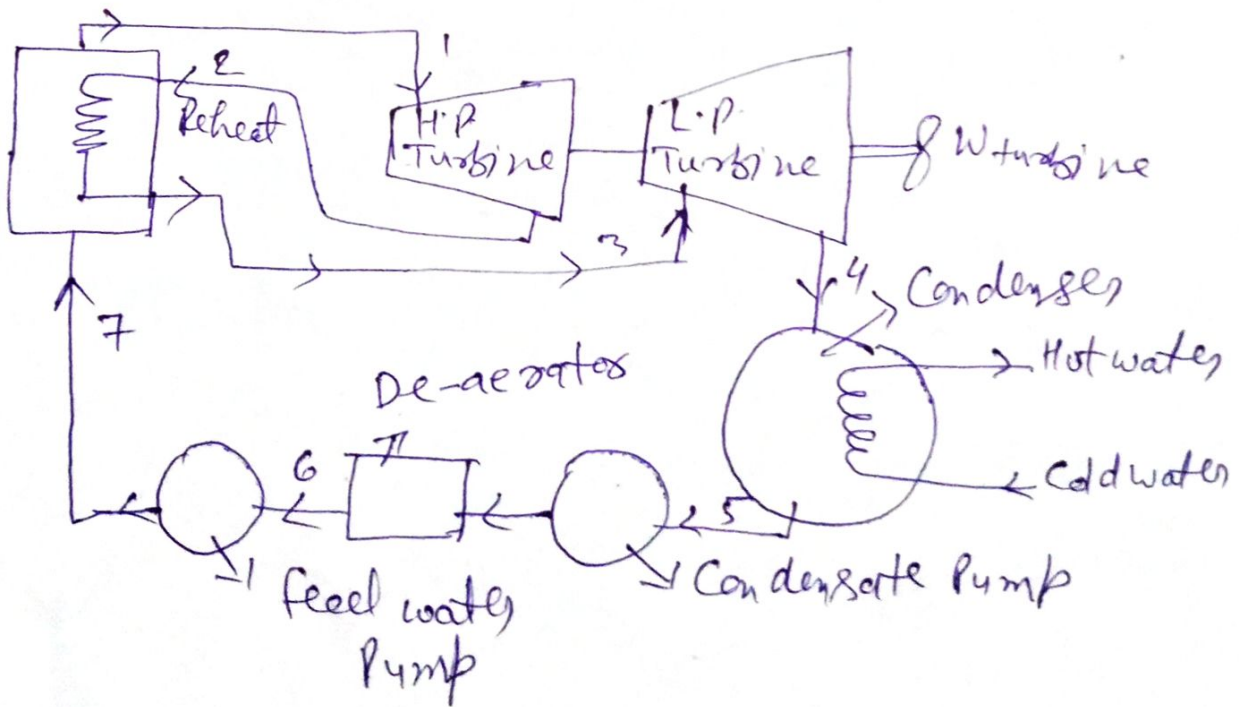


Reheat Rankine cycle-

When the steam is expanded in the turbine, it becomes unsaturated and if the water content exceeds above 10%, it can cause extreme damage to the turbine. This presence of water can cause corrosion and ~~erosion~~ erosion problems and lead to mechanical damages. Consequently, the nozzle efficiency, blade efficiency and thermal efficiency ~~also~~ also suffers. Thus to resolve all these problems, the steam is reheated and thermal efficiency of the plant is increased. In the reheat cycle, a part of the steam is re-heated using superheated steam until it is near its initial temp and then the steam is re-entered into the turbine and then expanded to the condenser pressure to do work. Generally this cycle is a combination of the reheating and regeneration.



Topic - Regenerative and Reheat Rankine cycle →

Regenerative Rankine cycle → The efficiency of the Rankine cycle is less than that of the Carnot cycle because irreversible mixing of cold condensate with hot water reduces thermal efficiency. To solve this above problem, regenerative heating is used in which the expanding steam from the turbine is used to heat the feed water. In this cycle, the objective is to heat the feed water with the steam expanding in the turbine so that the feed water is supplied to the boiler at a higher temperature than that of the condenser. This method is also advantageous as the cold water entry into the boiler caused thermal shocks and damages. Thus regenerative feed heating cycle is a safer and more efficient cycle.

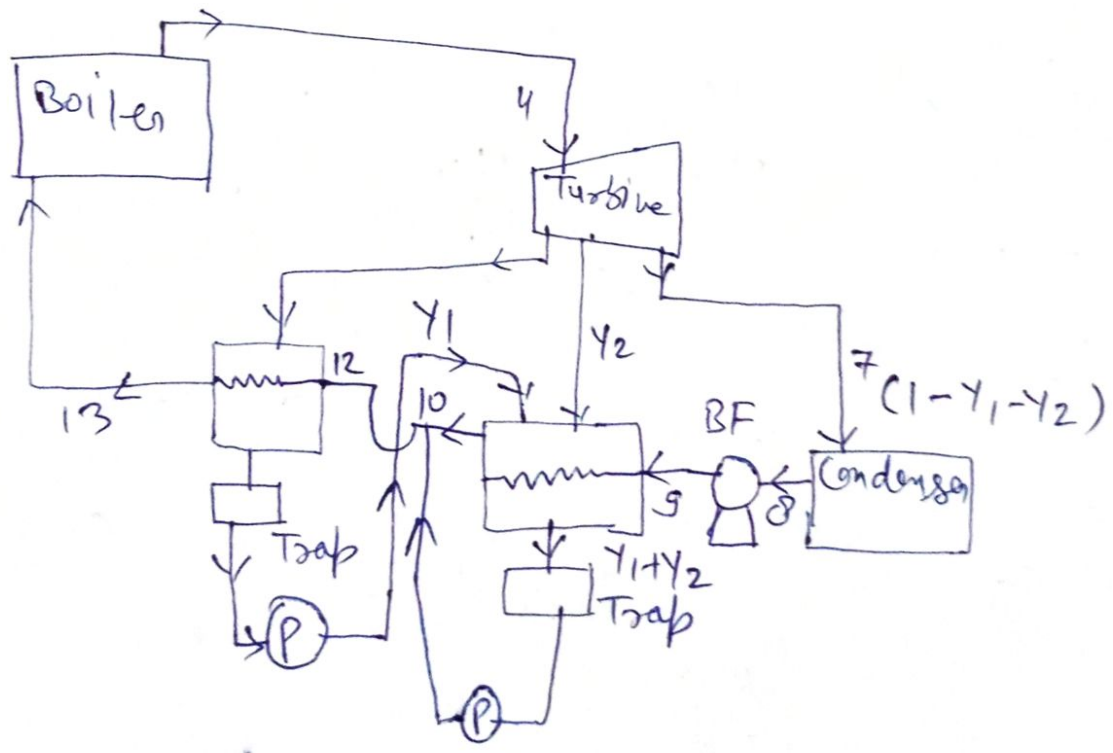


fig - Regenerative Rankine cycle