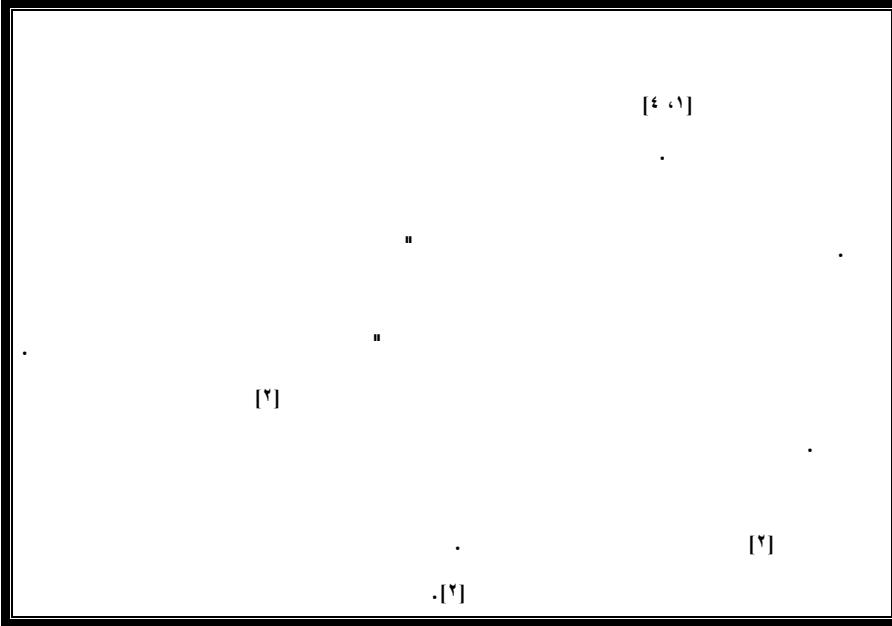

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$$(t-1) \Delta S_{sys} = \Delta S_H + \Delta S_L + \Delta S_{w.b} \quad \Delta S_{w.b \text{ cycle}} = 0$$

$$\Delta S_{sys \text{ complete cycle}} \geq 0$$

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$$\Delta S_{sys \text{ complete cycle}} \geq 0$$

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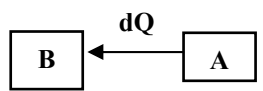
$d\tau$

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$d\tau$

dQ B A

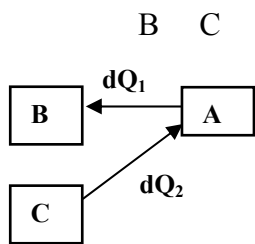


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A

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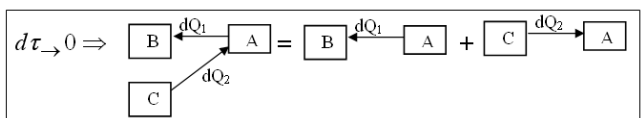
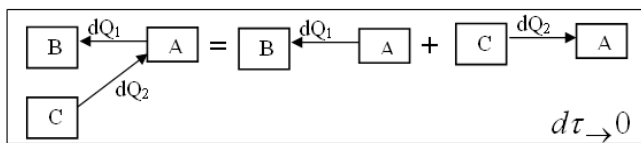
A

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A

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$d\tau$



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$d\tau$

Hr Heater body)
- (Hd Heated body

$d\tau$

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$$(\text{1}) \quad dS_{sys,d\tau} = \sum_{i=1}^n dS_{i,d\tau} + \sum_{j=1}^m dS_{wb,j,d\tau}$$

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i $- dS_{i,d\tau}$

$d\tau$

- n

$d\tau$

j $- dS_{wb,j,d\tau}$

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$.d\tau$

$d\tau$

- m

: $dS_{i,d\tau}$

$dQ_{i,d\tau}$

T_{Hd}

T_{Hr}

$$dQ_{i,d\tau}$$

$$) \quad (dS = \frac{dQ}{T} \quad [\gamma] \quad \langle \gamma \cdot - \rangle)$$

$$(\quad) \quad dS_{i,d\tau}^{Hr} = \frac{-dQ_{i,d\tau}}{T_{i,d\tau}^{Hr}}$$

$$(\quad) \quad dS_{i,d\tau}^{Hd} = \frac{dQ_{i,d\tau}}{T_{i,d\tau}^{Hd}}$$

:

$$dS_{i,d\tau} = dS_{i,d\tau}^{Hr} + dS_{i,d\tau}^{Hd} = \frac{-dQ_{i,d\tau}}{T_{i,d\tau}^{Hr}} + \frac{dQ_{i,d\tau}}{T_{i,d\tau}^{Hd}}$$

$$(\gamma) \quad dS_{i,d\tau} = dQ_{i,d\tau} \left(\frac{1}{T_{i,d\tau}^{Hd}} - \frac{1}{T_{i,d\tau}^{Hr}} \right)$$

$$: \quad \begin{aligned} & T_{i,d\tau}^{Hd} < T_{i,d\tau}^{Hr} \\ & T_{i,d\tau}^{Hr} \geq T_{i,d\tau}^{Hd} \end{aligned}$$

$$: \quad (\gamma) \quad dQ_{i,d\tau} > 0$$

$$(\gamma) \quad dS_{i,d\tau} \geq 0$$

$$: \quad (\gamma) \quad \langle \gamma \cdot - \rangle \quad dS_{wb,j,d\tau}$$

$$S_2 - S_1 \geq \int_1^2 \frac{dQ}{T} \Rightarrow dS \geq \frac{dQ}{T}$$

$$: dQ = 0$$

$$(z) \quad dS_{wb,j,d\tau} \geq 0$$

(r)

) $d\tau$

(z)

(n «\»

(m «\»

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$d\tau$

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($dS_{sys,d\tau}$

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$$dS_{sys,d\tau} = 0$$

$$dS_{sys,d\tau} > 0$$

$$(\circ) \quad dS_{sys,d\tau} \geq 0$$

$$(\uparrow) \quad \Delta S_{sys,\tau} = S_{2sys} - S_{1sys} \geq 0$$

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$d\tau$

$(d\tau$

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	۶۹۶-۶۸۸	۲۰۰۷-۲۰۰۶
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