CHAPTER 6

CONCLUSIONS

6.1 CONCLUSIONS OF THE PRESENT WORK

From the present investigations, the following conclusions are arrived at.

1. The concept of LHR engine is clearly depicted by the fact of gradual reduction of heat rejection to cooling water in the standard engine and approaching zero level heat rejection in the adiabatic engine.

2. The gradual increase of insulation increases the cylinder pressure due to better combustion inside the cylinder.

3. The brake thermal efficiency prediction is well within the limit of around 10% in the case of standard engine and the LHR engine.

4. The predicted p - θ diagram is in close agreement with the experimental p - θ diagram in both the cases of standard engine and LHR engine.

5. The peak pressure was found to be maximum for LHR engine at low air-fuel ratio because of better combustion due to retention of the heat inside the cylinder.
6. The exhaust gas temperature increases due to the principle of LHR at all power outputs.

7. The volumetric efficiency decreases in LHR engines when the brake power increases.

8. The heat transfer is getting reduced due to insulation and approaches zero in the adiabatic engine.

From the above, it is concluded that the predicted results of the simulation program developed are in close agreement with the available experimental results.

The energy available in the exhaust can be recovered by Turbo compounding, Turbo charging, Waste heat boiler.

The LHR engine lends good scope for the conservation of thermal energy, which otherwise is lost to the coolant, leading to more work output, high thermal efficiency and low specific fuel consumption.

6.2 SCOPE FOR FUTURE WORK

The effect of insulation on combustion chamber wall temperature can be studied. The wall temperatures at various locations can be measured using thermo couples located at various positions.

More research concentration may be applied in the area of reducing the frictional power of LHR engine. The oils having high temperature capabilities may be used to study the effects on frictional power.