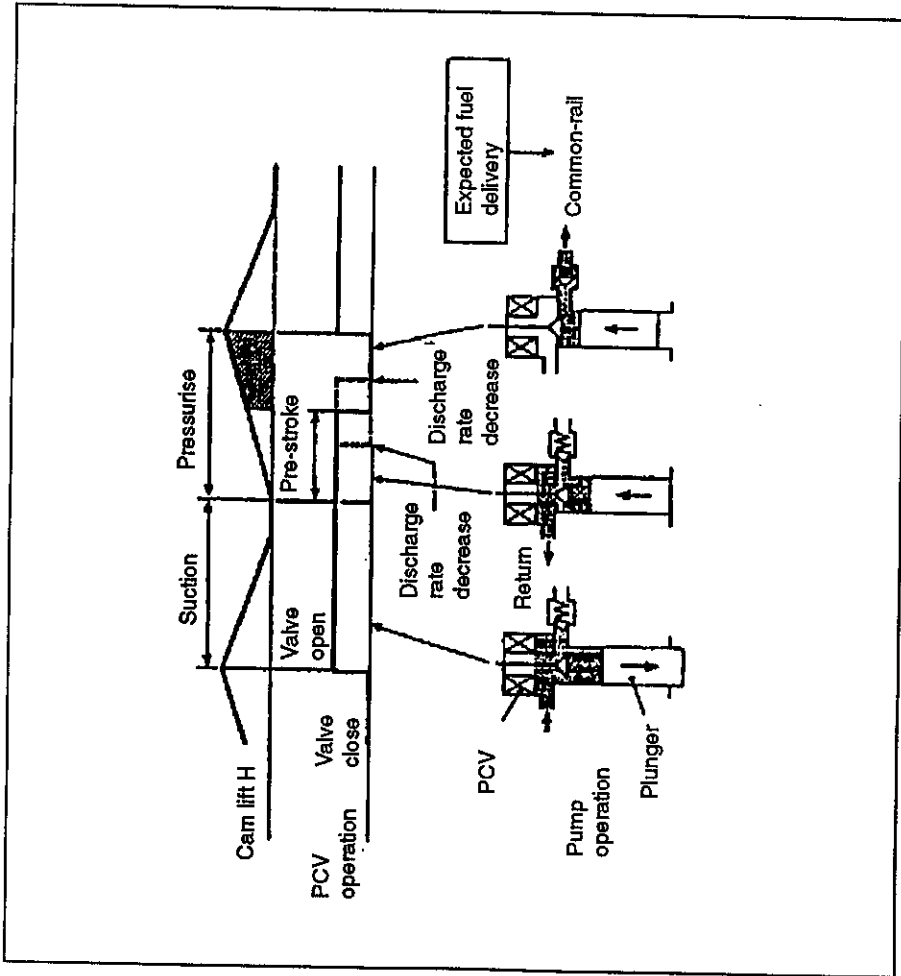


Figure 8: Control of high-pressure supply pump

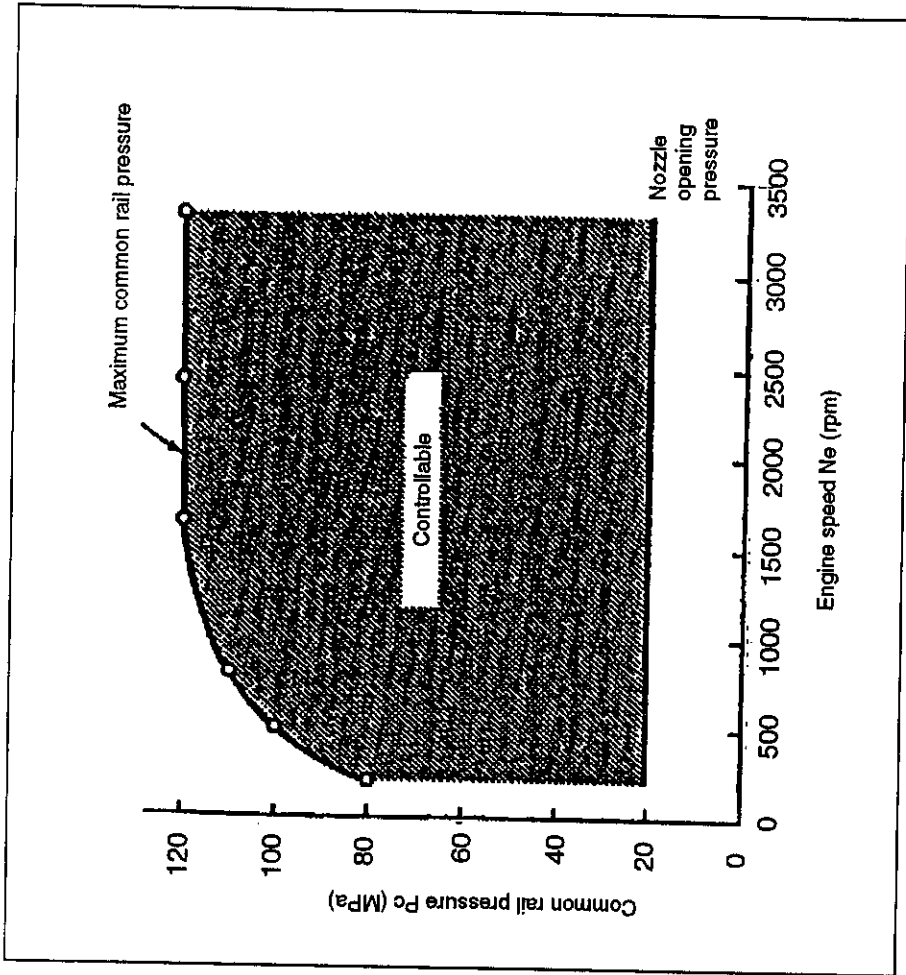


Figure 9: Maximum common rail pressure and control range

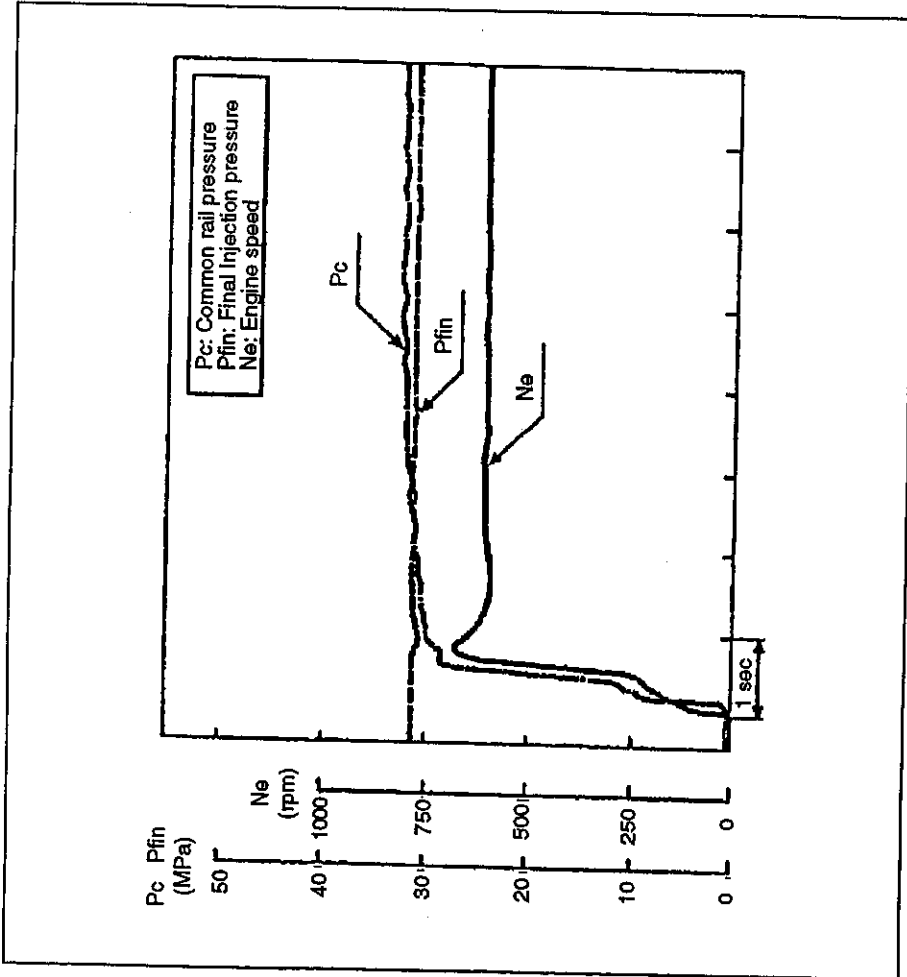


Figure 10: Pressure response at starting condition

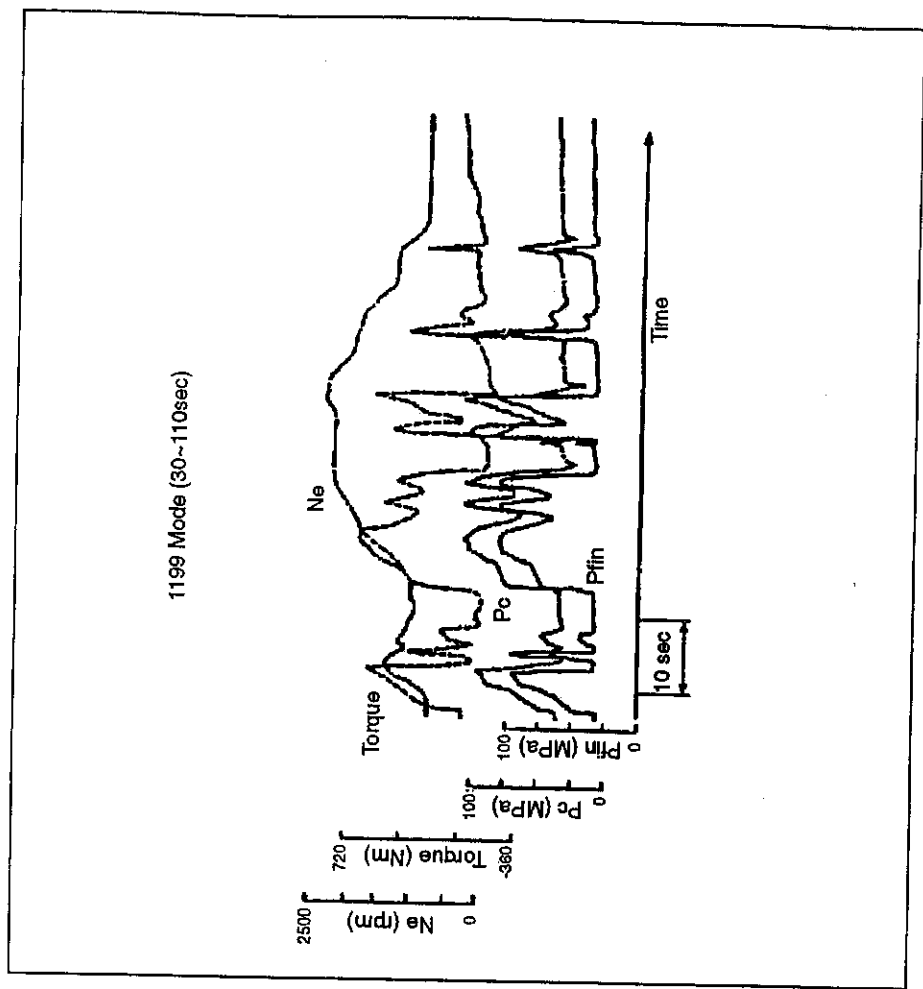


Figure 11: Pressure response at transient condition

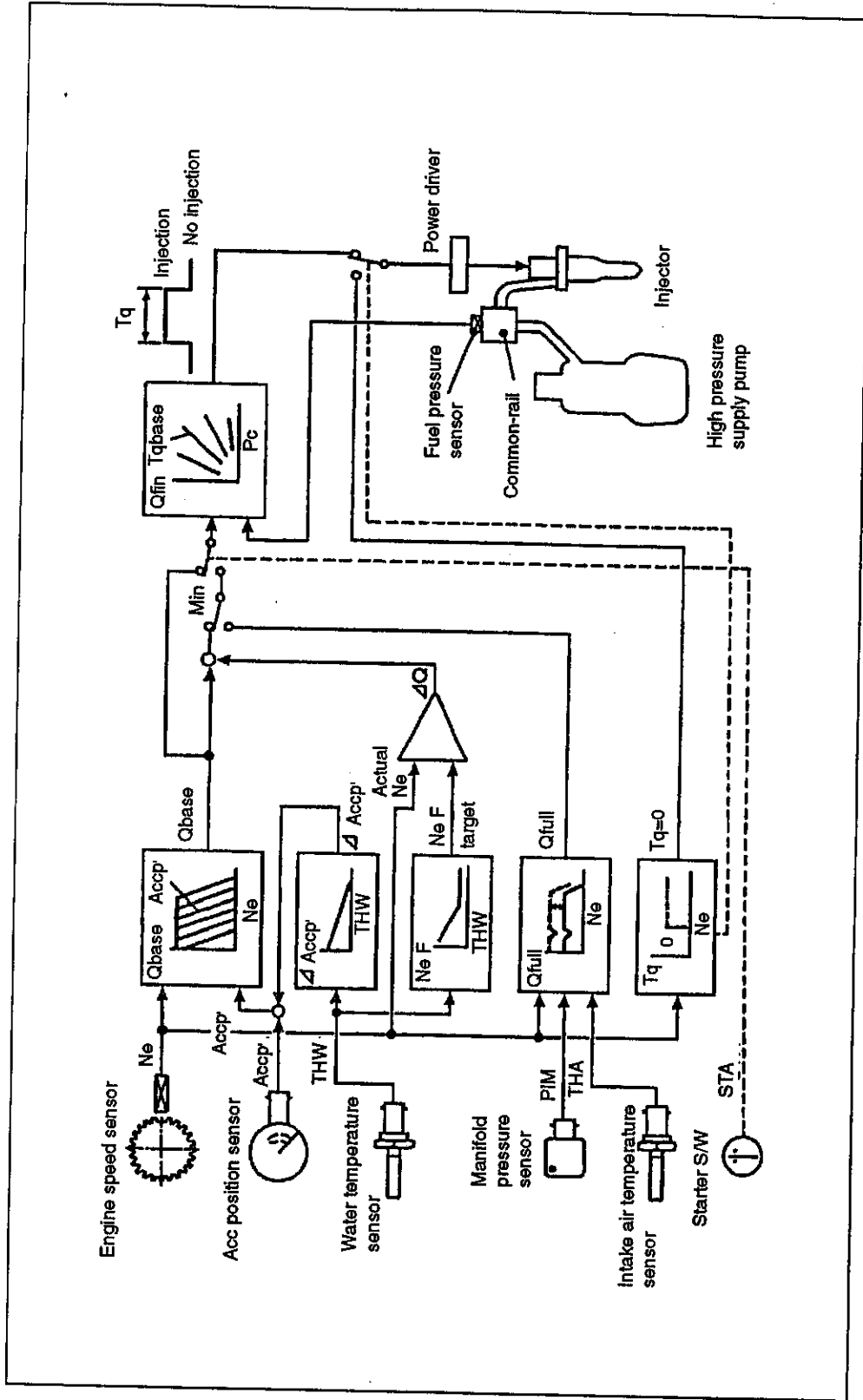


Figure 12: Block diagram of injection quantity control

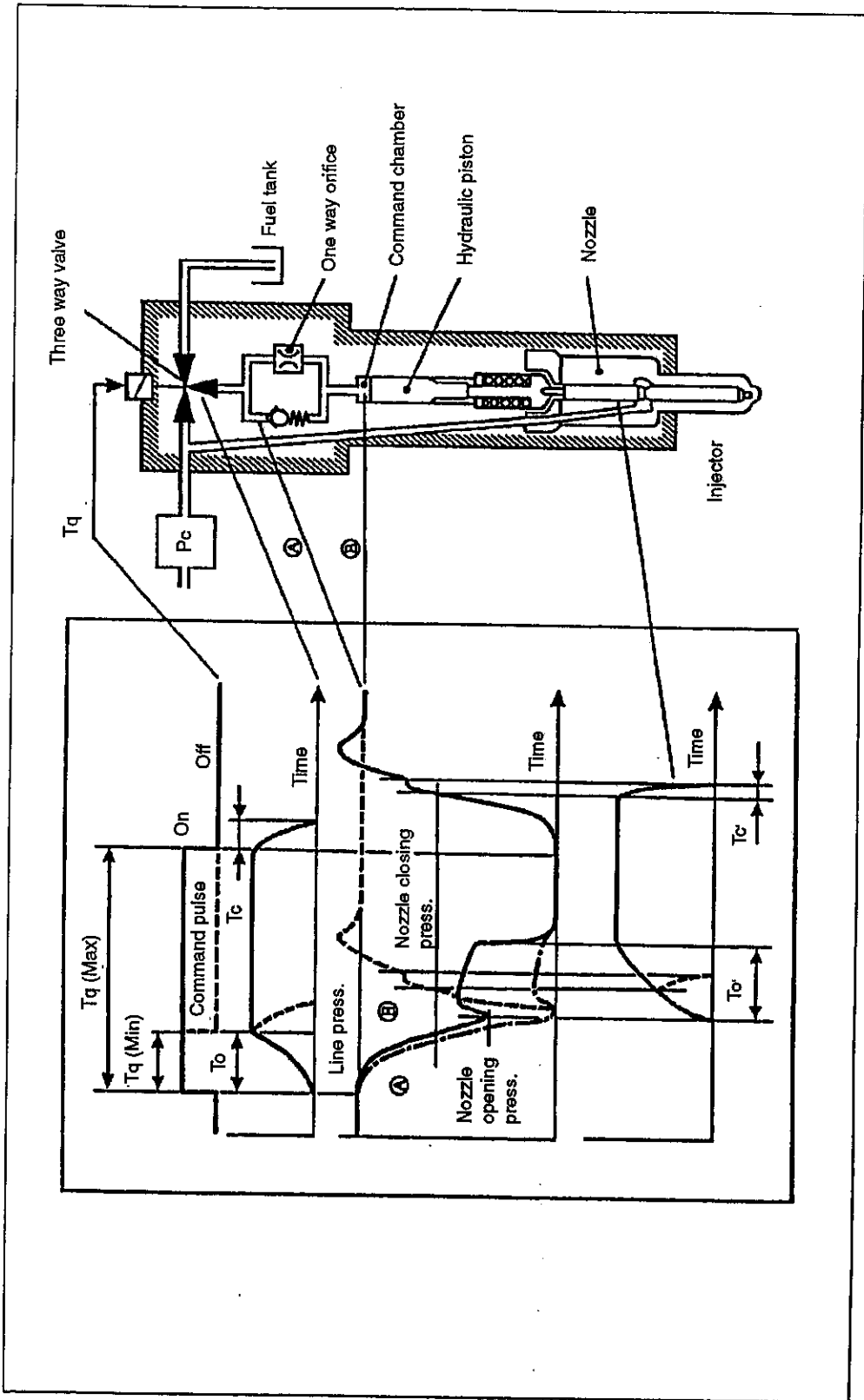


Figure 13: Fuel quantity control strategy

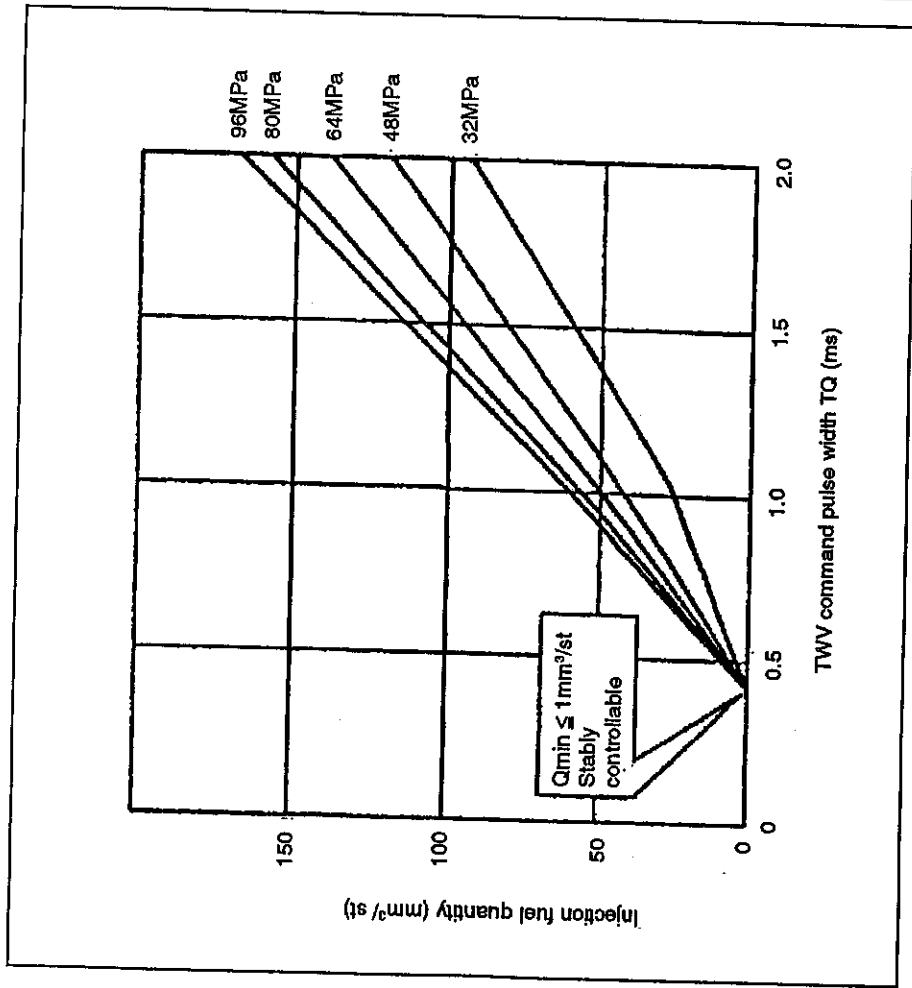


Figure 14: Fuel quantity control characteristics

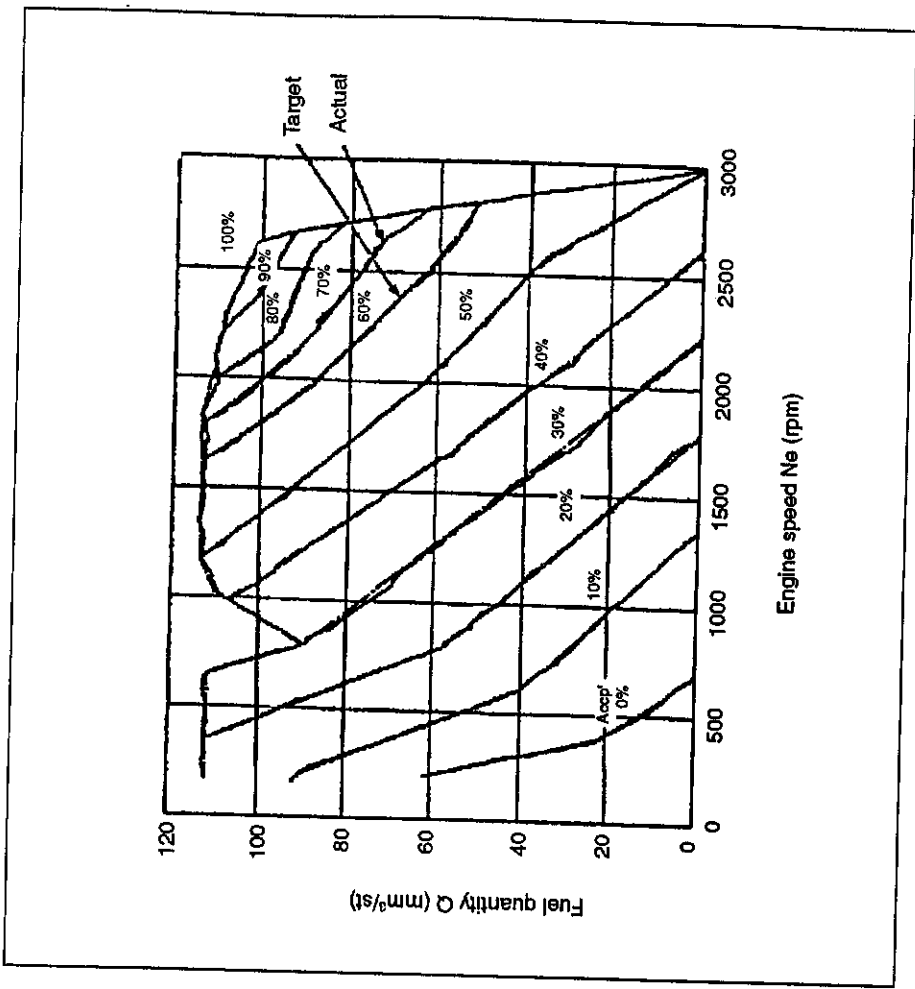


Figure 15: Fuel quantity control

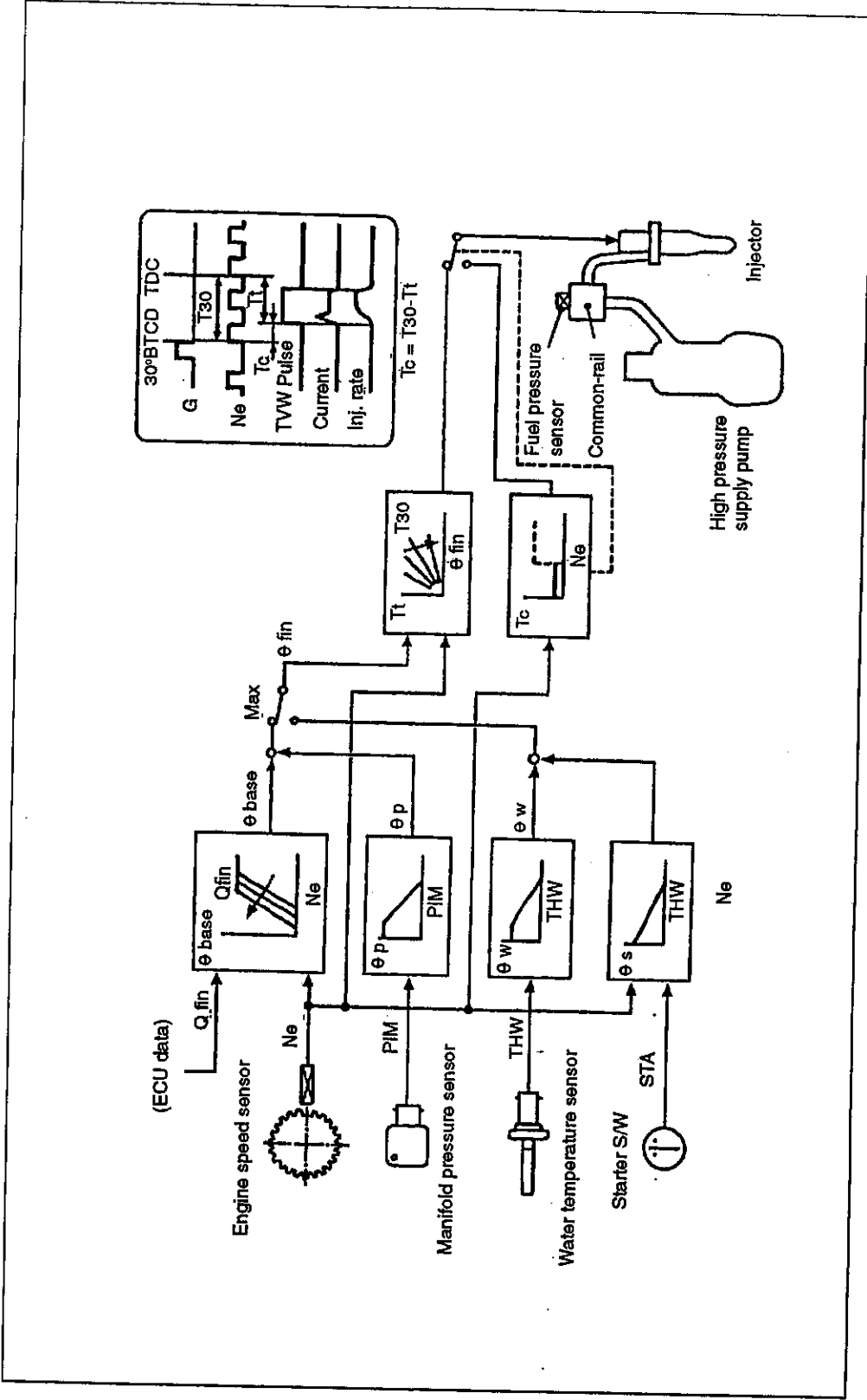


Figure 16: Block diagram of injection timing control

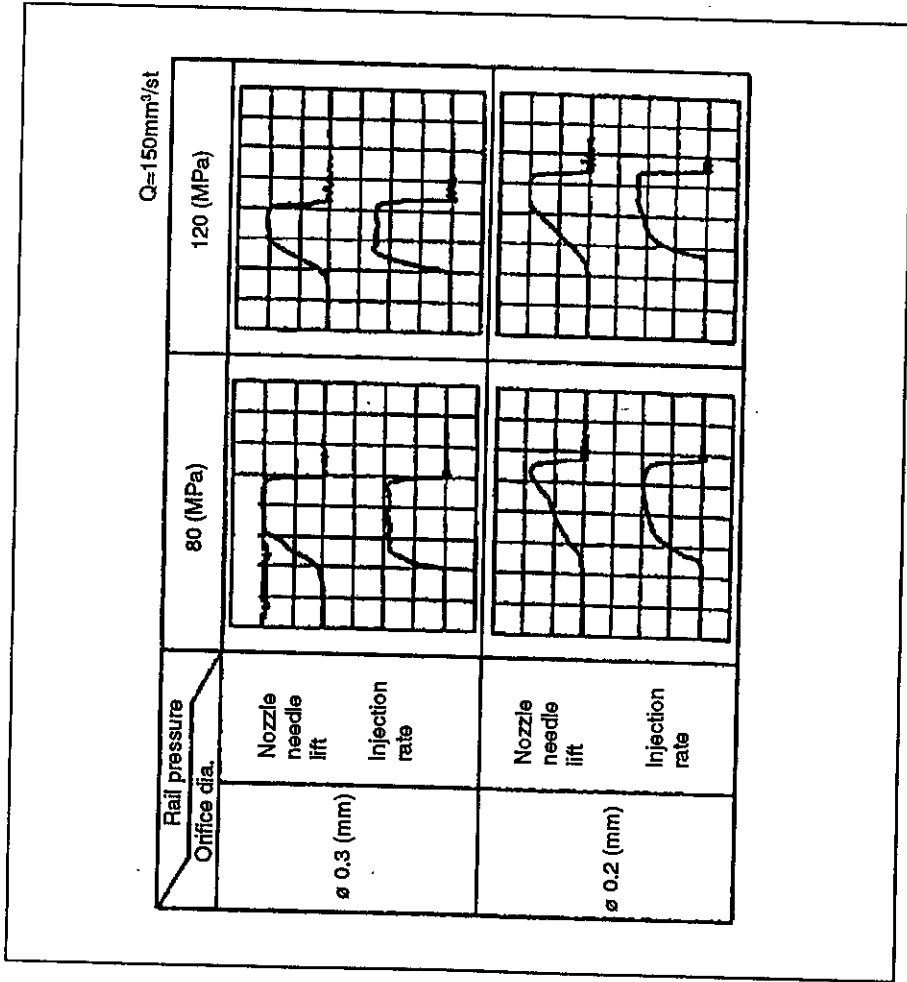


Figure 17: Delta shape injection rate

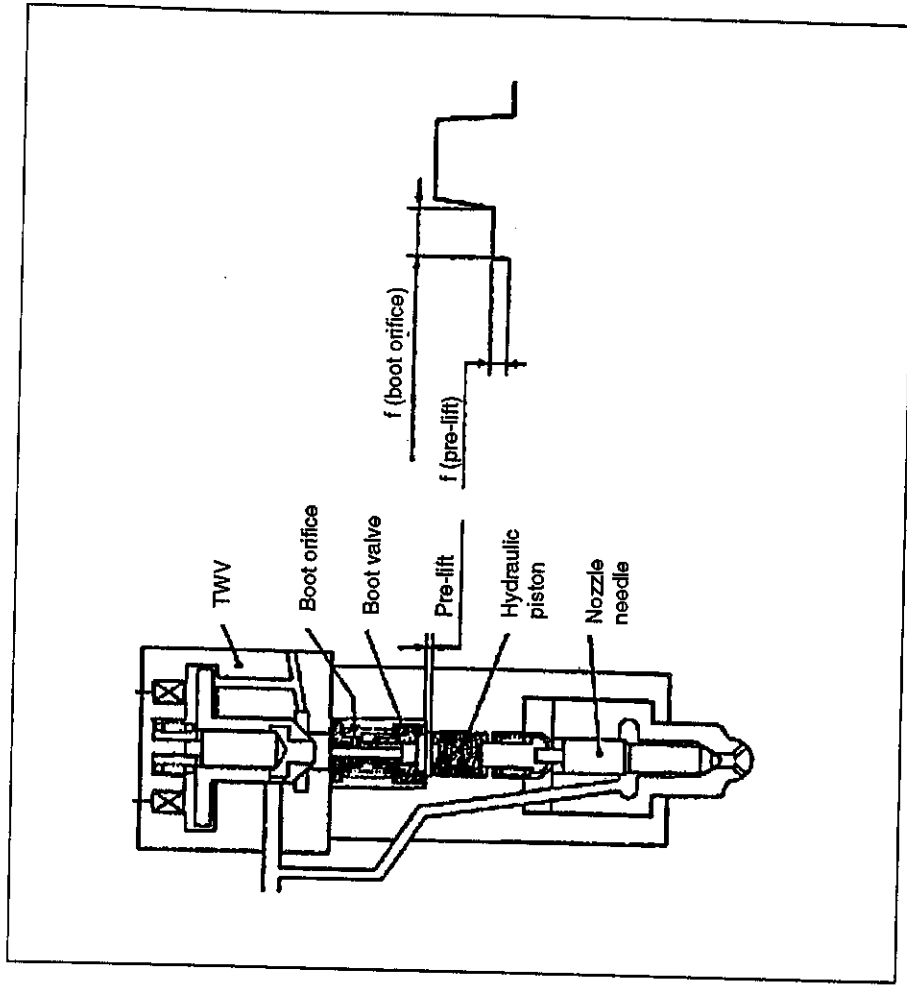


Figure 18: Structure of injector for boot shape injection rate

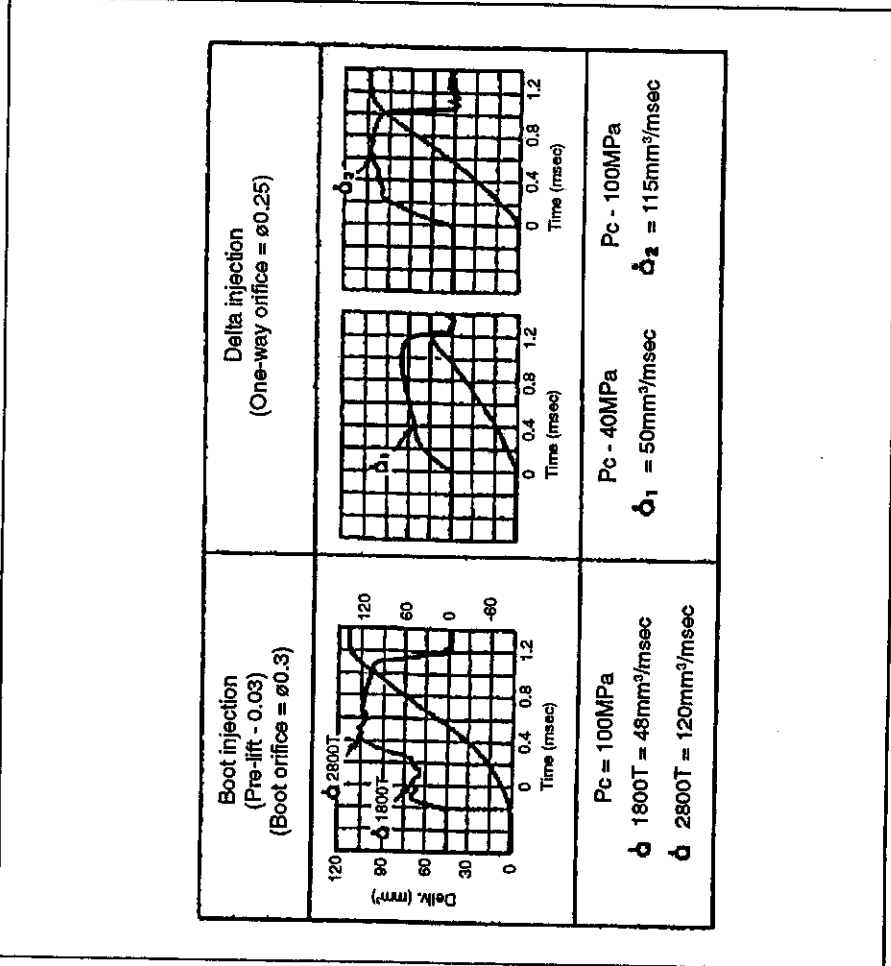


Figure 19: Boot shape injection rate

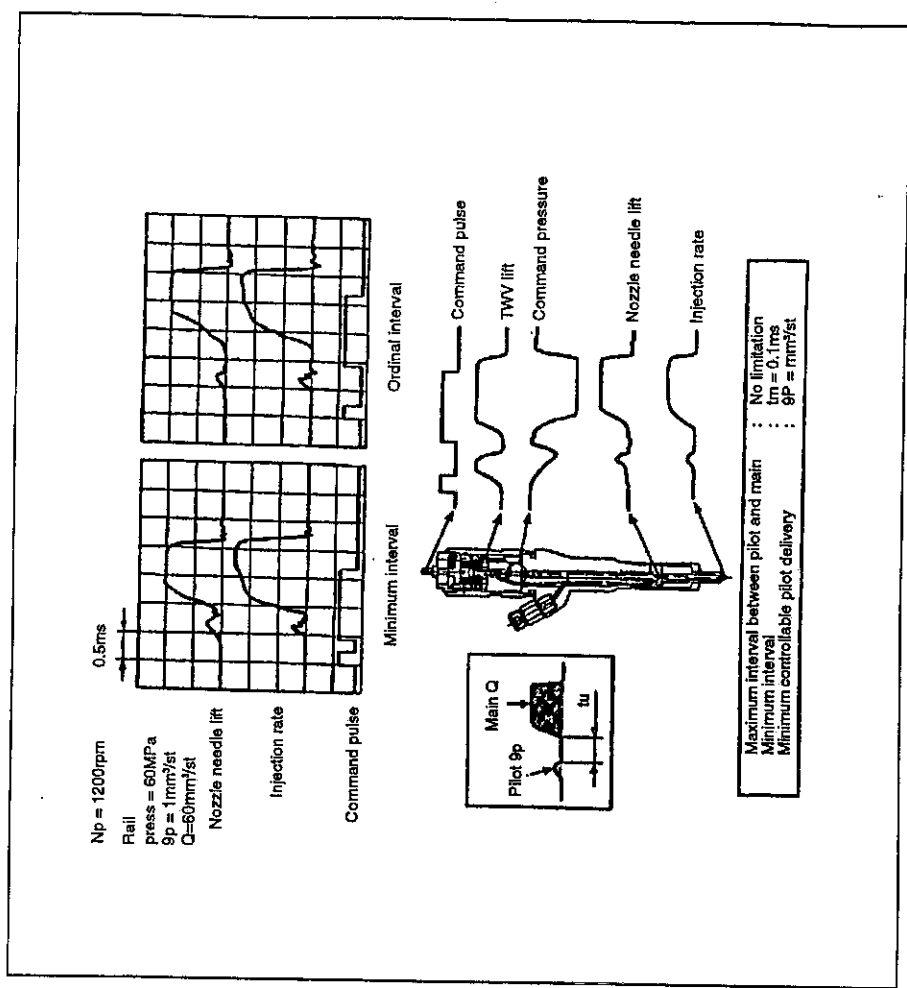


Figure 20: Pilot injection rate