



Redesign of IC and EC Engines for Fuel Saving and Environment Protection

S. S. Arulappan

Retd. Associate Professor, N.I.T. Trichy, India

ABSTRACT: *Heat Recovery and Reuse in Engines, Gas turbines, Jet Engines, Engines in Ships and Cars Including Hydrogen fuel powered Cars for Increased thermal efficiency added with environment Protection by the way of reduced out let gas temperature is envisaged.*

Working Thermal energy systems are many. Internal and external combustion engines can be fitted with heat recovery systems. Excess Heat from exhaust Pipe or Nozzle can be recovered by circulating inlet air around the exhaust pipes and used as preheated air into combustion the chamber through inlet ports.

Present Temperature of Hot Exhaust Gases from IC and EC Engines out let is around 420 Degree Centigrade or 788 Degree Faren Heat.

KEYWORDS: *IC Internal combustion Engine, EC External Combustion Engine, Higher Thermal Efficiency, Fuel saving, Environment friendly.*

PREAMBLE

Instead of leaving the hot gases from the outlet of Internal combustion and external combustion engines as it is, suitable heat recovery device can be added to extract the heat by circulating the inlet air through a metal tube wound all around the external periphery of the exhaust gas out let pipe

Starting from cars including electric cars in which battery heat and motor excess heat can be used for cabin heating during winter. Aeroplanes, ships and where ever heat is generated after combustion of fuel air mixture the excess heat instead of letting out into the atmosphere a suitable simple heat transfer device can be attached to use the excess heat.

1.1 Fuel Saving:

Originally this idea of heat recovery is used in thermal power plants. The current design idea is an adaptive thought of Pre heating the Engine's inlet Air. Thermal efficiency and overall efficiency of the engines can get improved by preheating inlet air. Hot air entering into the combustion chamber of the engines require lower compression ratio for auto ignition.

1.2 Higher Thermal Efficiency of Engines is aimed:

Starting from passengers to fighter planes power to weight ratio of the engines is added advantage by preheating the inlet air using exhaust hot gases and heat exchangers. Working always against gravity are the planes and here considerable weight reduction leads to higher advantage the air craft industry and environment pollution as a whole is reduced.

1.3. Acceptance of this Concept and Implementation:

Saving fuel and improving efficiency will come after clear acceptance and conviction with final implementation. Environmental responsibility or social responsibility is also very important and crucial. Trillions of automobiles and sizable number of Trains, Ships and Planes will have to redesigned.

WORK INVOLVED IN REDESIGN OF STATIONARY AND MOBILE ENGINES FOR HIGHER EFFICIENCY:

For higher Thermal and mechanical efficiency by preheating the inlet air using the heat from exhaust gases leads to a better design of engines as a whole. Then each Piston, connecting rod, crank shaft and flywheel will have to be redesigned for a lower work to be done by the reciprocating piston on the input preheated air.

2.1 Worth Redesign to Get the Benefits:

If redesigned it is worth to get lot of fuel saving by increased break thermal efficiency of engines which are going work for the entire long span of their life.

2.2 Engine overall Running Cost Reduction:

Increased Break Thermal efficiency and reduced fuel consumption is the result expected after redesigning.

CONCLUSION

High Temperature of Exhaust Gas of 420 Degree Centigrade or 788 Degree Faren Heat approximately can used in the same Engine for pre heating inlet air and overall redesign as per the suggestion in his work can result in Lot of fuel saving and environment protection due to lower pollution.

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