

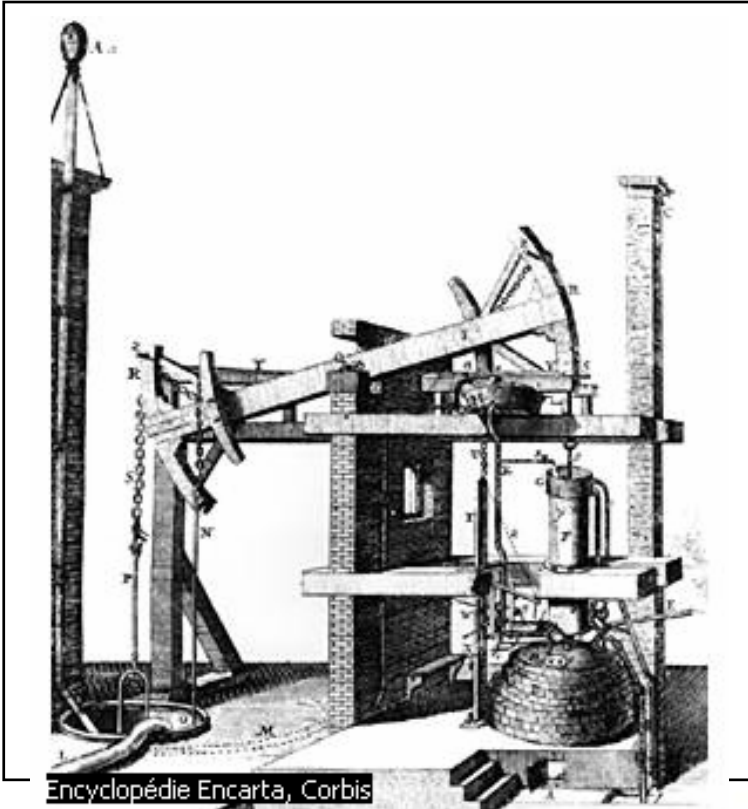
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Encyclopédie Encarta, Corbis

(cocotte minute)

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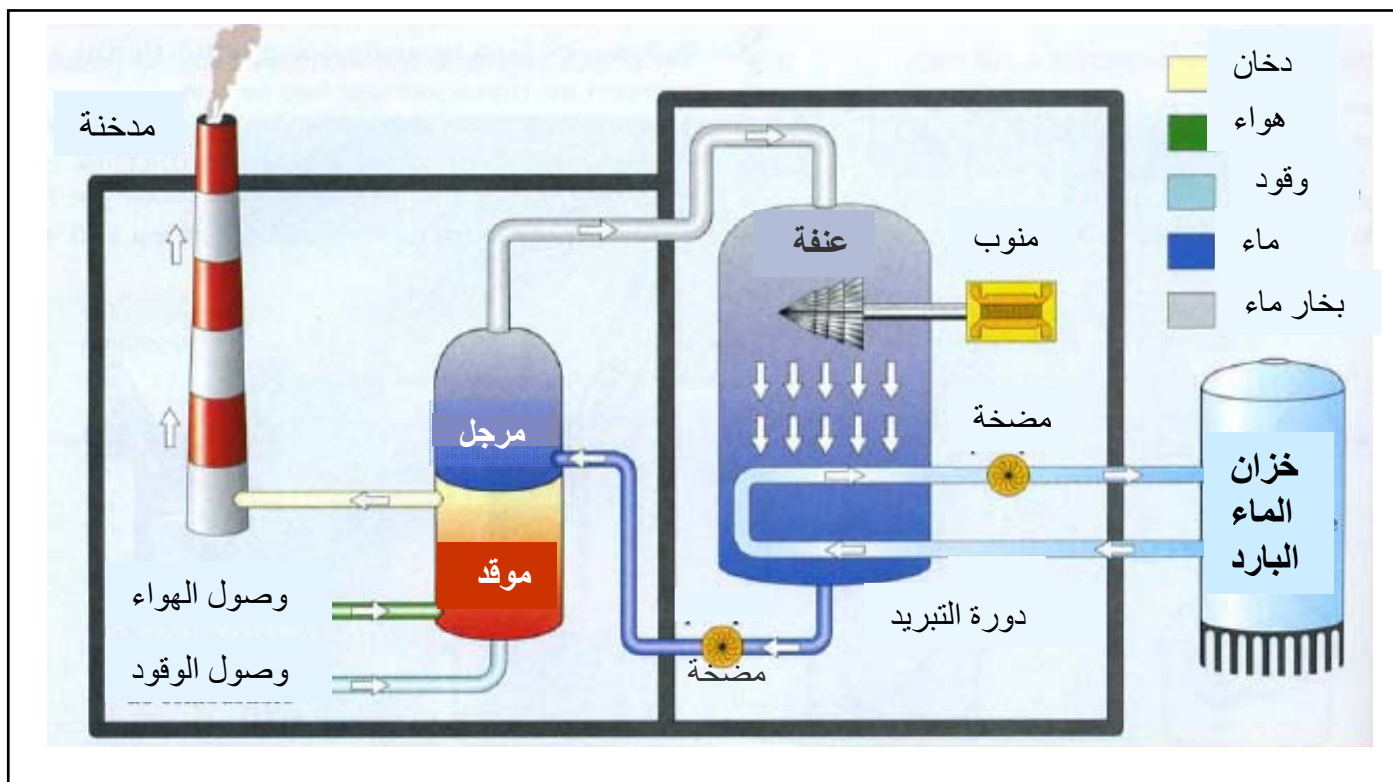
**:Turbine à vapeur**



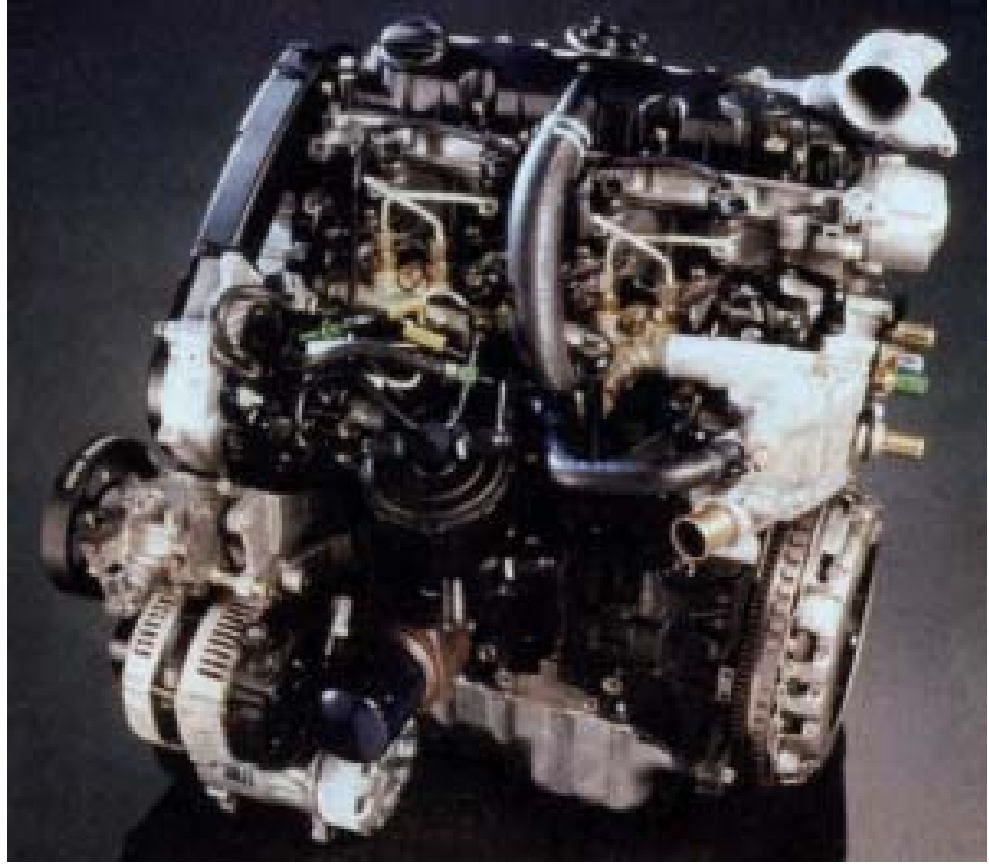
Carl

Charles Algernon Parsons

Gustaf Patrik

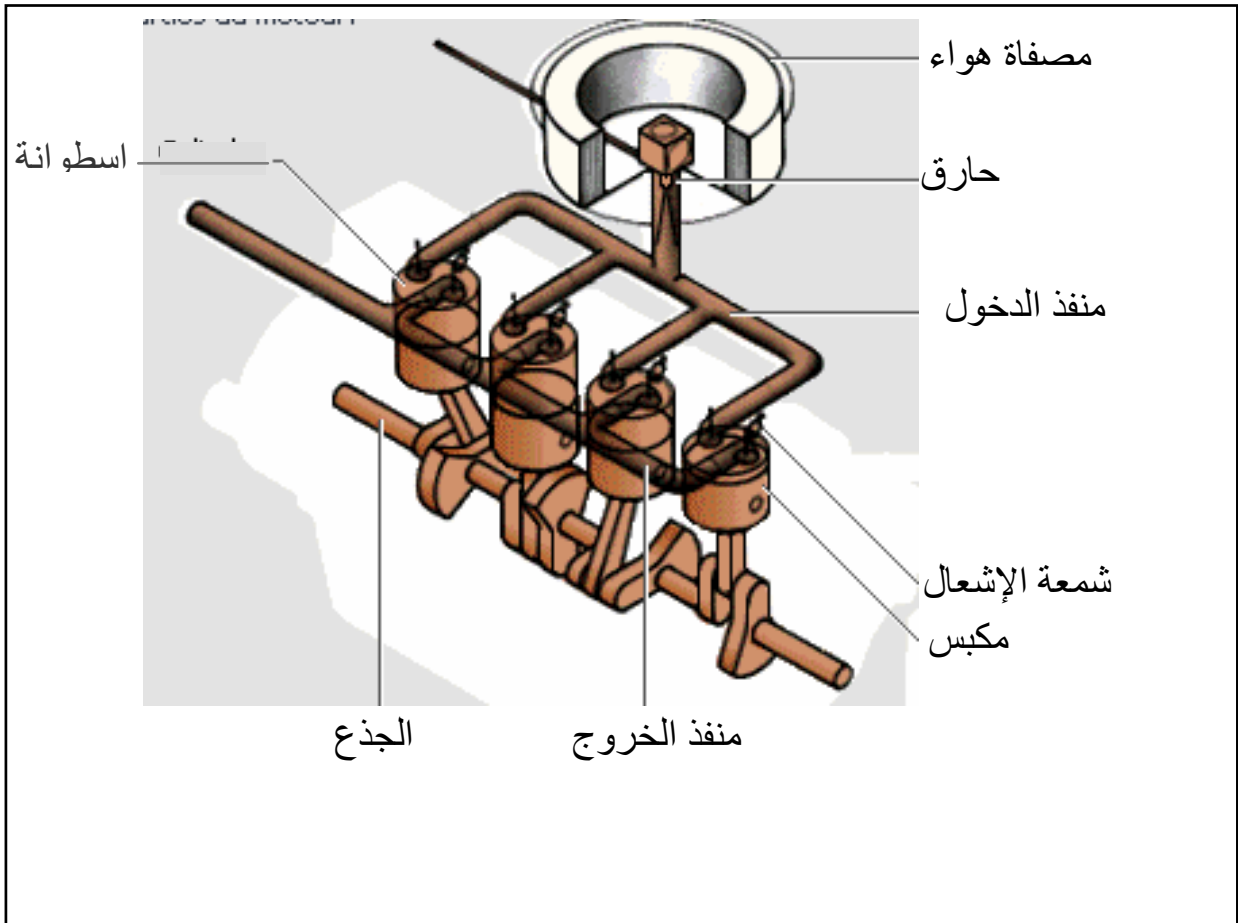






محركات السيارات هي محركات حرارية  
تحول الطاقة المحولة باحتراق الوقود



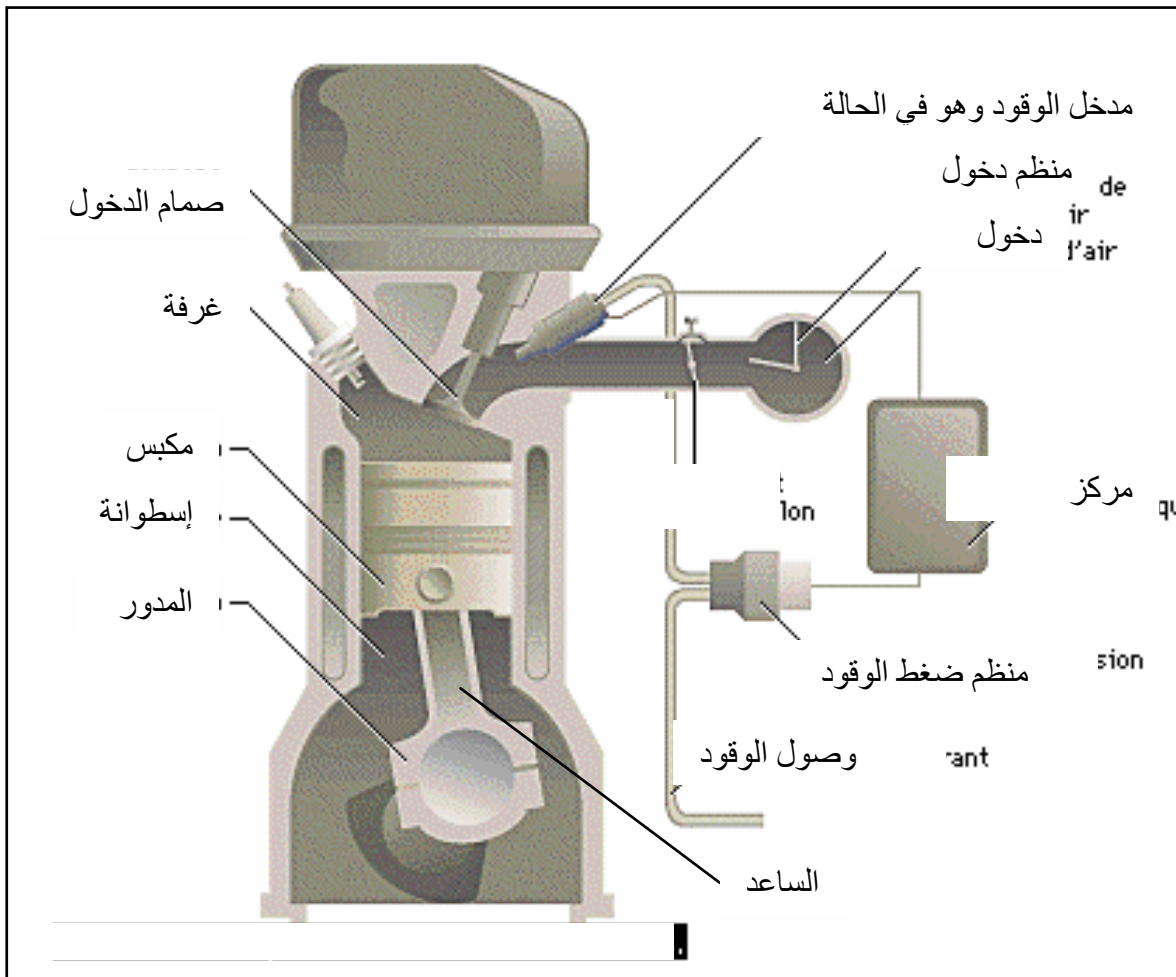


bielle

vilebrequin

piston





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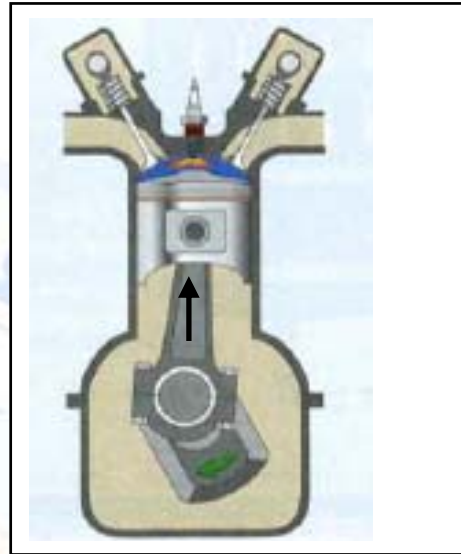
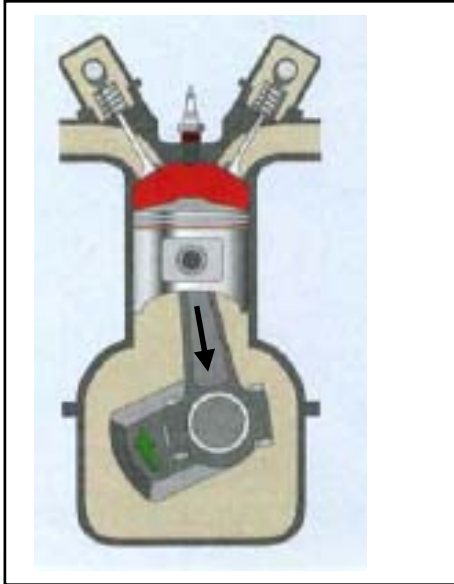
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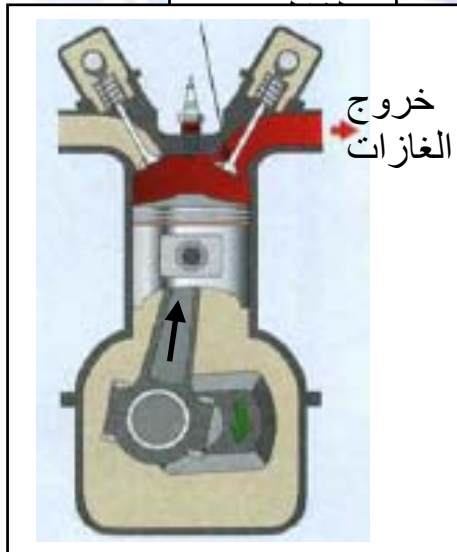
الشكل- ١

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الشكل-٢

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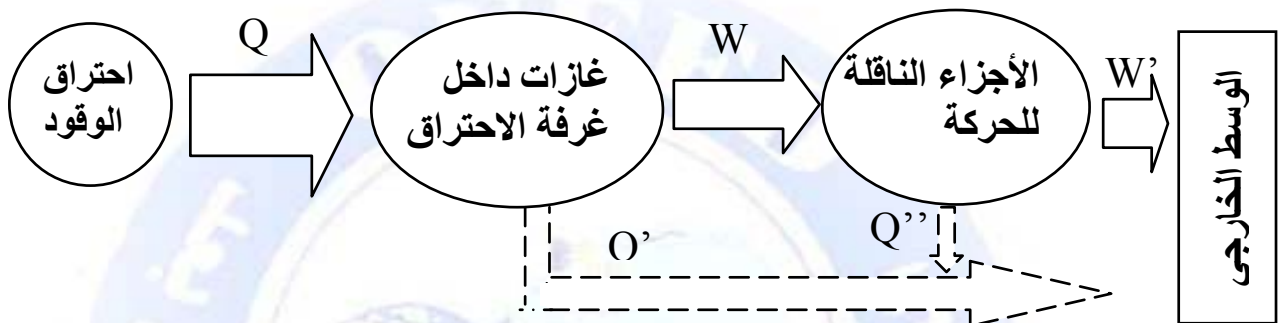
الشكل-٤

W

Q

Q'

.Q''



$$\rho = W' / Q :$$

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$$\rho = P_e / P_r \quad \rho = W' / Q$$

$$P_r = P_e / \rho$$

$$P_r = 1200 / 0.5$$

$$P_r = 2400 \text{ MW}$$

$$+ P_e$$

$$= P_r$$

-

$$P_r = P_e + P' : \quad P'$$

$$P' = P_r - P_e :$$

$$P' = 2400 - 1200 = 1200 \text{ MW} :$$

$$Q' = P'.t : \quad -$$

:

$$Q' = 1200.10^6.3600 = 432.10^{10} \text{J}$$

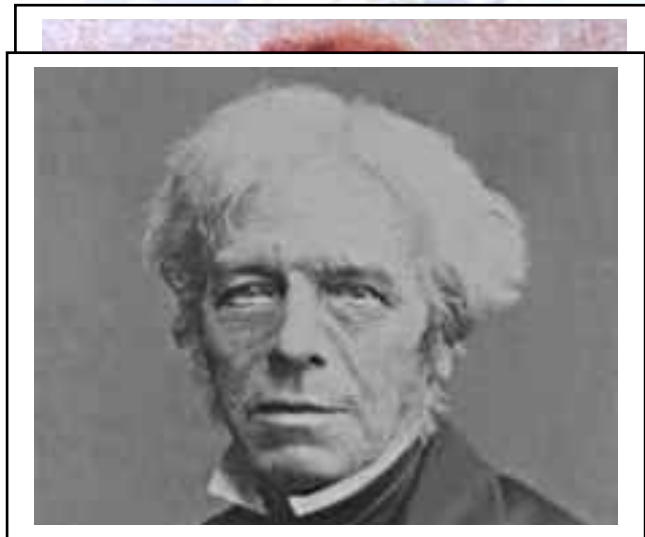
$$1\text{H} = 3600\text{s} \quad 1\text{MW} = 10^6 \text{ W} :$$



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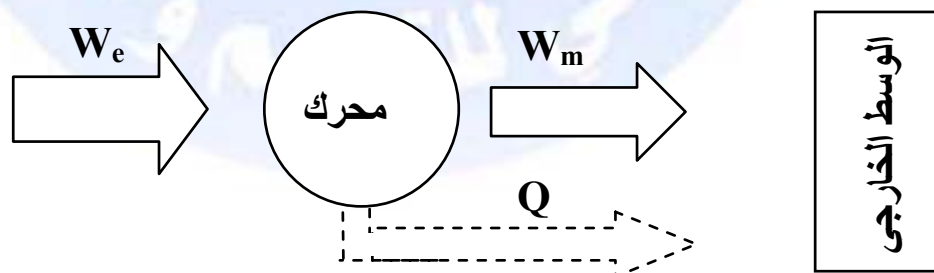
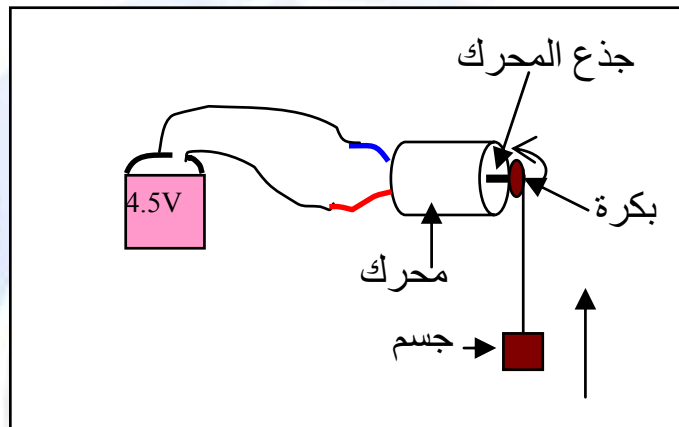
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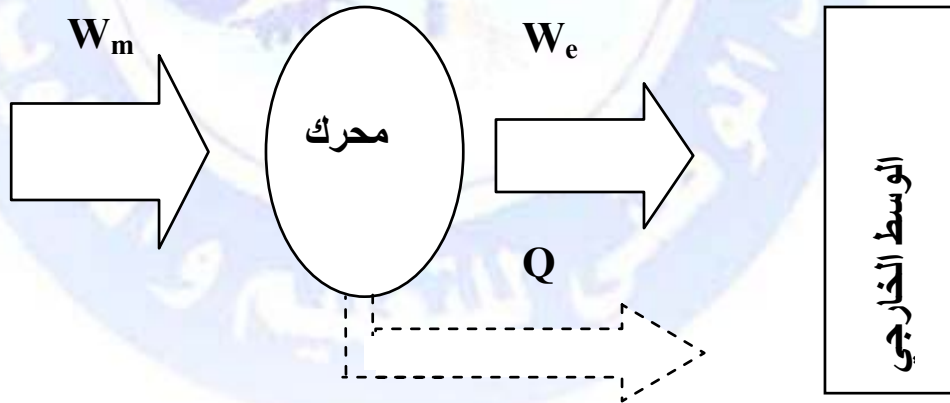
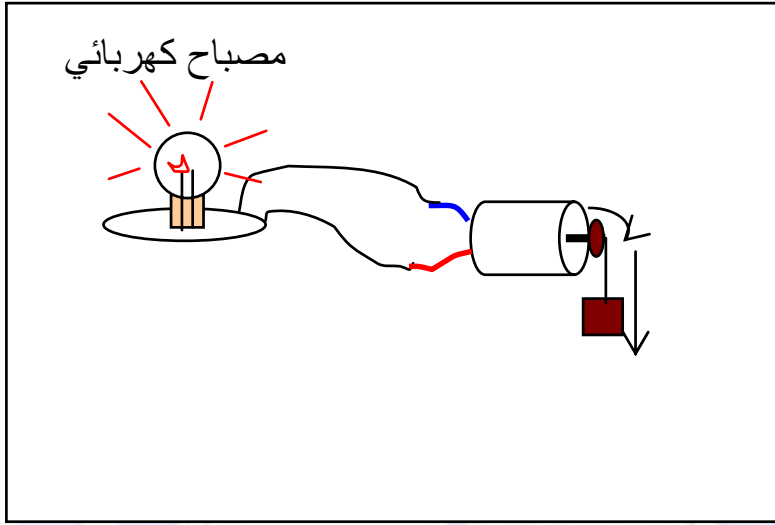


ميخائيل فاراداي  
Michael Faraday  
(1791-1867)

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. 35%

20KW

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95%

- :

100Km/h

:  $3.2 \cdot 10^7 J$

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45%

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$$\rho = P_m / P :$$

$$P = P_m / \rho :$$

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$$P = 20 \times 100 / 35 = 57.14 \text{ KW}$$

$$P = 57140 \text{ W}$$

:

$$P' = P - P_m = 57.14 - 20 = 37.14 \text{ KW}$$

$$P' = 37140 \text{ W} :$$

:

$$Q' = P' \cdot t = 37140 \cdot 3600 = 133704 \cdot 10^3 \text{ J}$$

$$\rho' = P_e / P_m :$$

$$P_e = P_m \cdot \rho' :$$

$$P_e = 20 \times 95 / 100 = 19 \text{ KW} :$$

:

$$P_e = 19000 \text{ W}$$

-

$$\rho'' = P_e / P :$$

يعطي التطبيق العددي:

$$\rho'' = 19000 / 57140 = 0.33$$

$$\rho'' = 33\% :$$

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$$Q = 8 \times 3.2 \times 10^7 = 25.6 \times 10^7 \text{ J} :$$

:

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$$P = Q / t$$

$$(t = 1 \text{ h} = 3600 \text{ s})$$

$$Q$$

$$P$$

$$P = 25.6 \times 10^7 / 3600 = 7.11 \times 10^4 \text{ J}$$

$$: P_m$$

$$P_m = \rho . P$$

:

$$P_m = \rho . P = 0.35 \times 7.11 \times 10^4 = 2.49 \times 10^4 \text{ W}$$