



SDI Review Form 1.6

Journal Name:	British Journal of Applied Science & Technology
Manuscript Number:	2015_BJAST_17350
Title of the Manuscript:	Isothermal and Adiabatic Expansion Based Trilateral Cycles
Type of the Article	Original Research Article

General guideline for Peer Review process:

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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(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)



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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	1. Your simulation is thermal cycles which focused on thermal efficiency and work. How about include entropy analysis? 2. CF and FC are same meaning, but there are few mis-typings. 3. Reference should be checked with formatting rules. 4. Conclusion should include the comparison with numerical results. 5. Equations should be rearranged. 6. Please check the subscript of Eq. (15). It must be T_3-T_1. 7. X and Y of Table in Fig. 4 should be explained. 8. Your simulation results are not enough to present. How about compare with different working gases? 9. Colour lines of Fig. 5 and 6 may be not suitable for presenting.	1.- Entropy is a state variable, so that, any cycle analysis undergoes defined state points with the associated state parameters such as pressure, temperature, internal energy (real gases in closed process) and the correspondent entropy. The corresponding T-s diagram indicates the fulfilment of second law. Depending on the performed path function, entropy depends on the associated state variables (pressure, temperature and so on). Following the state points in Table A1 of the appendix A, it can be observed that the evolution of entropy along the state point changes during the cycle satisfy the second law, as shown in the above table for $T_1 = 300$ K and $T_2 = T_3 = 330$ K. The corresponding T-s diagram shown bellow helps to the interpretation of the results. <table border="1"> <thead> <tr> <th>(i)-(i+1)</th><th>TC undergoing an Isothermal heat to work conversion path function</th><th>$S(i+1)-S(i) = \Delta S$</th></tr> </thead> <tbody> <tr> <td>(1)-(2)</td><td>isochoric process (heat addition)</td><td>$28.324 - 28.027 = 0.297 > 0$</td></tr> <tr> <td>(2)-(3)</td><td>isothermal process (heat addition)</td><td>$28.973 - 28.324 = 0.549 > 0$</td></tr> <tr> <td>(3)-(1)</td><td>isobaric process (heat rejection)</td><td>$28.027 - 28.973 = -0.846 < 0$</td></tr> </tbody> </table>	(i)-(i+1)	TC undergoing an Isothermal heat to work conversion path function	$S(i+1)-S(i) = \Delta S$	(1)-(2)	isochoric process (heat addition)	$28.324 - 28.027 = 0.297 > 0$	(2)-(3)	isothermal process (heat addition)	$28.973 - 28.324 = 0.549 > 0$	(3)-(1)	isobaric process (heat rejection)	$28.027 - 28.973 = -0.846 < 0$
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		2.- Yes corrected as suggested. CF means Carnot factor 3.- References format checked 4.- Numerical results are included in the conclusion 5.- equations re-arranged as reviewer suggested. 6.-Eq (15) has been checked and corrected 7.- X and Y in table of Fig. 4 explained 8.- Several available working fluids (N₂, CO₂, and H₂) have been added to be compared with helium, which is the best working fluid. 9.- The colour lines of the Figs. 5 and 6 may be changed according to the preferences of the editor. Conventionally, colour figures used in on-line articles can help on highlighting its meaning. Thank you for your valuable contributions to improving the research work.
<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments		