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Journal Name:	Journal of Energy Research and Reviews
Manuscript Number:	**Ms_JENRR_48514**
Title of the Manuscript:	**Efficient thermal cycle undergoing adiabatic contraction based work by releasing heat**
Type of the Article	

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This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty'**, provided the manuscript is scientifically robust and technically sound.
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PART 1: Review Comments

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Compulsory REVISION comments		
Minor REVISION comments	1.All the variable symbols should be italic, both in the text and figures. 2.More details of the difference between reciprocating single or double acting cylinders are suggested to add in the introduction. 3.In the section 2.1, the test rig composed by a double effect reciprocation cylinder equipped with heat transfer fluid piping, control valves and heat exchangers was conducted, more information about the test bench should be added. The test instruments and their measurement accuracy should be provided, and a system error analysis of the test bench may help for the publication strictness. 4.In the Fig.2, test rig to verify single heat-work interaction modes designed to carry out experimental proofs of concept. It is equipped with heat exchangers, heating and cooling heat transfer fluids, piping, control valves, and a reciprocating double acting cylinder, but I didn't find the data to proof it, the author are suggested to add the experiment data in this section. 5. Fig. 3 presents the layout of heat work-interactions by means of double-acting reciprocating cylinders and heat transfer by means of forced convection, the working fluid in the double-acting reciprocating cylinders should be introduced.	I sincerely appreciate your effort and significant help to improve the article. 1. All the variable symbols should be italic, both in the text and figures. Replay: variable symbols corrected as italic 2. More details of the difference between reciprocating single or double acting cylinders are suggested to add in the introduction. Replay: details of the difference between reciprocating single or double acting cylinders are added in Fig.2 of the introduction 3. In the section 2.1, the test rig composed by a double effect reciprocation cylinder equipped with heat transfer fluid piping, control valves and heat exchangers was conducted; more information about the test bench should be added. The test instruments and their measurement accuracy should be provided, and a system error analysis of the test bench may help for the publication strictness. Replay: The characteristics of the basic test rig are added for the structure of Fig. 2. Fig. 2. shows a basic test rig for verify experimentally the concept of doing efficient work by extracting heat from a working fluid. Thus the objective of an experimental device is just a proof of concept, which consists of a qualitative instead of quantitative one because of the limutes capacities of the experiment. Thus, the experimental device has been constructed to demonstrate that: a.- efficient heat transfer is only possible by means of forced convection, so that a recalculating fan is required for every heat exchanger, which consumes some energy. b.- useful work is obtained by adiabatic expansion, by previously heating a working fluid by an isochoric process. The task of adding heat has an energy economic cost. c.- useful work is obtained by adiabatic contraction based compression, by previously extracting heat from a working fluid by an isochoric process The task of extracting heat is carried out at zero economic cost. The thermal efficiency is computed as the ratio of the total useful work (work due to heating plus work due to extracting or cooling the working fluid at zero cost), so that at least a 50% more thermal efficiency is achieved. As consequence of the evidence provided by experimental observations, these real facts cannot be refuted. As the proof of concept is carried out taking into account conventional industrial instrumentation at low-grade or low temperature heat ranging temperatures between 300 and 400 (K), the measuring errors are irrelevant and negligible. Assuming the working fluid (standard air) as real gas based on the characteristic data from references [16] (NIST, a international standard), the observed data is robust. However, with the aim of obtaining data for the analysis of results from 400 to 700 (K), the results are obtained by computation the proposed thermal cycle assuming the proposed input data as sown in Table 4.

		4. In the Fig.2, test rig to verify single heat-work interaction modes designed to carry out experimental proofs of concept. It is equipped with heat exchangers, heating and cooling heat transfer fluids, piping, control valves, and a reciprocating double acting cylinder, but I didn't find the data to proof it, the author are suggested to add the experiment data in this section. Replay Characteristics are added and Table 4 shows the standard analysis methodology based on reference [16] 5. Fig. 3 presents the layout of heat work-interactions by means of double-acting reciprocating cylinders and heat transfer by means of forced convection, the working fluid in the double-acting reciprocating cylinders should be introduced. Replay Fig. 2 has been extended to a double acting cylinder.
Optional/General comments		

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	