Performance of an Organic Rankine Cycle Waste Heat Recovery System for Light Duty Diesel Engines

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U.S. DEPARTMENT OF ENERGY

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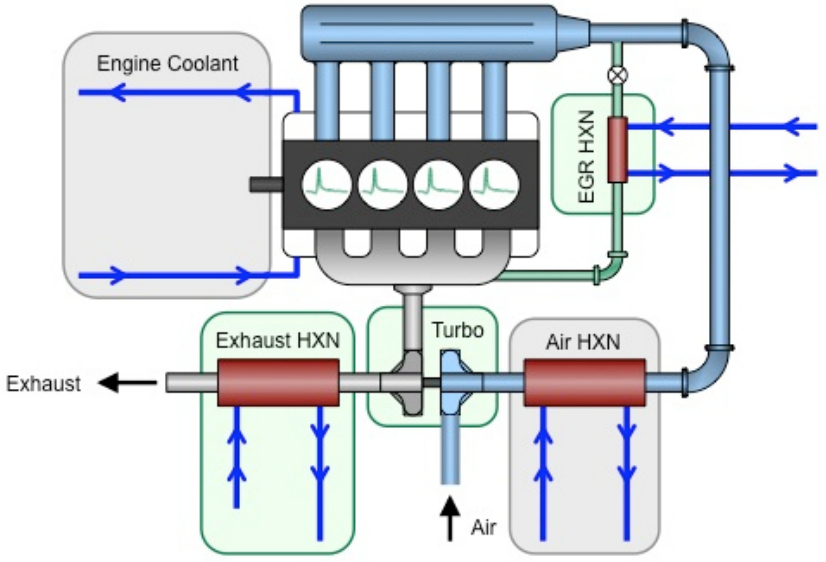
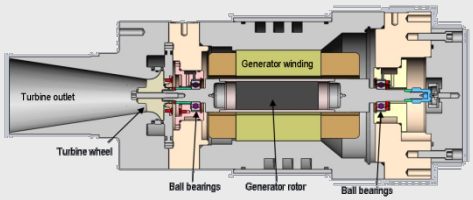
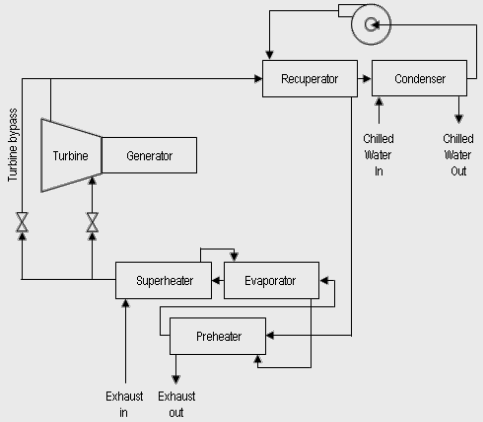
Objective: **To demonstrate a peak brake thermal efficiency of 45% on a light duty diesel engine/organic Rankine cycle combined system**

Substantial increases in engine efficiency require utilization of the waste energy found in the coolant, EGR, and exhaust streams.

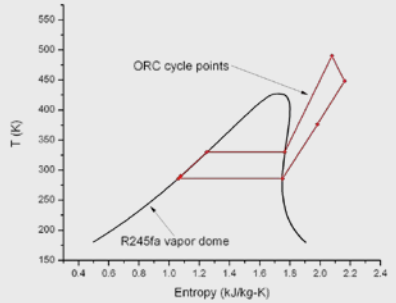




Radial inflow turbine with integrated generator developed by Barber-Nichols



A simple Rankine cycle was operated using the exhaust heat as input to the cycle.



The net cycle output of 4 kW, combined with the engine output of 66 kW yielded a combined efficiency of 45%.