WR 05.08.08
SPEAK LITTLE OF WHAT YOU KNOW
MR.BAILEY

Kim, here is a motto from Carnot (Nicolas Leonard Sadi Carnot 1796-1832) **"SPEAK LITTLE OF WHAT YOU KNOW, AND NOT AT ALL OF WHAT YOU DO NOT KNOW"**

The Carnet cycle is a mathematical graph of entropy versus time for any substance and pressure versus volume for a gas.

Kim, it requires many semesters of course work to fully comprehend the use and value of a Carnet cycle. There is also the "REVERSED" Carnet cycle.

Basically the Carnet cycle applies to a "PISTON" expanding and contracting in a cylinder, beneath this cylinder the Carnet cycle graphically represents the changes in pressure and volume, it is that simple. (or is it?)

There is also the Ericsson cycle, which uses a "REGENERATOR" is also important to you. The graph also has a pressure versus volume and temperature versus entropy square or rectangle (shape often requires Calculus to analyze)

Kim, these things can not be simplified beyond a certain level. It would help if we had a blackboard and a "LOT A TIME".

Engineering students spend many semesters absorbing this knowledge.

I often if I require a quick refresher course on any engineering principal go to Wikepedia.

If an air molecule bounces off a cold chamber wall it basically "LOSES" energy. The colder the chamber or tube wall the more energy it will lose.

Physicists are "STILL" unsure of the exact nature of the vortex tube. There are those who believe it is acoustic in nature and resonates at a discrete frequency.

Kim, spinning air in a tube or chamber basically increases its drag. This "WASTES" energy! Yes it is a far more complex problem then simply spinning a steel flywheel in a box, but in the end the problem is the same, friction eventually stops the steel flywheel and the spinning gas as well.

There is an endless trade off between velocity and pressure that is what Bernoulli taught us. Increase velocity and wall pressure drops.

That of course **applies only to a "STRAIGHT" section of pipe**, if you **"CURVE"** the pipe, **then Newton's laws of motion force the heaviest particles in your gas stream to aggressively strike the chamber wall and lose energy.**

Kim, why are there "NO" centrifugal jet engines today ???(yes, they still use centrifugal model jet turbines)

They are not used because the "AXIAL" flow (straight flow) method as found on the ME-262 jet made them obsolete.

Curving wind in a chamber is "NEVER" a guarantee of better performance, the centrifugal particle and wall interaction increases internal loses.

Kim, thermodynamics and the mathematical analysis of confined gases in straight and curved pipes of changing diameter is still the subject of many a Ph.D. thesis.

I have "NO" idea where you want to go with all of this???

I might be able to find you a specific paragraph or diagram in my text books on thermodynamics, if I could see a simple diagram of the process of heat loss and heat gain you intend to use in your system. Also pressure changes are important and velocity of working gases.

There is "ALWAYS" loss in the system from friction, both in pistons and in tubing connecting your heat engine. There is also radiation from the environment to consider, conduction, convection and thermal radiation. Energy also leaves your machine in the form of sound waves of many different frequencies depending on the impedance of the surrounding gas medium.

I am telling you as clearly as I can it gets "COMPLEX" mathematically. I can not discuss these subjects without using math and text book notation.

I do not have complex math symbols and scientific notation on my outdated computer key board that I can type into this letter, therefore I refrain from using them. All I have is 1+ 2 = 3, 2 X 2 = 4 type of mathematical notation on my keyboard and that is not good enough for your purposes.

Kim, the "SIMPLEST" heat engine involves advanced Integral Calculus. On the internet, look up the mathematical analysis of a **"STIRLING"** engine and it will boggle your mind! You need many years of University level physics and mathematics to understand it.

Kim, I have a theory that "MOST" of the heat engines discovered through out history, were first derived from machine shop experimentation and only later mathematically analyzed.

The physicists and mathematicians would have you "BELIEVE" they thought all of these steam engines and turbines up. The real fact is Kim, people like "YOU" did it. They just came in later and made a science out of it.

I do not need Integral Calculus to tell me if I boil water in a confined vessel with a small pipe, it will make a "JET" of high pressure gas.

Hero of Alexandria made the first steam engine 2000 years ago (called a "WIND BALL"). That was many centuries before the "CALCULUS" and "PHYSICS" existed to analyze it.

Your asking important questions in your letter, that I can "ONLY" answer on a blackboard with proper use of scientific notation I have no access to on this computers key board.

I think of mathematicians and physicists as the street sweepers and janitors of our society. The risk was taken on most occasions by the inventors, who blew up testing new steam boilers and engines. I believe Diesel was injured in an explosion, testing his new engine at the time.

We simply "HAD" to do something to put these common use machines into scientific understanding after years of boiler explosions and mismatched power plants in steam ships and the like.

Kim, simply put it was a "MESSY" series of events, not the elegant mathematical laws seen in Thermodynamics texts. People got burned and killed in boiler explosions. Mathematical analysis had to be done sooner or later!

We learned that steam engines could be "GREATLY" improved when a steam cylinder being used in a mine pump, "SPRAYED" cold water from its casing into the hot steam under the lifting piston!

The steam instantly "IMPLODED" sending the piston "THROUGH" the concrete floor of the pump house. That is how we discovered the **"SUPER CONDENSING STEAM ENGINE"** principle!

Today's engineers want everyone to think it was all derived by mathematical analysis. NO IT WAS NOT!!!

Steam power was messy and dangerous and cost the lives of many inventors. That is how we created both the **"TUBULAR BOILER"** and **"STIRLING ENGINE".**

I am appalled at the "LACK" of demonstration physics in the classroom these days at Universities.

In my static's and dynamics class the only prop our engineering teacher "EVER" used was "MY" skateboard!!!

We never once used a "REAL" pulley or fish scale, cable and weights to demonstrate the mathematical principles being taught about beam loads and suspension cables.....WHAT BULL (bleep)!!!

At University it has all become theory on a blackboard these days.....Kim you know the "REAL WORLD" of engineering, most of these University people only know the theoretical.....NEVER FORGET THAT!

I had a Dr. Church at Trinity tell me my "LINEAR POLYETHYLENE" solar energy motor was inefficient and therefore worthless. He had "NEVER" built one, I had! He was arrogant and impossible to teach anything too. He knew everything, I was just a misguided student to him.

I abandoned my semester at Trinity to go back to T A&M where I met and worked for Dr. Shuessler in his Laser and Atomic physics lab. He basically said "IF YOU CAN DO THE WORK, THEN DO IT". He was not arrogant like Dr.Church.

Kim, I really need to get this 1948 Thermodynamics text book to you. It is 60 years old and falling apart. I can not risk sending it in the mail and do not have a scanner. I KNOW THERE ARE THINGS IN THIS BOOK YOU NEED RIGHT NOW.

I can not possibly draw all of the diagrams or the related scientific notation with my present computer!!!

If I can catch a ride to Texas, then I could meet you at my brothers ranch where Floyd Rollins would often fly over and fish for bass at.

I have no adequate accommodations up here for you right now. SORRY....I live a very Spartan existence and hope to move to a better experimental lab someday, but my relatives promise and never deliver.

We need to discuss these things on a blackboard with all of our text books in front of us...

Kim, take my word for it "GAS DYNAMICS" and the equations that define it, are a "LIFETIME LONG" University level study.

Things like surface coefficient of heat transfer come to mind.

I can not put all of these things into a simple letter without graphs and proper scientific notation!!!!

I am sorry I have not answered your questions as well as you need them to be, my communication means are limited by this computers keyboard.

If I could "SCAN" diagrams and equations to you, when I explain these things, that would be far better then another load of useless verbiage in one of these letters I write back to you. MR.BAILEY