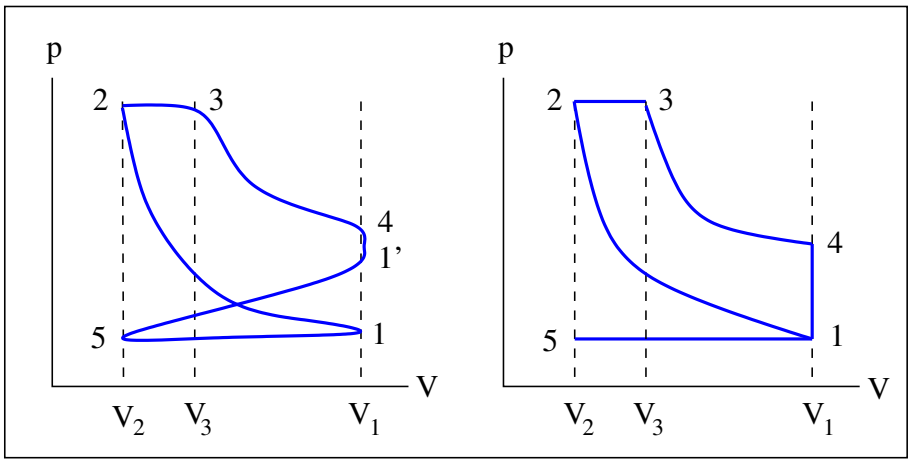
Diesel engine [tln66]



Four-stroke Diesel cycle (left)

1-2: compression stroke (fuel injected and spontaneously ignited at 2)
2-3-4: power stroke (Diesel fuel burns more slowly than gasoline)
4-1'-5: exhaust stroke (exhaust valve opens at 4)
5-1: intake stroke (intake valve opens at 5)

Idealized Diesel cycle (right)

1-2: adiabatic compression of air ($S = \text{const}$)
2-3: isobaric expansion as fuel explodes ($p = \text{const}$)
3-4: adiabatic expansion of exhaust gas ($S = \text{const}$)
4-1: isochoric release of exhaust gas ($V = \text{const}$).
1-5-1: intake stroke (thermodynamically ignored)

Parameter: $K \doteq V_1/V_2$ (compression ratio), $L \doteq V_3/V_2$