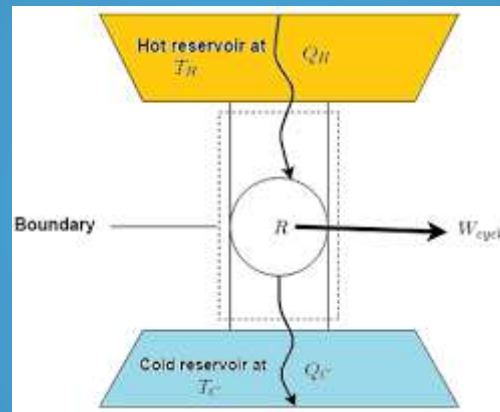


Conversion between Heat and Mechanical Energy

Heat Reservoir

- It is defined as the source of infinite heat energy and a finite amount of heat absorbed or heat rejected from the heat reservoir will not have any effect on its temperature .
- Heat reservoir is maintained at constant temperature



Types of Heat Reservoir

- Heat Source : Thermal reservoir which supplies heat to a system is known as source.
- This is at high temperature,
- Examples of Heat Sources are boiler furnace, combustion chamber, nuclear reactor etc.

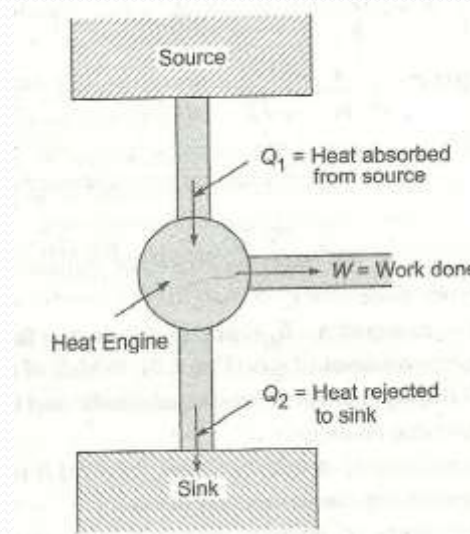
Heat Sink

- Thermal reservoir which absorbs heat from a system is known as sink.
- This is at low temperature, e.g. ocean, river, atmospheric air.

Heat Engine

- Heat engine is defined as a thermodynamic device which is used for continuous production of work from heat when operating in a thermodynamic cyclic process.
- Both heat and work interactions occur across the boundary of this device, e.g., internal combustion engines, external combustion engines, gas turbines etc.

Heat Engine



From the conservation of energy principle

- $Q_1 = W + Q_2$
- $W = Q_1 - Q_2$
- Thermal Efficiency = Network output/Heat input
- w/Q

$$= (Q_1 - Q_2) / Q_1$$

- 
- Thermal Efficiency is the measure of performance of a heat engine