Thermodynamics Analysis of the underlying principles of The MECXIC Engine

CALCULATION OF WORK PRODUCED BY EXPANSION OF COMBUSTION GASES WITHIN A CLOSED SPACE:

Note:

Compression Ratio (CR) = Swept volume + combustion chamber volume/unswept (or combustion chamber) volume
MECXIC Eccentric Expansion Ratio (MXR) = Swept volume under Eccentric Expansion/Intake swept (reciprocating) volume

Properties of combustant gases under investigation:
Using the fundementals of ADIABATIC Expansion of a diatomic gas (air) with gamma ratios of specific heats taken as 1.4
Combustion temperature taken as 2300'K
1 MOL of air occupies 22.4litres at STP
Temperatures in degrees KELVIN: 273'K=0'C

Subject: Internal combustion 4-stroke reciprocating Engine of 150c3 swept volume, compression ration of 10:1, Expansion ratio of 1:1 (ie a standard reciprocating Internal Combustion Engine)

Analysis Case 1): standard reciprocating engine on 4-stroke cycle: 150c3 MXR=1
150c3=0.0067mol Combustion temperature taken as 2000'K

Work Done (Adiabatic expansion) = 167.5 Joules
Exhaust gas Temperature = 796'K

Analysis Case 2): MECXIC engine on 4-stroke cycle: 150c3 MXR=2.0
150c3=0.0067mol Combustion temperature taken as 2000'K

Work Done (Adiabatic expansion) = 194.5 Joules
Exhaust gas Temperature = 603'K

CONCLUSIONS:

a) MECXIC ECCENTRIC EXPANSION records an increase in Work Done of +16% with an EGT drop of 196'C
b) The exhaust gases purging will be significantly higher than in "traditional" ICEs due to the unique piston movement generated by MECXIC this will in turn record an appreciable drop in NoX emissions on an engine running under the MECXIC Innovations
c) Thermal distribution will be more even in the MECXIC engine