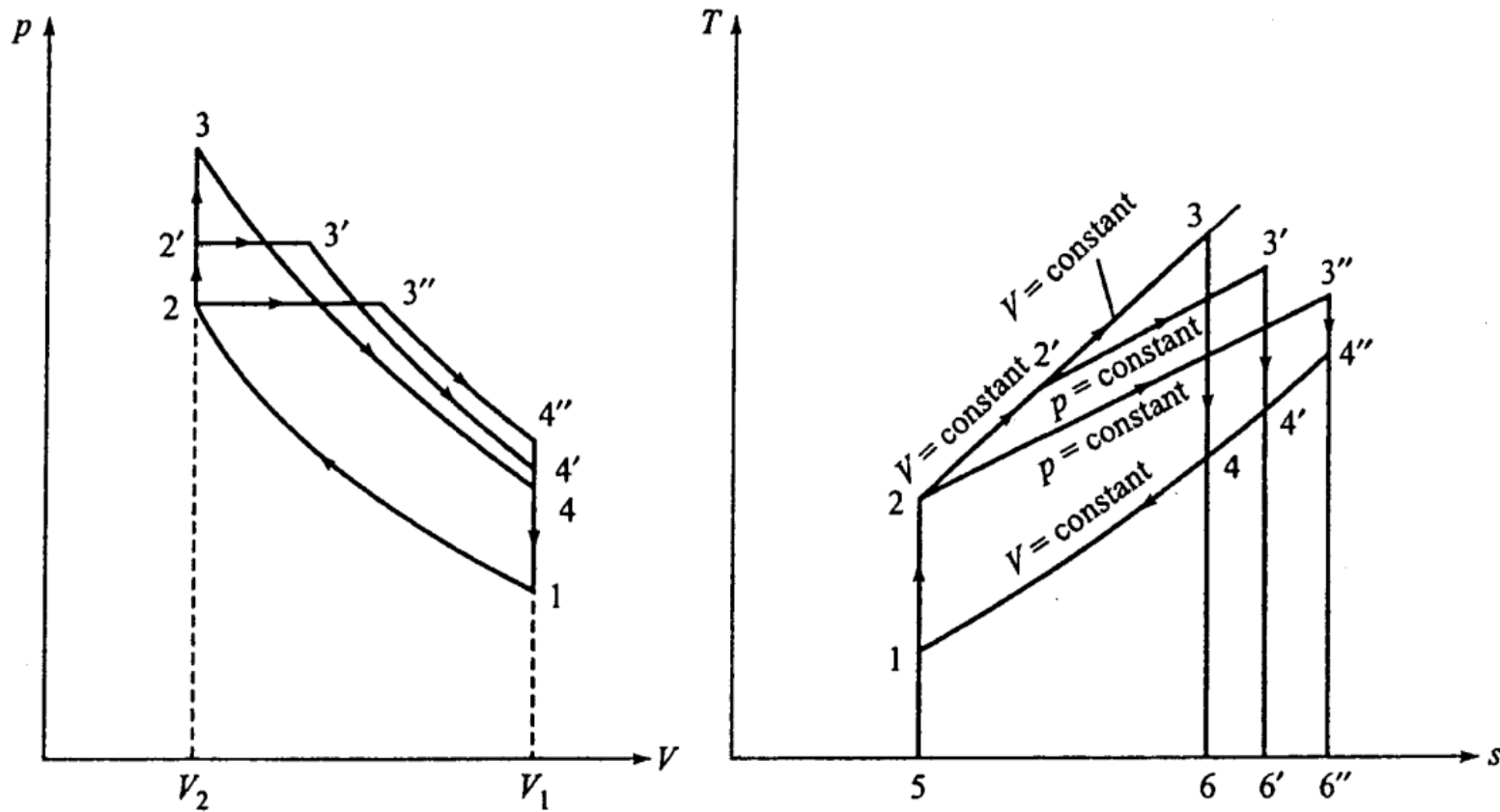
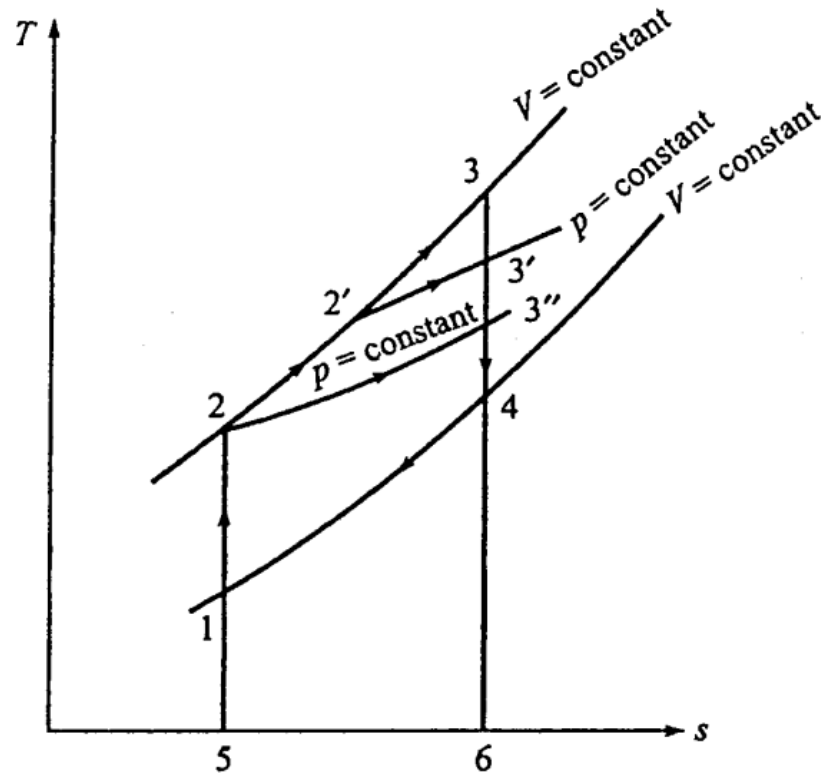
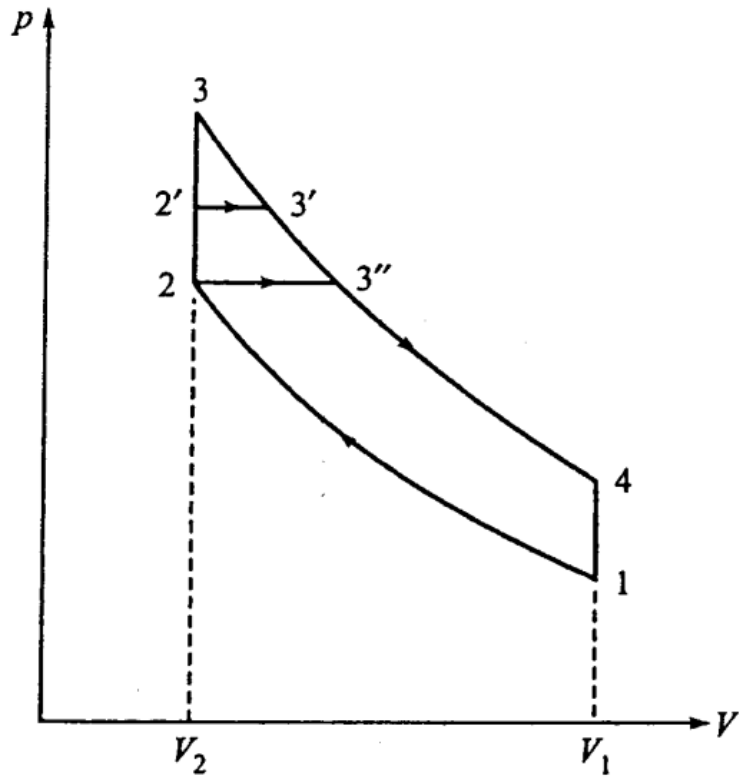


# COMPARISON OF OTTO, DIESEL AND DUAL COMBUSTION CYCLES

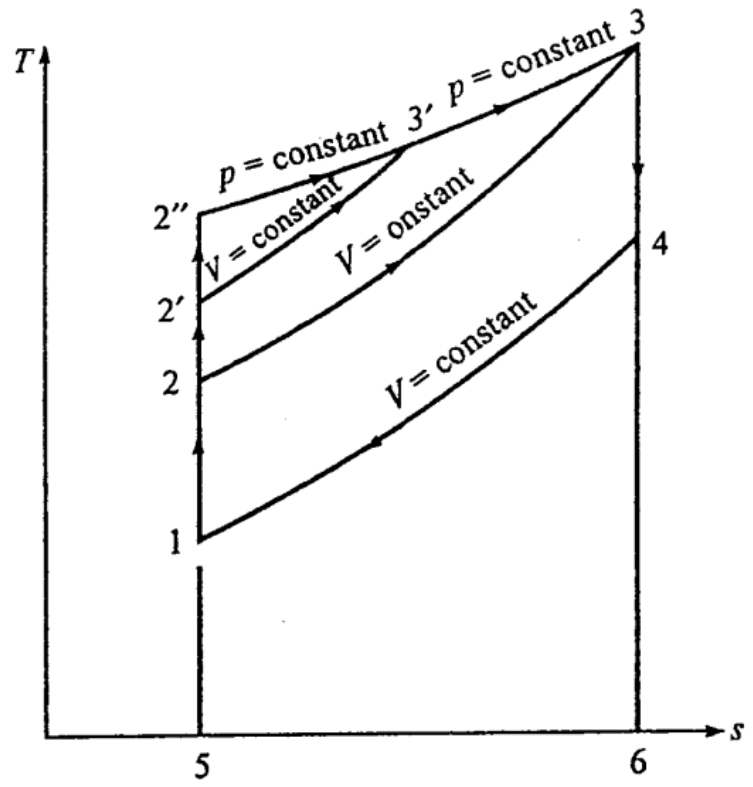
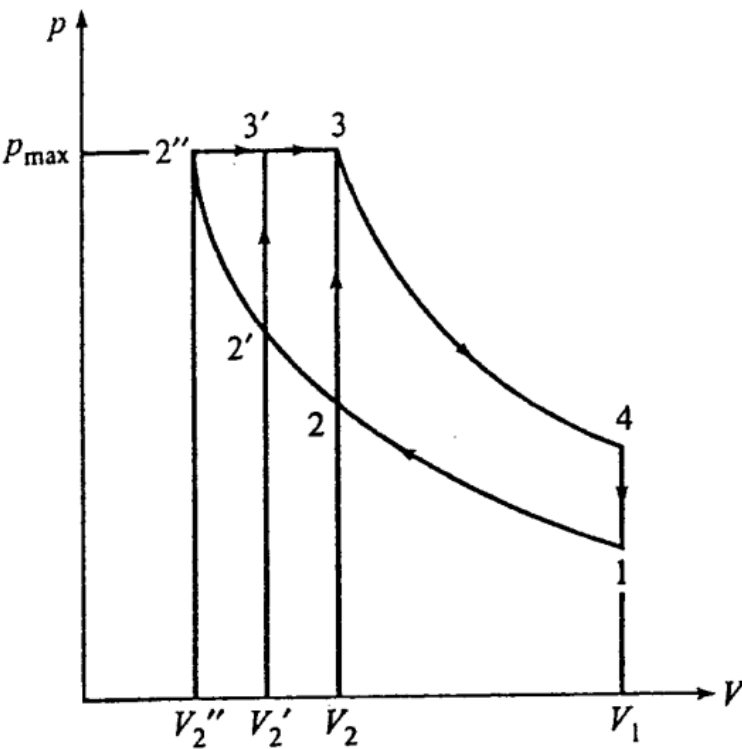
For the same compression ratio and heat addition



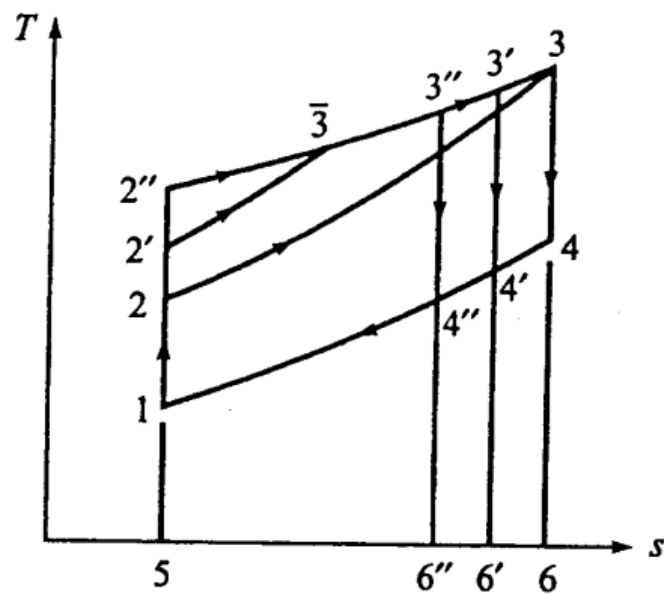
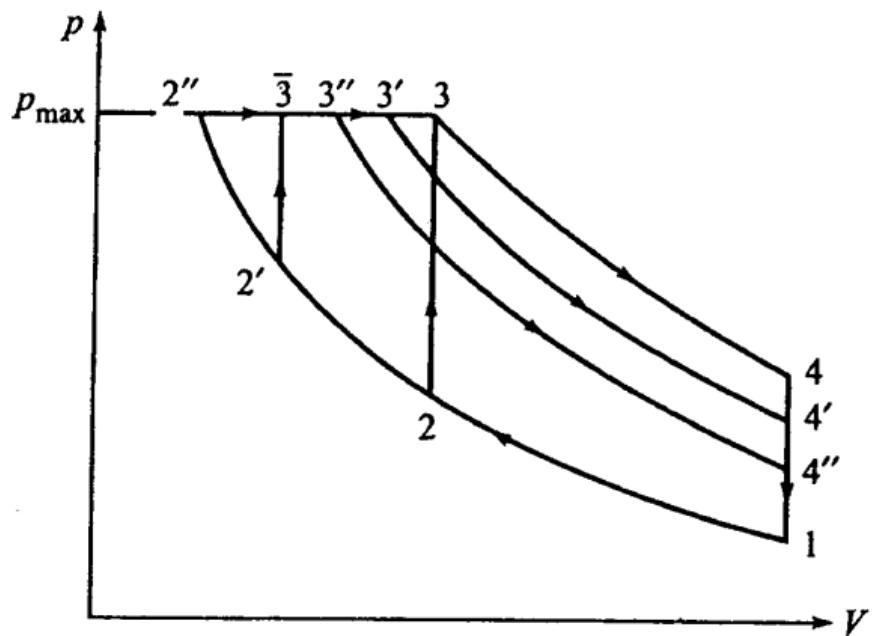
**For the same compression ratio and heat rejection**



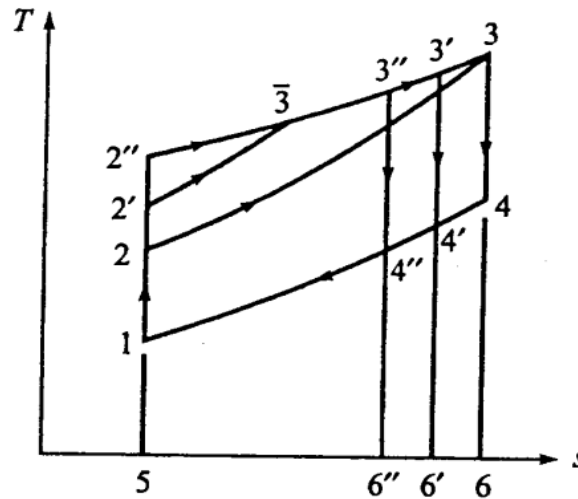
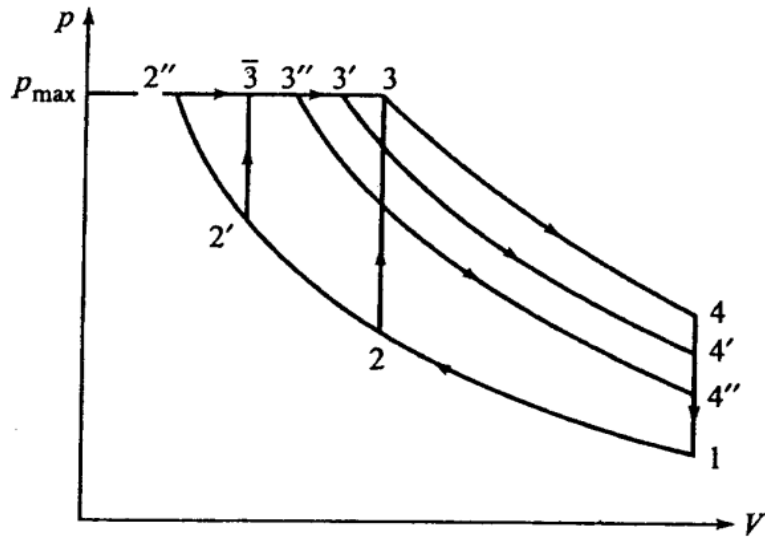
For the same peak pressure, peak temperature and heat rejection



**For the same maximum pressure and heat input**



**For the same maximum pressure and work output**



$$\eta = \frac{\text{work done}}{\text{heat supplied}} = \frac{\text{work done}}{\text{work done} + \text{heat rejected}}$$

area 12341 (work done in Otto cycle) = area 12'3̄3'4'1 (work done in Dual combustion cycle)  
 = area 12''3''4''1 (work done in Diesel cycle)

These areas will be equal, only when the heat rejected

$$Q_{2\text{Otto cycle}} > Q_{2\text{Dual cycle}} > Q_{2\text{Diesel cycle}}$$

$$\eta = \frac{W}{W + Q_2}$$

$$\eta_{\text{Diesel cycle}} > \eta_{\text{Dual cycle}} > \eta_{\text{Otto cycle}}$$

M.L. Mathur  
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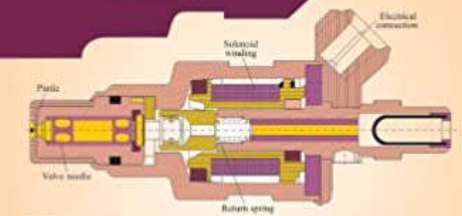


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H.N. Gupta