AN INTERNATIONALLY PATENTED

CLIMATE CHANGE SOLUTION

IS BEING IGNORED AND/OR REJECTED

YOUR VOICE IS REQUIRED

This complete report

https://www.apscontrols.org/wp-content/uploads/2025/07/student-logic-course.pdf

PREPARED BY
ANALYSTS OF PNEUMATIC SYSTEMS LIMITED (*APS*).

APS HAS DEVELOPED CONSERVATION LOGIC SINCE 1976
RESULTING IN A THREE-PERSON CREW MITIGATING
MORE THAN 60,000 PERSON-YEARS OF GHG EMISSIONS AND
HAS RECEIVED INTERNATIONAL CLIMATE CHANGE REDUCTION PATENTS
OUR RESEARCH IS BEING IGNORED
THE VOICE OF YOUTH IS REQUIRED FOR REAL ACTION!!

EMAIL analystsofpneumatic@bellnet.ca
WEBSITE: https://www.apscontrols.org
VIDEOS: https://www.youtube.com/@davestrain984
CONTACT: Dave Strain (President)
(905) 640-2333

July 7, 2025

PREFACE

Climate change is a major psychological burden on the youth, as per the linked survey reported by the BBC.

LINK: https://www.bbc.com/news/world-58549373

THERE IS A PATENTED PRACTICAL SOLUTION (Page 26)

REASONS TO TAKE POSITIVE ACTION TO REDUCE THE USE OF FOSSIL FUELS

1) Openly seen positive action to reduce burning of fossil fuels will tend to relieve the stress on the youth and concerned adults.

2) The atmosphere was noticeably cleaner after the COVID shutdown, which is demonstrated proof that reducing fossil fuel burning will tend to clean the atmosphere.

3) There is a finite source of fossil fuels:
Stanford University"—May 23, 2019 — Oil will end by 2052 – 30 **years** time, Gas will end by 2060 – 40 **years** time, **Coal** will last till 2090 – 70 **years** time"

4) The cost of energy is crippling economies.

MONETARY BENEFIT OF APPLYING THE INVENTION

U.S. ENERGY INFORMATION:
"Globally we burn 97 million barrels a day.
That represents a global cost of approximately **$6.9 trillion per day."**

Yale University
"Feb 12, 2020 — Air Pollution from Fossil Fuels Costs $8 Billion Per Day ... The cost represents 3.3 percent of global GDP, "

NOTE: An internationally patented invention exists that has the potential to reduce global fossil fuel burning by more than 33%.

If only 33% of the total fossil fuel use is prevented, the global cost avoidance would be **$832 billion per year.**

THE MAIN HURDLE

Governing authorities in government, multiple universities and large environmental organizations have all rejected the invention with no technical arguments addressing the invention's actual design drawings.

Repeatedly, when the opposing authorities come to the realization that the invention claims are true, they take a no contest position and terminate communication.

THIS PAPER IS INTENDED TO BRING CONCERNED AND OPEN MINDED PERSONS TO:

1) Understand that a lesser volume of hydraulic fluid can generate a larger volume of hydraulic fluid at equal pressures.

2) Understand that applying the accepted scientific formulae ($W = P\Delta V$ and $W = FD$), concludes with work output exceeding work input, ($W_{out} > W_{in}$),which contradicts conventional knowledge.

3) Understand that a patented invention allows a hydraulic system to produce clean energy.

4) Realize there is some HOPE for the future if their collective voices are heard.

CONTENTS

SCIENTIFIC CONSIDERATIONS FOR A PATENTED CLIMATE CHANGE SOLUTION

1) The fundamental science is the discovery of a hydraulic actuator that is more efficient than standard pistons, first patented in 1874 by Mr. Reilley, US patent #147,519. (Logic illustration on page 10)

   Another style of more efficient hydraulic actuator was patented in 1999 by Mr. Strain, founder and President of APS.

   The efficiency differential has been empirically confirmed by current scientists/engineers.

   Patent offices' link:
   https://worldwide.espacenet.com/inpadoc?submitted=true&DB=EPODOC&CC=US&NR=2002178719&KC=&F

2) The more efficient hydraulic actuator produces more work than a standard piston when each is supplied identical volumes of fluid at the same pressure.

3) Conventional knowledge has been incorrect before: the sun does not orbit the world and the world is not flat.

   Applying this efficiency differential in the 1999 patent challenges conventional knowledge.

4) Opposing views have been based only on opinions with no supporting technical arguments addressing the invention's actual design. Quotes from scientist/engineers in APPENDIX "A" on pages 20 - 21. The saying "**Extraordinary claims require extraordinary evidence**" (sometimes shortened to ECREE), also known as the Sagan standard (From Wikipedia), should apply to both sides in any scientific debate:

   - APS has provided full empirical scientific evidence to multiple opposing scientist/engineers.
   - The "Sagan Standard" has been quoted by some scientists as refutal of this invention, while refusing to look at the "extaordinary evidence." This is not a scientific response.
   - Opposing opinions of blocking authorities are standing only on unconditional acceptance of the Laws of Thermodynamics from the mid-1800's, not emperical science or technical logic.

5) **This climate change opportunity will die without the informed support of concerned persons.**

CONSIDERATION

Stanford University predicts humanity will run out of fossil fuel within the life time of children living today.

These children will face hell on earth with their children if real solutions are not activated very soon.

APS's experience with government Ministries and large environmental organizations indicates they are not interested in assessing technical advancements that address climate change. (Pages 23 & 24)

A quote from Brian Kelley who was the Sustainability Manager for the Region of Durham, Ontario, Canada.

Mr. Kelley resigned his position contesting the Region's lack of support in presented sustainability proposals.

QUOTE

"More to the point, do you want to have to explain to your own children or grandchildren why you lacked the courage to protect their futures?"

A PATENTED CLIMATE CHANGE SOLUTION EXISTS
BUT IS BEING IGNORED/DISMISSED

STEPS TO UNDERSTANDING THE SCIENCE

1) Confirm that a more efficient hydraulic actuator and its application to address climate change are internationally patented and have received confirming peer reviews by several scientist/engineers. The patent offices' link is on page 1.

Some scientist/engineers who witnessed the demonstration models and confirmed the efficiency advantage of Mr. Strain's patented actuator over standard pistons are:

-1- Donald M. Gorber, Ph.D., P.Eng.-- (See pages 13.276 - 13.277 in the APS Training Manual)
-2- Rajendra K. Singh, Ph.D. ---------- (See pages 13.278 - 13.279 in the APS Training Manual)
-3- Rosalie Bertell, Ph.D., GNSH
-4- Robert Blanchard, P.Eng. ---------- (See pages 13.290 - 13.282 in the APS Training Manual)
-5- Dr. Mile Ostojic, P.Eng., NRC
-6- Phillip Sullivan, Ph.D., P.Eng.
-7- Support documentation is available upon request.

The APS Training Manual is available on the APS WEBSITE link: https://www.apscontrols.org

2) Accept or reject these basic claims of the invention with empirical science:

- Pistons can be applied in two ways:
  - ✓ To perform work as with lifting the box on a dump-truck.
  - ✓ To produce pressurized substance as with a bicycle or a balloon pump.

- A more efficient and stronger hydraulic piston can pump fluid out of an opposing weaker hydraulic piston with both pistons at the same fluid pressure, similar to a balloon pump.

- With two opposing hydraulic pistons with different efficiencies, the more efficient piston can pump more fluid from the less efficient piston in a volume greater than the more efficient piston requires at the same pressure. (illustrated on page 4)

3) **The conclusion of #2 is that a lesser volume of fluid can generate a larger volume of fluid at identical pressures.** Applying the formula **W**ork = **P**ressure X **V**olume change ($W = P\Delta V$) concludes that the **W**ork output of the less efficient piston is more than the **W**ork input of the more efficient piston. ($\mathbf{W}_{out} > \mathbf{W}_{in}$).

This empirically proven fact contradicts conventional knowledge.

COMPARING THE FUNDAMENTAL SCIENCE OF THE COMBUSTION ENGINE TO THE DIAMOND-SHAPED ACTUATOR

1) The fundamental science of the *Combustion Engine* is the force generated by the explosion when vaporized gasoline and a spark meet.

   The work potential of that explosion ending up as power to turn the vehicle's wheels is just the application of known nuts and bolts solutions beyond the scientific fact.

2) The fundamental science of the *Hydraulic Displacement Engine* is the efficiency differential comparing a conventional piston to a Diamond-Shaped Actuator.

   The work potential differential generated by the efficiency differential ends up powering the *Hydraulic Displacement Engine* and also produces electricity or other work functions.

   This is just the application of known automatic control nuts and bolts solutions beyond the scientific fact.

HYDRAULIC DISPLACEMENT ENGINE **EFFICIENCY ADVANTAGE LOGIC**

Many scientists/engineers have tested the actual model confirming that the Diamond-Shaped Actuator (DSA) is >15% more efficient than a conventional piston and tested the model that proves that <5% efficiency differential is required for the DSA to produce its full fluid requirement by pumping the fluid from the conventional piston.

This leaves the >10% efficiency differential available for other work in part of each forward stroke, which allowed the development of the *Hydraulic Displacement Engine*.

APS developed advanced HVAC control logic reducing some buildings' energy consumption by > 50%.
In total, APS's three-man crew prevented over $100 million in fuel costs. (> 60,000 person-years of pollution)

Using similar automatic control concepts, APS designed a system that confirms that the basic science can be applied in a functioning machine to produce surplus energy. The control circuit was peer reviewed by a SIEMENS controls expert and he initialed and dated all of the design drawings with no challenges.

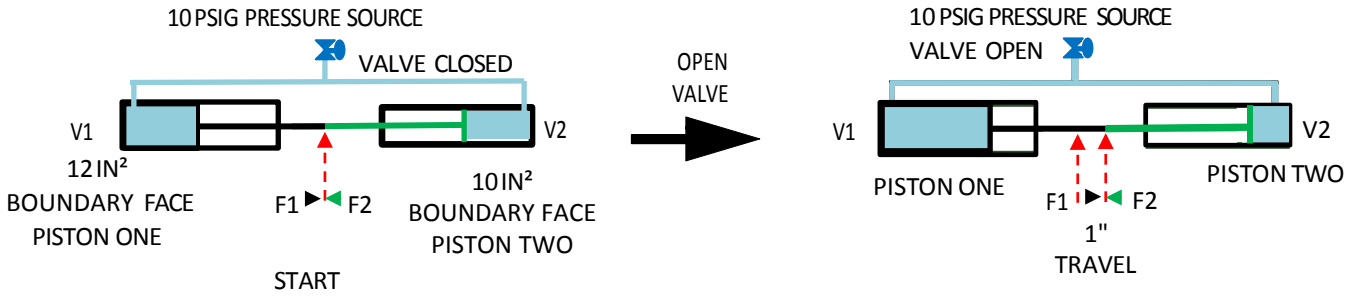
Full details are presented on pages 13.305-13.310 of the APS Training Manual.

Challenging established world views is very uncomfortable, but it is good science.

This invention has the potential to assist with mitigating climate change as per last paragraph of Dr. Gorber's review; therefore, should not be arbitrarily dismissed by others, with no technical explanations supporting their positions. (See pages 25 and 26.)

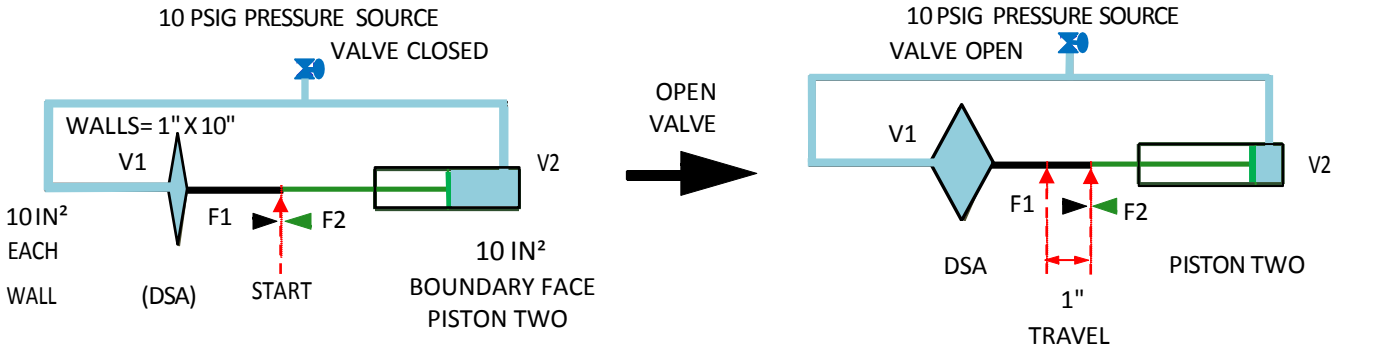
ACTUATOR EFFICIENCY COMPARISON
A PISTON TO A DIAMOND-SHAPED ACTUATOR (DSA)

SCENARIO ONE (A PISTON OPPOSING A PISTON)



VOLUME ONE (V1) CHANGE	=12 IN³	
VOLUME TWO (V2) CHANGE	=10 IN³	TRAVEL IS EQUAL FOR BOTH PISTONS.
FORCE ONE (F1)	=120 POUNDS	
FORCE TWO (F2)	=100 POUNDS	PSIG (Pounds per square inch gauge)

SCENARIO TWO (A DSA OPPOSING A PISTON)



VOLUME ONE (V1) CHANGE	= 9.99 IN³	
VOLUME TWO (V2) CHANGE	=10.0 IN³	TRAVEL IS EQUAL FOR THE DSA AND THE PISTON.
FORCE ONE (F1)	=120 POUNDS	
FORCETWO (F2)	=100 POUNDS	

COMPARISON

-1- Piston one and the (DSA) both displace 10 IN³ of fluid from piston two during these actions.

-2- Piston one and the DSA each exert a 120 pounds of force against the 100-pound counterforce of piston two.

-3- Piston one requires **20% more fluid** than the volume displaced from piston two during this action. (2 IN³ more must be added.)

-4- The DSA requires **.01% less fluid** than the volume displaced from piston two during this action. (.01 IN³ must exit.)

-5- Piston one cannot satisfy its fluid volume requirement with the displaced fluid of piston two.

-6- The DSA can satisfy its total fluid volume requirement with the displaced fluid of piston two with surplus fluid available.

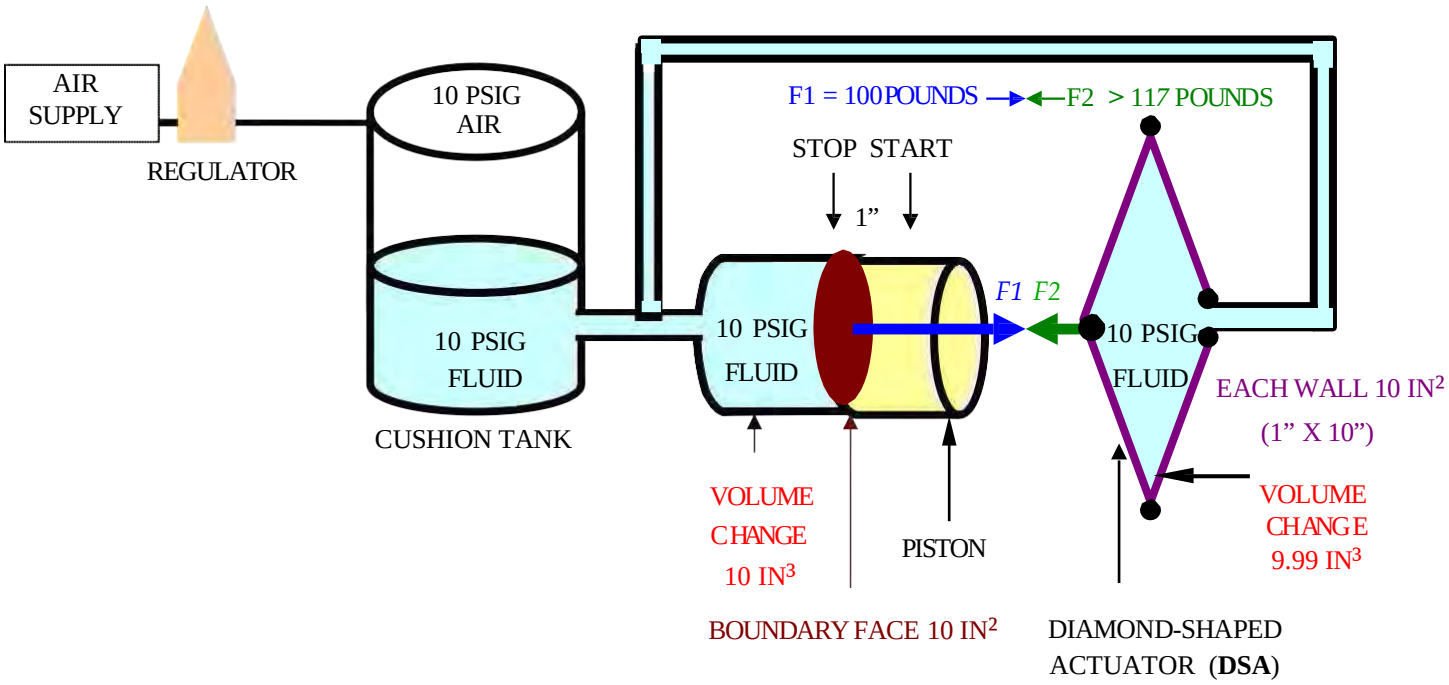
-7- Part of the DSA's 20% surplus work must overcome the system's power requirements and frictional losses, while running itself.

-8- The remaining power can generate external mechanical work such as driving a generator to produce electricity.

WORK = PRESSURE TIMES VOLUME CHANGE (W= PΔV)

APPLYING THE FLUIDIC FORMULA W= PΔV

WORK OUTPUT > WORK INPUT ($W_{OUT} > W_{IN}$)



1) The work input is the Diamond-Shaped Actuator (DSA) fluid change volume of 9.99 IN^3 through 1" of travel.

2) The work output is the volume of 10 IN^3 of fluid pumped out of the piston through 1" of travel.

3) Both the piston and the DSA volumes are at 10 PSIG pressure.

4) Applying the formula W= PΔV, the work output is 100 in-lb and the work input is 99.9 in-lb.

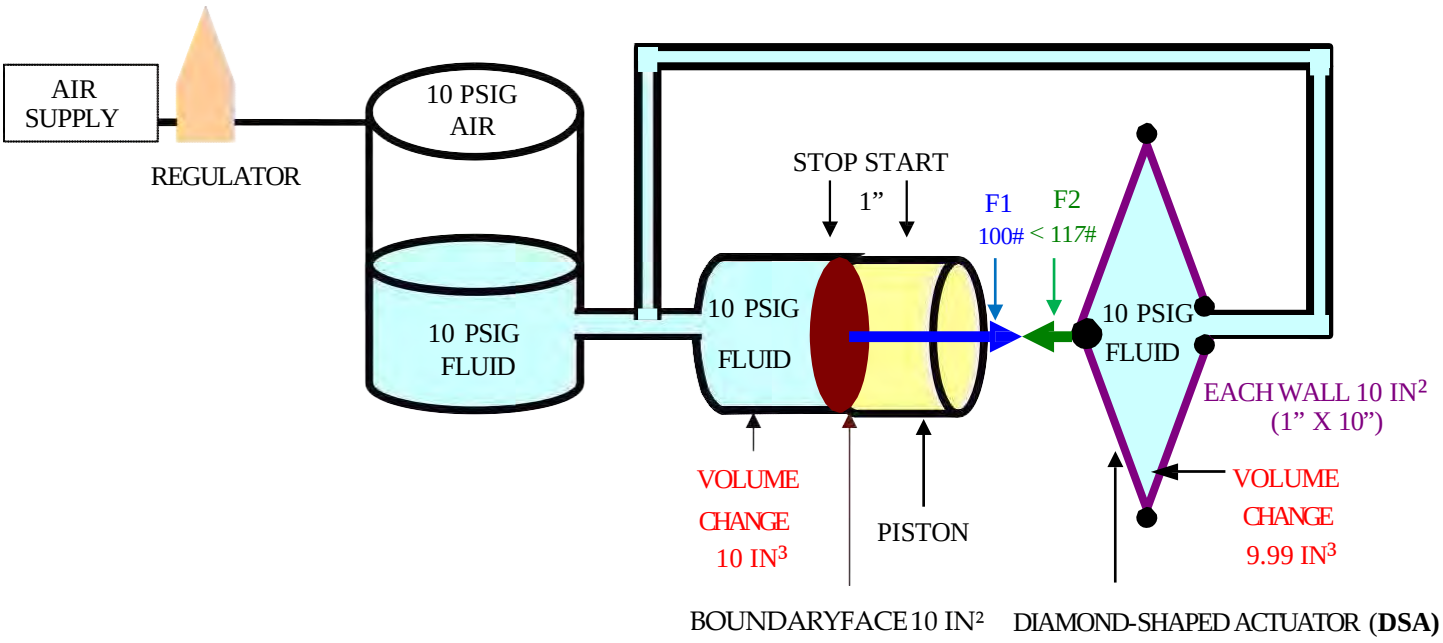
5) Conclusion: The formula W= PΔV proves that in this mechanical configuration Work output can exceed Work input ($W_{OUT} > W_{IN}$).

NOTE:

The magnitude of the benefit is much greater than W= PΔV illustrates, as determined by applying the Work Formula W = FD presented on page 6.

WORK = FORCE TIMES DISPLACEMENT (W = FD)

WORK OUTPUT > WORK INPUT ($W_{OUT} > W_{IN}$)
APPLYING THE WORK FORMULA (W = FD)



1) The Diamond-Shaped Actuator (DSA) overpowers the piston through 1" of travel with 117# of force, equaling 117 in-lb of work, as proven with apparatus presented in IMAGE 1 on page 7.

2) The piston resists the DSA through 1" of travel with 100# of force, equaling 100 in-lb of work.

3) Applying the formula W = FD to the piston and the DSA, the DSA has 17 in-lb of work potential remaining through the 1" of travel.

4) The DSA can provide its total fluid requirement by pumping it from the piston and have work potential remaining.

NOTE:

This remaining work potential allowed the development of the Hydraulic Displacement Engine that runs itself with no energy input other than the initial pressurization and produce completely clean mechanical work, assisting with the battle against climate change.

DEMONSTRATION MODELS OF THE INVENTION

The DSA which is >15% more efficient than a piston creates energy by forcing fluid out of a piston, in a volume of fluid greater than the DSA requires, at the DSA's required pressure using < 85% of the DSA's work potential.

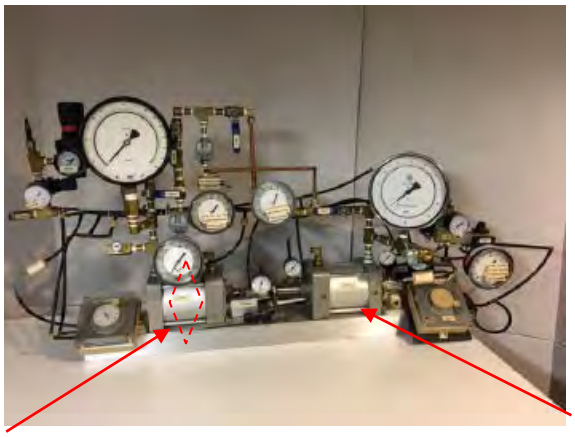
The remaining work potential allowed the patented development of a machine that provides its own energy to reciprocate and produce clean surplus energy for external purposes.

This invention's energy output is controllable by varying the air pressure in the cushion tank shown in IMAGE 3 and the performance impact of varied static pressure is presented in IMAGE 4.

IMAGE 1

TEST MODEL PROVING THE >15% EFFICIENCY ADVANTAGE OF THE DIAMOND-SHAPED ACTUATOR (DSA) OVER A PISTON

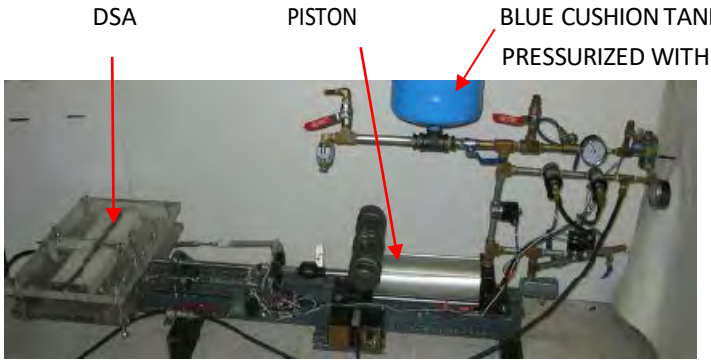
IMAGE 2



DSA replaces opposing piston, creating an efficiency differential.

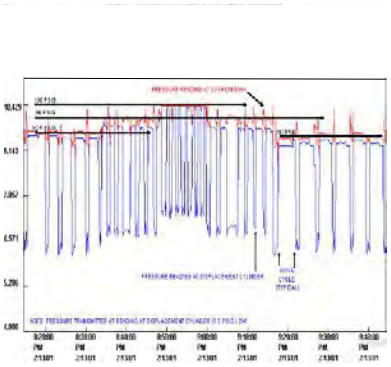
TEST MODEL PROVING <5% EFFICIENCY ADVANTAGE IS REQUIRED TO FORCE MORE FLUID OUT OF AN OPPOSING PISTON THAN THE DSA REQUIRES IN THIS ACTION

IMAGE 3



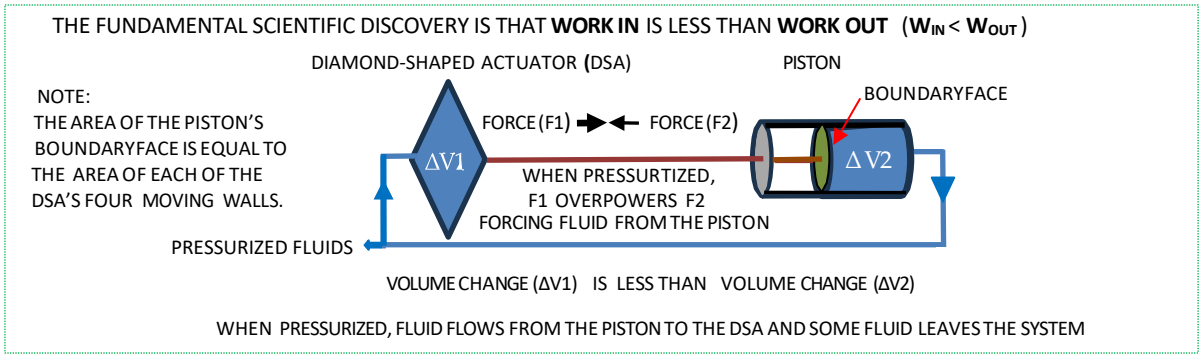
TEST MODEL PROVING THE RUNNING CIRCUITRY OF A RECIPROCATING MACHINE THAT PROVIDES ITS OWN SOURCE OF ENERGY TO RUN AND PRODUCES ENERGY TO BE USED EXTERNALLY FOR OTHER PURPOSES

IMAGE 4



GRAPH ILLUSTRATING THAT THE ENERGY OUTPUT OF THE RUNNING MODEL IN IMAGE "3" IS PROPORTIONALLY VARIABLE WITH THE PRESSURE IN THE BLUE CUSHION TANK

A PATENTED CLIMATE CHANGE SOLUTION APPLYING HYDRAULIC EFFICIENCY DIFFERENTIALS



LOGIC PATH TO UNDERSTANDING THE SCIENCE

Hydraulic pistons use pressurized fluid as their energy source to develop force through a distance; therefore, produce work. (W = FD)

There is a new style of patented hydraulic piston named the Diamond-Shaped Actuator (DSA) that is more efficient than standard pistons.
The DSA, with less fluid volume change than a piston, at equal pressures, produces more work than a piston.

As illustrated above, the weaker piston's force (F2) opposes the DSA's greater force (F1); therefore, the DSA overpowers the piston. Fluid is forced out of the piston; therefore, the DSA feeds itself by using the piston as a fluid pump.

When the stronger DSA forces more fluid from the weaker piston than the DSA requires for that action, the surplus fluid exits the system. This surplus fluid is pressurized; therefore, equals surplus work.

The fluid volume entering the DSA is the work input. The fluid volume exiting the piston is the work output. The fluid pressures in both the DSA and piston are equal.

Applying the scientific formula for pressurized fluids Work = Pressure X Volume change (W = PΔV) to the lesser volume change in the DSA and to the larger volume change in the piston concludes Work input is less than Work output. ($W_{in} < W_{out}$) The work increase is >15% applying the formula W = FD.

The efficiency of a standard piston compared to that of a DSA allowed the development of a patented machine that can run itself and provide external energy with no energy input other than the initial pressurization.

The empirical science, positive peer reviews and patents are being dismissed by governing authorities only based on unconditional acceptance of the Laws of Thermodynamics with no technical arguments.

For the sake of (a) reducing climate change worries, (b) the environment and (c) scientific integrity, empirical science should prevail over unquestioned acceptance of the Laws of Thermodynamics.

WITH HYDRAULICS, WORK OUT CAN EXCEED WORK IN ($W_{out}>W_{in}$)

Consider two volumes of fluid "A" and "B", as illustrated below.

Volume "B" is 20% larger than volume "A".

Using the formula— Work equals Pressure times Volume change (W = PΔV)— the work (W) to produce volume "A" is 1V.

Using the formula — (W= PΔV)— the work (W) to produce volume "B" is 1.2V.

The patented invention uses volume "A" to generate volume "B".
This is achieved by using two hydraulic actuators with an efficiency differential as illustrated at the bottom of this page.
Through part of its stroking range, the Diamond-Shaped Actuator (DSA) is 20% more efficient than the standard piston.

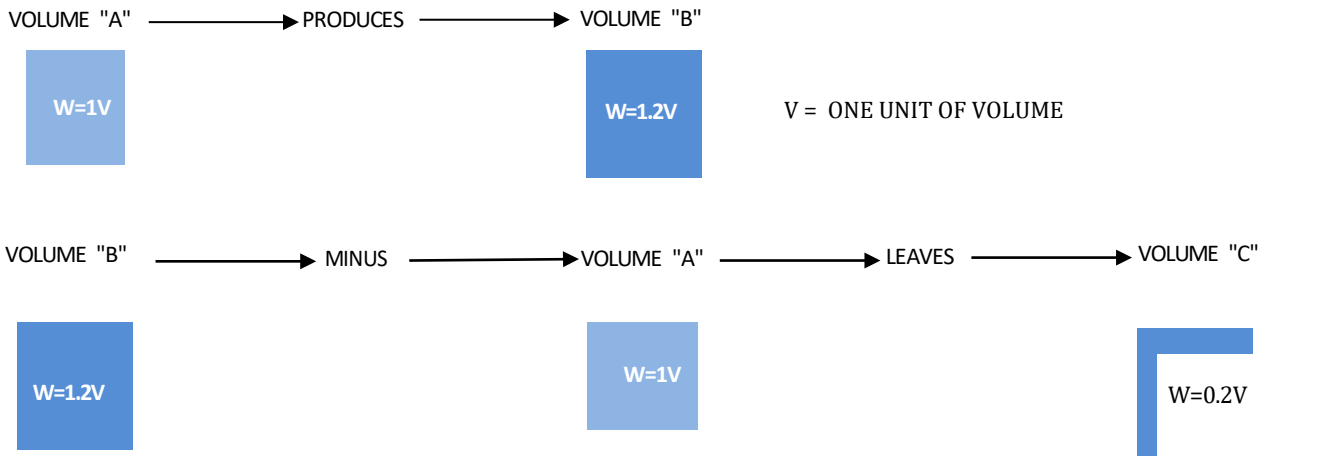
Extracting VOLUME "A" from VOLUME "B" leaves VOLUME "C".

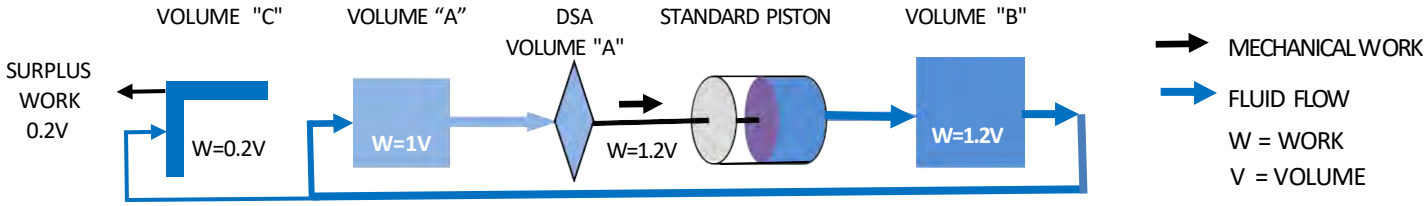
Using the formula W = PΔV, the work to produce VOLUME "C" is 0.2V.

This proves that $W_{out} > W_{in}$ because a lesser volume of fluid can generate a larger volume of fluid at the same pressure.

Part of the work potential 0.2V of VOLUME "C" powers the patented invention to run itself and the remainder of VOLUME "C"'s work potential can be exported as energy to drive generators to produce electricity, etc.

NOTE: The invention can convert the work potential of VOLUME "C" from a fluid volume differential to a mechanical work differential.





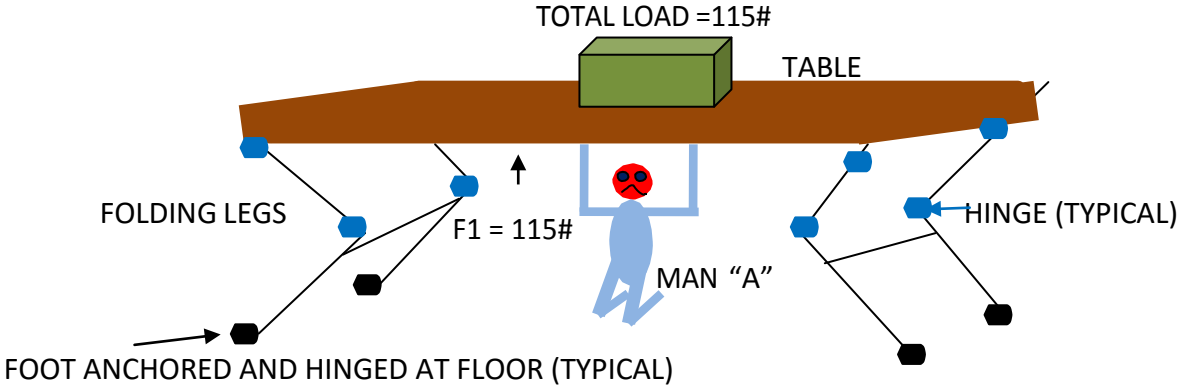
1) Fluid VOLUME "A" is forced into the DSA with W = 1V.
2) The DSA pumps fluid from the standard piston generating fluid VOLUME "B" with W= 1.2V.
3) Fluid VOLUME "B" produces VOLUME "A" and VOLUME "C".
4) FLUID VOLUME "A" work potential is 1V.
5) FLUID VOLUME "B" work potential is 1.2V.
6) FLUID VOLUME "C" work potential is 0.2V as surplus work.
7) $W_{out} > W_{in}$.

A PRACTICAL COMPARISON REGARDING MR. REILLEY'S ACTUATOR'S FORCES

This concept, first discovered by Mr. Reilley (US patent 147 519, February 17, 1874) triggered one of the most significant inventions in the last 150 years allowing a means to pollution-free energy production.

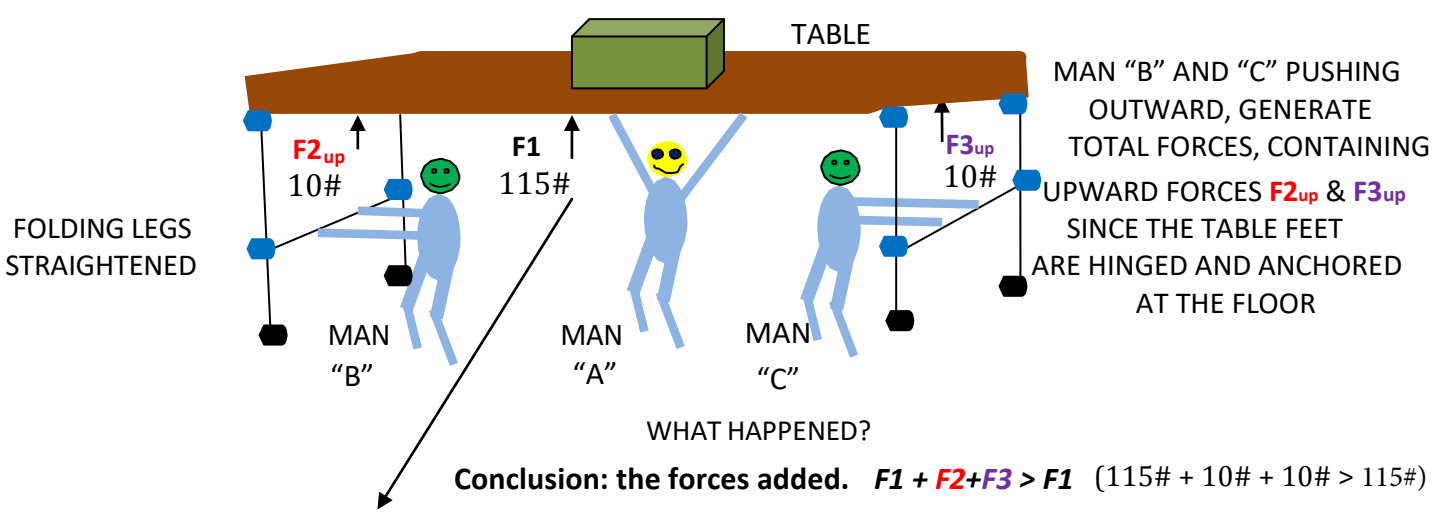
CONSIDER

Man "A" exerts force "F1" to the underside of a folding table; however,
F1 is equal to the gravitational force downward of the total load. Man "A" is stuck.

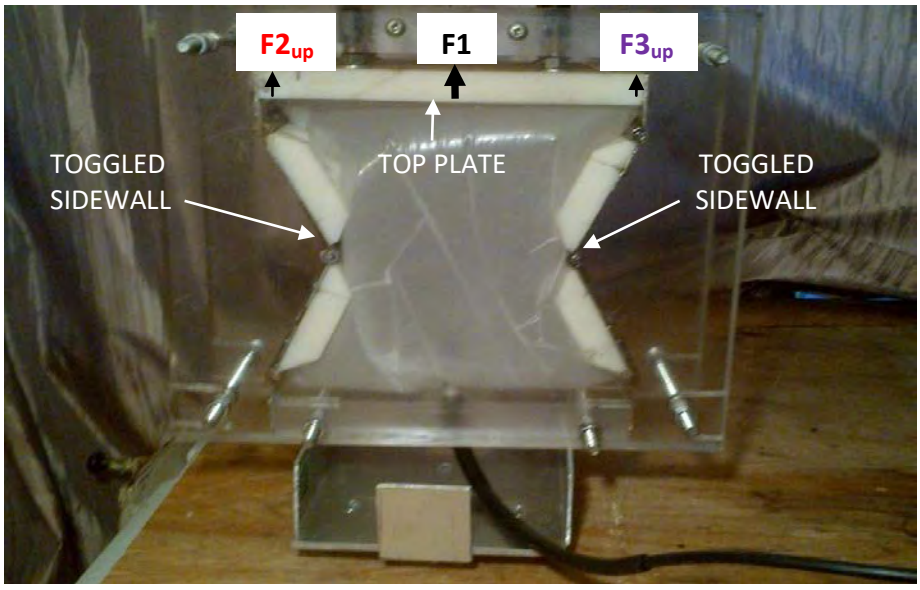


THEN

Man "B" and man "C" got under the table and pushed with force "$F2_{up}$", via man "B" and force "$F3_{up}$", via man "C" on the folding legs as illustrated. Observation: The total load rose, bringing the legs to the extended position.



Conclusion: the forces added. ***F1 + F2+F3 > F1*** (115# + 10# + 10# > 115#)



Mr. Reilley style actuator invented in 1874

FORCE CAPABILITY COMPARISON OF MR. REILLEY'S ACTUATOR TO A FOLDING TABLE

Fluid pressure on top plate of Mr. Reilley's replaces MAN "A", producing identical force "F1" through the total travel.

Fluid pressure on the two toggled walls of Mr. Reilley's replaces MAN "B" and MAN "C", producing variable forces "$F2_{UP}$" & "$F3_{UP}$".

NOTE

A conventional piston produces only force F1 with identical fluid input, regarding pressure and volume, while Mr. Reilley's produces **F1 + $F2_{up}$ + $F3_{UP}$**

Observation: **F1 + $F2_{up}$ + $F3_{UP}$ > F1**

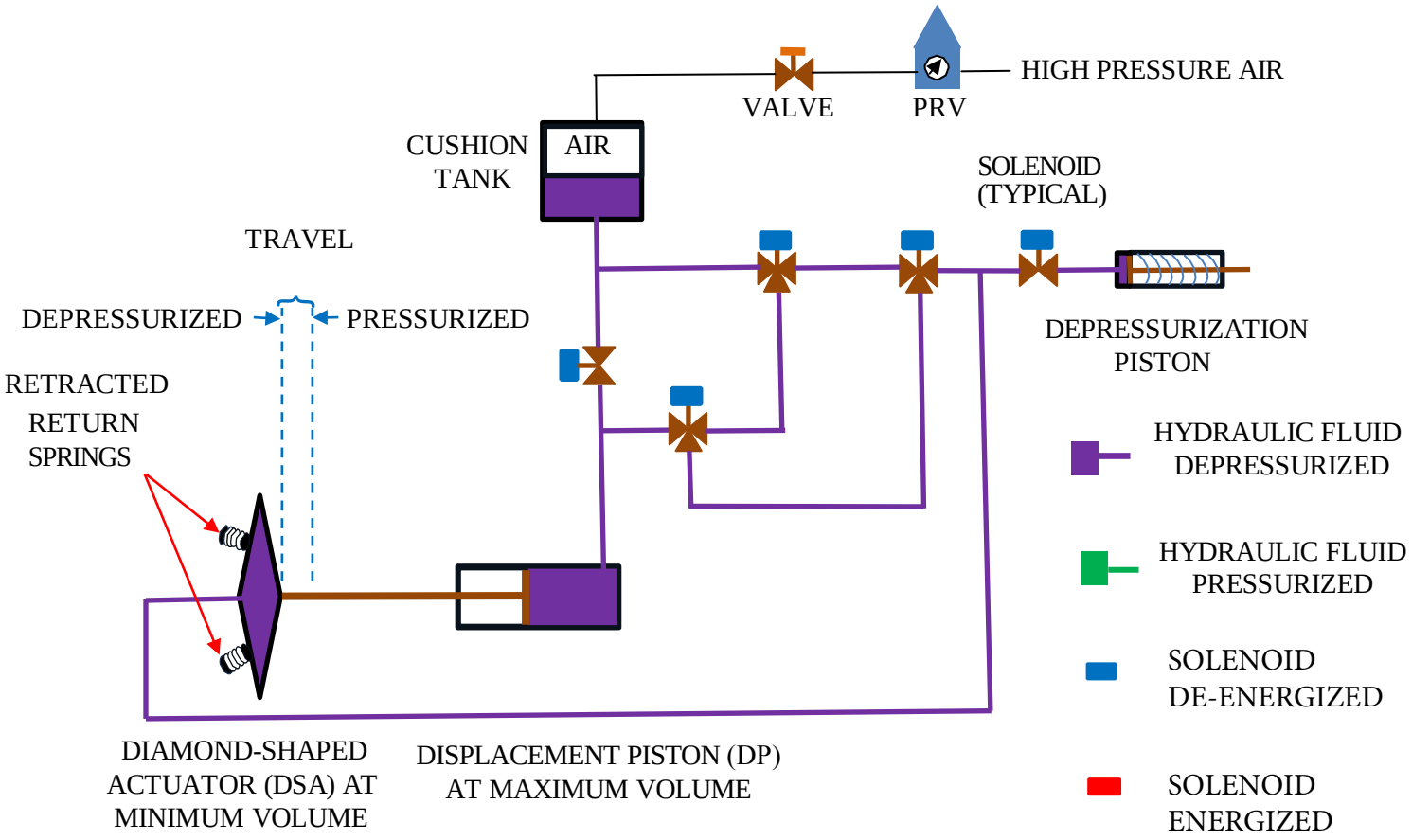
VIDEO: https://www.youtube.com/watch?v=XOGPw7jthxc&t=4s

THE APPLICATION THAT RECEIVED PATENT APPROVAL

IN THE PATENT COOPERATION TREATY (PCT),

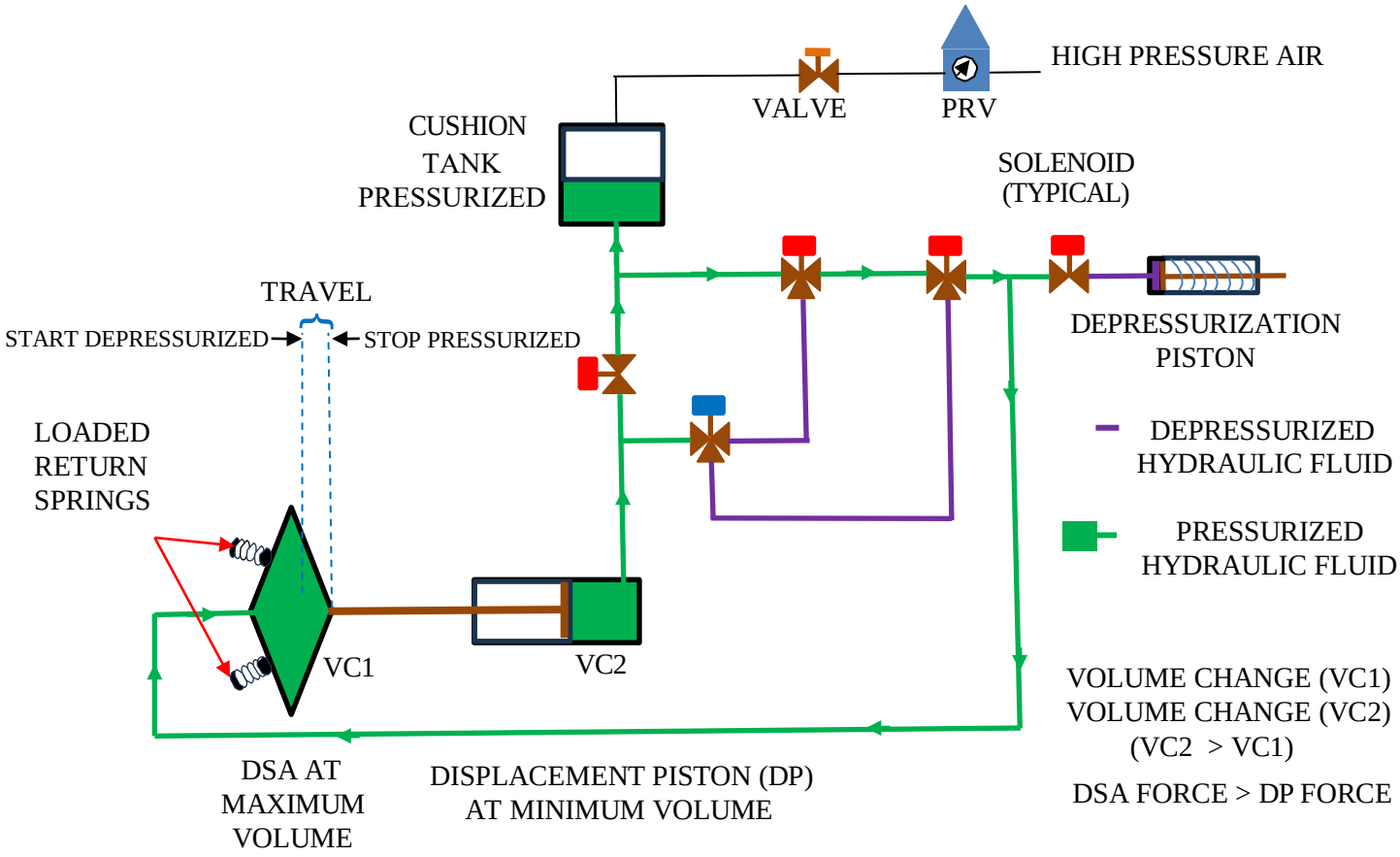
THE USA, THE EUROPEAN AND CANADIAN PATENT OFFICES

SYSTEM WITH NO PRESSURE OR ELECTRICAL



- Electrical power and pressurization is initiated for drive stage (Page 13).
- The green arrows indicate fluid flow caused by the force differential between the Diamond-Shaped Actuator (DSA) and the displacement piston (DP) when pressurized in the driving stage.
- The green arrows indicate fluid flow caused by the air pressure in the cushion tank in the driving stage (Page 13) and second recharge stage (Page 15).
- The DSA provides its total fluid requirement by pumping it from the DP.
- The purple arrows in recharge stage one indicate fluid flow caused by the return springs when depressurized.
- The return springs pull the DSA back to minimum fluid volume when depressurized.

DRIVING STAGE FLUID FLOW



- The cushion tank is pressurized and electrical power is established, causing the appropriate solenoids to be energized (RED) which causes the flow pattern illustrated in green.

- The DSA's force advantage over the DP's has been empirically verified by scientists to be > 15% with the friction burdened demonstration models.
  An Aerospace scientist from U of T calculated a maximum theoretical 26% force advantage in favour of the DSA over the DP with equal fluids into each.

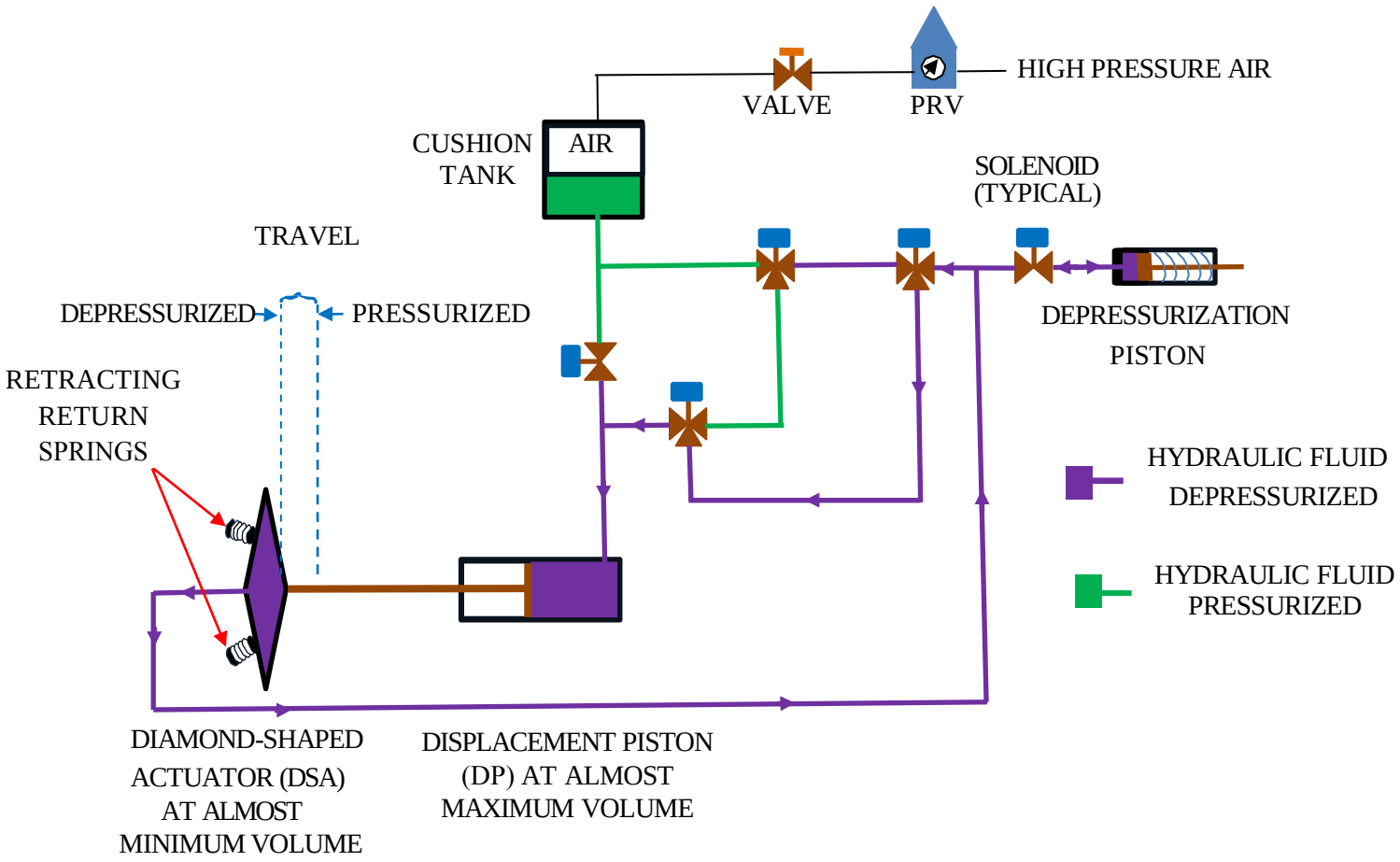
- The DSA pumps more fluid from the DP than the DSA requires; therefore, some of the fluid pumped from the DP goes into the cushion tank.

- Of the > 15% force advantage the invention uses < 5% to overcome friction, reset itself and produce power to activate the solenoid function.
  The remaining > 10% is available for work functions external to the invention.

- The DSA exerts less force as it expands; therefore, the drive stage stops at about 20° expansion.

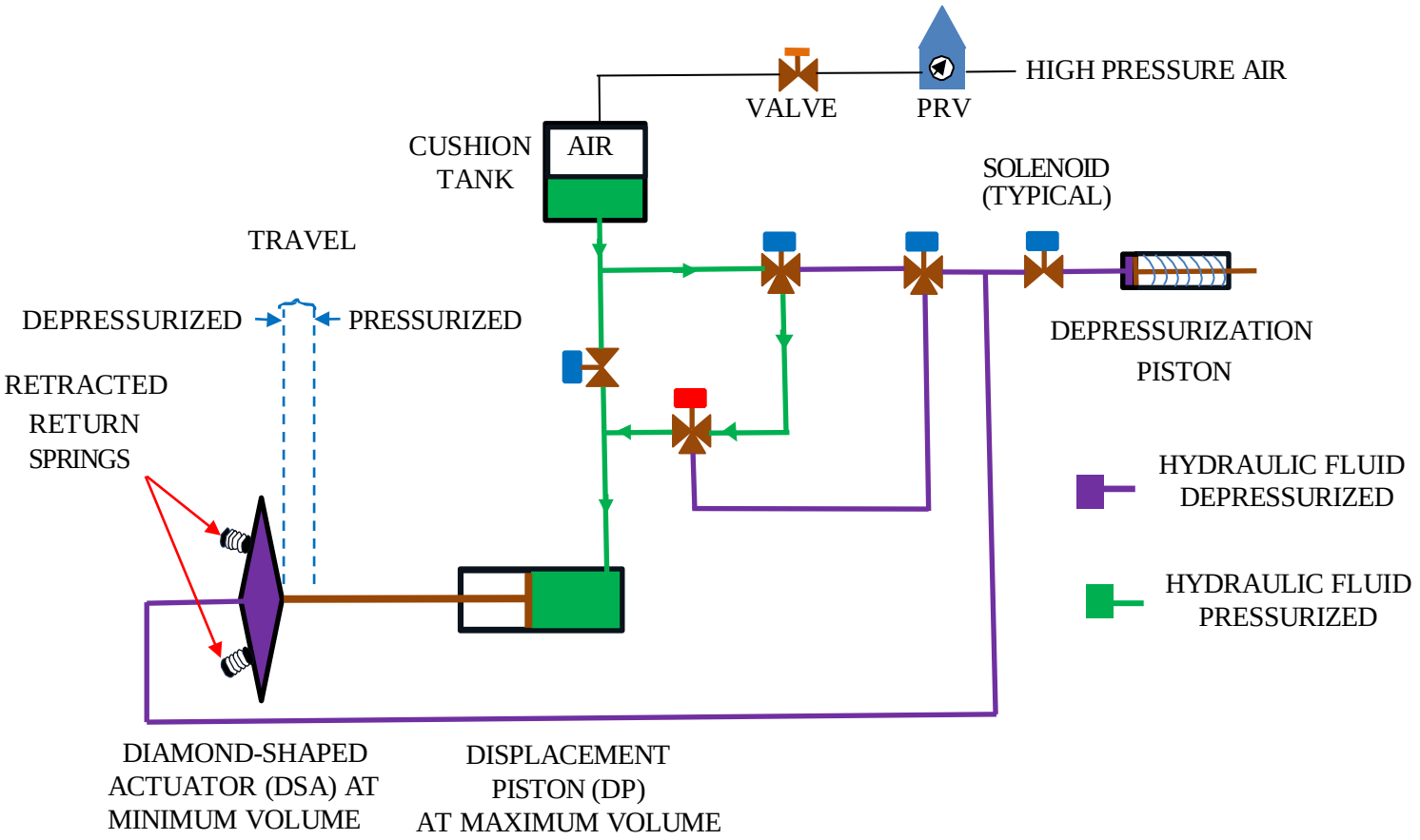
- (See page 13.255 in the APS Training Manual for full details.)

FIRST RECHARGE STAGE FLUID FLOW PATTERN



- The cushion tank is isolated while maintaining its pressure.
- The DEPRESSURIZATION PISTON, which has a lowpressure range return spring, is opened to the common fluid of the DSA and the DP, which depressurizes the fluid coloured purple.
- This eliminates the DSA's force advantage.
- The return springs at the DSA and the DEPRESSURIZATION PISTON's spring retract causing their fluid gain to return to the DP.
- 1% of the fluid forced from DP is still in the cushion tank.
- The return springs have pulled the DSA back to minimum fluid volume when depressurized.
- See page 13.256 in the APS training manual for full details.

SECOND RECHARGE STAGE FLUID FLOW PATTERN



- 99% of the fluid returned to the DP from the DSA and DEPRESSURIZATION PISTON in the first recharge stage.
- The fluid flow pattern illustrated in green returns the 1% of the fluid to the DP from the cushion tank.
- When 100% of the fluid is returned to the DP the circuit automatically restarts the drive stage.
- The invention's cycling performance graph, at various static pressures, is presented on page seven, IMAGE 4.
- See page 13.257 of the APS Training Manual for full details.

A TEACHING OPPORTUNITY TO TEST THE LAWS OF THERMODYNAMICS

A FIRST STEP IN IMPROVING SCIENCE SHOULD BE CORRECTING FALSE LAWS

The scientific community has accepted the Laws of Thermodynamics as irrefutably true.

Refuting this invention is an opportunity to establish further confidence in the Laws of Thermodynamics.

Quoting the Laws of Thermodynamics as proof to defend those laws is unacceptable circular reasoning.

Empirical science should prevail with technical arguments addressing the actual design of the invention.

Concerned persons should consider the information on pages 18 to 21 and 26.

THE INVENTION'S CLAIMS TO BE REFUTED AS A LEARNING PROCESS FOR STUDENTS

1) A lesser volume of fluid can generate a larger volume of fluid at equal pressures with work potential remaining.

   Applying the formula W = PΔV to the larger and smaller volumes of pressurized fluids proves the fact that a lesser amount of work can generate a larger amount of work.

2) The differential in work potential allowed the patented development of a hydraulic machine than can produce more energy than it requires to run itself and have surplus energy to be applied externally.

APS's offers to share the invention, but solutions are being dismissed by organizations presenting themselves as leaders in the climate change battle. Your assistance is needed.

POSSIBLE ACTIONS TO ASSIST WITH THIS CLIMATE CHANGE SOLUTION

1) Ontario's **CLIMATE CHANGE POLICY BRANCH** response to the free offer of climate change solutions: "Please note that the Ministry of the Environment, Conservation and Parks does not currently assess and offer support to technological proposals or inventions." (See page 23)

   Email the Ontario Climate Change Policy Branch Office and request that they publicly assess this freely shared invention plus the HVAC advancements in the APS Training manual. (In WEBSITE on cover)

   Minister, Todd McCarthy, MPP — Email — todd.mccarthy@pc.ola.org
   Please copy the Premiere — Email — doug.fordco@pc.ola.org

2) The Canadian Ministry of Environment and Climate Change rejected our request for a meeting. (Page24) Express your opinion to them.

3) **Major environmental organizations':** Typical response to the free offer of climate change solutions: "Unfortunately we have neither the appropriate resources nor the staff capacity to assist you with your work, although we certainly encourage your efforts to find solutions." Express your opinion to them.

4) Start a student organization concerned with climate change to respectfully demand that the educational system assess the climate change opportunities and publicly support practical applications.

5) Spread the information and share other positive actions to address climate change.

UNCONDITIONAL FAITH IN OUTDATED OPINIONS IS NOT SCIENCE

The Laws of Thermodynamics have been accepted without question in the scientific community for about 200 years. But everything else changes, everything else evolves.

We've seen other scientific laws change over time as we learned new information.

What if the Laws of Thermodynamics are outdated?

And what if, by not questioning these old laws, we are preventing innovation that can positively address Climate Change?

Technological advancements that would assist in the battle against climate change are being dismissed by scientists/engineers based solely on the scientific community's unconditional acceptance of the Laws of Thermodynamics.

We have a patented solution to reduce pollution: why no scientific interest?

Design drawings and functional models were made available to many scientists/engineers. Here are the results:

- Most declined the invitation to test the physical models at all
- Most provided no feedback on the actual design, but still rejected the invention based on the existing Laws of Thermodynamics
    - Appendix "A" (pages 20 & 21): The responses from engineers/scientists with respect to the invention; it's all about the laws – nothing about the actual design or models

Unconditional faith in text book opinions is blocking application of real Climate Change solutions.

But some in the scientific community who decided to look at our designs and drawings provided positive feedback…

Some scientists/engineers have tested the models with approval

- *"I believe that Mr. Strain's invention will advance the scientific community's understanding of thermodynamics relating to pressurized fluids and energy to a new level. If fully developed the invention has the potential to reduce energy and as a result a reduction in the use of fossil fuels, thus assisting in the battle against climate change."*~ Donald M. Gorber PH.D, P. Eng. (Pages 25 & 26)

- A control systems expert, representing SIEMENS, one of the world leaders in automatic controls, peer reviewed the control logic and initialled the drawings with no changes.

Again, what if accepting the Laws of Thermodynamics without question blocks innovation that can reduce Climate Change?

Here are some questions we need to consider (and ask!) when thinking about our ongoing acceptance of the 200-year-old Laws of Thermodynamics

	YES	NO
1) Is it true that in the pursuit of absolute truth, some past scientific laws and beliefs that were held as true have been proven to actually be wrong and untrue?	□	□
2) Is it logically possible that some scientific laws and believes we hold now could be wrong?	□	□
3) Is it scientific to update old/wrongs laws and beliefs, to new proven designs and understandings?	□	□
4) Experts often quote the Laws of Thermodynamics when contesting innovation designed to combat climate change. Should they be allowed to simply cite the laws and block progress, without a modern and thorough explanation?	□	□
5) Experts will often recite that energy cannot be created or destroyed. Many of the same experts maintain that in the "Big Bang" time, space, matter and energy came into existence from nothing. Is the contradiction apparent to you?	□	□
6) Many scientists today say that we don't know what energy actually is—which is fundamental to fully understanding the Laws of Thermodynamics. Could the developers of the Laws of Thermodynamics in the nineteenth century understand what energy is in its entirety, yet more technically advanced modern-day scientists do not?	□	□
7) Imagine a hydraulic product exists (Product A) and through innovation, a more efficient version is patented (Product A+). As it turns out, Product A+ can derive its total hydraulic fluid requirement, pumping it from Product A, with work potential remaining in product A+ ($W_{in} < W_{out}$). This outcome contests the Laws of Thermodynamics. Can the Laws of Thermodynamics remain valid with this consideration?	□	□

Answered yes to 4, 6, 7 and no to 1, 2, 3, 5? Please send your explanations, we'd love to hear your thoughts.

Answered no to 4, 6, 7 and yes to 1, 2, 3, 5? Then pass this on to scientific experts and ask for urgent support to developing good solutions to address climate change.

Take action AND demand answers and accountability

When people participate in coordinated rallies in cities across the globe, it visually shows collective desire for change, but after a day, everyone disappears from the public eye. To effect real and lasting change, we need to be consistent and persistent in our pursuit of answers and accountability. We need to knock on every door and ask "why" over and over and over again until we hear a real answer.

So, (1) if it's true that the Laws of Thermodynamics are outdated, and (2) that fact is preventing innovation from being used to fight climate change, then the younger generation must demand answers from the governing bodies and professors for their unconditional acceptance of the Laws of Thermodynamics. Innovations must be assessed on whether they produce the desired outcomes or not.

Do not let 200-year-old laws stop innovation. **We must address climate change now.**

THE NEXT PRACTICAL ACTION

Concerned youth should search for an Engineer, Scientist or Professor who believes they can publicly contest the drawings illustrated on pages 4,5 & 6, that describes work output greater than work input ($W_{out} > W_{in}$), contesting conventional knowledge. Quoting the Laws of Thermodynamics is an unacceptable faith statement, not a technical argument.

If no technical contesting position is presented in detail, concerned youth should collectively demand this advancement be brought to practical application. The other inventions rejected based only on faith in the Laws of Thermodynamics should be reassessed respecting technical merit, not unsupported faith in the Laws of Thermodynamics.

Relying on the established laws with only unquestioned acceptance is a very serious error.

Link to patent offices for subject invention:

https://worldwide.espacenet.com/inpadoc?submitted=true&DB=EPODOC&CC=US&NR=2002178719&KC=&F=8&OREQ=0&textdoc=TRUE&FT=E

Link to You Tube videos presenting the subject invention:

https://www.youtube.com/channel/UCVqNrHjb2nj-wo-h7Shzigw

APS respects the advancement of science through practical methods with the goal of global environmental betterment. So, we ask all scientists to test our designs and drawings based on technical merits and not simply restating the Laws of Thermodynamics, but engage the drawing and designs and come to conclusions based on logical assessments, as the evolvement of science starts with the questioning of science itself. The questioning serves to either strengthen the pre-existing scientific understanding or belief, or it serves to advance science as a whole by changing the pre-existing scientific understanding or belief. So we ask everybody who reads this to be a part of science and the scientific process.

Please send any questions or comments.

Dave Strain
President
APS
analystsofpneumatic@bellnet.ca
Office—(905) 640-2333

Appendix A

Some actual quotes from engineers'/scientists' responses with respect to the invention, based only on their faith in the Laws of Thermodynamics:

A. "You claim that the diamond-shaped actuator produces a greater displacement of fluid at a lower pressure than for a conventional piston-cylinder configuration. From this you conclude that there is an excess of energy output compared to the energy input. Although I confess to only a rudimentary understanding of your principle of operation, I cannot accept the conclusion that this device would produce more energy output than is put in." ...Same letter... "Finally, I must admit that I cannot fully understand your arguments. Regretfully, though, from what I already know I doubt that I could be persuaded that this device is a perpetual motion machine as you claim." (University Engineering Professor and Engineering text author)

B. "Quite frankly, I reject outright any proposal that claims to overcome the basic laws of physics." (University Professor and environmental organization leader.)

C. "As you know, your results contradict the First Law of Thermodynamics. Despite numerous attempts over the centuries to demonstrate otherwise, this fundamental Law has never been violated. In fact, the theory and all available evidence support this Law so strongly that we hold it as true. All modern science and technologies are developed and work based on the truth of this Law. Examples of experiments, demonstrations, and machines developed and/or built that purportedly invalidate this Law, have, without exception, all been shown to be false." (University Professor and director of applied technology at that University.)

D. **"Discussion and conclusion** [*TO BE COMPLETED*]

Figure 7 compares the estimates of equation 5 with the data of Ref. 2. As compared with the calculated results including the effects of both actuator and fluid weight, the measured pressures are significantly lower, being about 26% low at z/L = 0.25, decreasing to 19% low at z/L = 0.42.Since the possible effects of such sources of discrepancy as solid and fluid friction might be expected to increase the pC required to lift the weight—at least in the process of raising the it—this appears to support Mr Strain's claim."

"To my knowledge, in two centuries of scientific development there has never been a case in which the laws of classical physics when used in their proper sphere of applicability have been violated. I have 50 years of direct personal experience using these laws, leading me to believe that I can no more question them than I can make two plus two equal five, and thus improve my financial affairs."(University Engineering Professor and renowned scientist.)

NOTE: The differential test model proves that less than 4% efficiency differential is required for the diamond-shaped actuator to produce its full fluid requirement by pumping the fluid from a conventional piston. This fact leaves 22% remaining work potential in each operation, allowing a reciprocating machine to run itself and produce external mechanical work with no external energy input.

E. "I chose to write to you on my personal, rather than business stationary. I figure that you get enough of the formal business stuff. Most importantly, you should understand that in building your piston system, you conformed to the laws of Newtonian Mechanics. Those laws helped you build something better than was before, but at the same time, restricted you to the valdity of CPE. More simply, you can't have your cake and eat it too. Take it all, or take none of it. Them's the rules." (Scientist used by the NRC to assess "out of the box" inventions)

F. "I have understood novelty of the diamond-shaped actuator and its potential advantages. Also, I do not question validity of experimental data that you and Mr. Blanchard collected. Quite contrary, I trust that the experiments and all measurements were conducted professionally. Our views differ with regard to the system that uses the diamond-shaped actuator to produce useful mechanical work without spending any external energy. Even in this case I do not challenge validity of your experimental data (that is, I trust that the system worked at some point). I only think that the data is incomplete -- some part of the process went unnoticed. Thus, I trust that the system can work, but you/we do not have a proper explanation for how it works." (NRC scientist)

Quotes A to F are typical of comments based on unconditional acceptance in the Laws of Thermodynamics.

Not one has provided any scientific or technical logic to support their position specifically addressing the invention's design drawings they possessed.

SIEMENS, via one of their controls experts, peer reviewed the detailed control drawings and initialled the drawings with no changes, confirming the control circuits. Pages 13.305 to 13.310 of the APS manual present the SIEMENS assessment.

Patent examiners from the PCT (Patent Co-operation Treaty), European, USA and Canadian patent offices examined the design data and granted the patents.

Rejection by others should be based on technical assessment of the actual invention, with supporting arguments.

PATENTS FOR A CLIMATE CHANGE SOLUTION

Espacenet

NOTE: The link at the bottom of the page takes you to the European Patent Office, where you can open the full patented information. Section 13 of the APS manual presents multiple development reports.

RSS: family dossiers

Family list: US2002178719 (A1) — 2002-12-05

7 application(s) for: US2002178719

1. Diamond-shaped fluid powered linkage, system and engine					
Inventor: STRAIN DAVID [CA]	**Applicant:** STRAIN DAVID	**CPC:** F15B3/00	**IPC:** F15B3/00 (IPC1-7): F16D31/02	**Publication info:** US2002178719 (A1) 2002-12-05 US6782800 (B2) 2004-08-31	**Priority date:** 1999-12-21
2. DIAMOND-SHAPED FLUID POWERED LINKAGE, SYSTEM AND ENGINE					
Inventor: STRAIN DAVID [CA]	**Applicant:** STRAIN DAVID [CA]	**CPC:** F15B3/00	**IPC:** F15B3/00 (IPC1-7): F15B3/00	**Publication info:** AT280331 (T) 2004-11-15	**Priority date:** 1999-12-21
3. Diamond-shaped fluid powered linkage, system and engine					
Inventor: STRAIN DAVID	**Applicant:** STRAIN DAVID	**CPC:** F15B3/00	**IPC:** F15B3/00 (IPC1-7): F15B3/00	**Publication info:** AU2336801 (A) 2001-07-03	**Priority date:** 1999-12-21
4. DIAMOND-SHAPED FLUID POWERED LINKAGE, SYSTEM AND ENGINE					
Inventor: STRAIN DAVID [CA]	**Applicant:** STRAIN DAVID [CA]	**CPC:** F15B3/00	**IPC:** F15B3/00 (IPC1-7): F15B3/00	**Publication info:** CA2424712 (A1) 2001-06-28 CA2424712 (C) 2007-11-20	**Priority date:** 1999-12-21
5. DIAMOND-SHAPED FLUID POWERED LINKAGE, SYSTEM AND ENGINE					
Inventor: STRAIN DAVID [CA]	**Applicant:** STRAIN DAVID [CA]	**CPC:** F15B3/00	**IPC:** F15B3/00 (IPC1-7): F15B3/00	**Publication info:** DE60015181 (T2) 2005-11-24	**Priority date:** 1999-12-21
6. DIAMOND-SHAPED FLUID POWERED LINKAGE, SYSTEM AND ENGINE					
Inventor: STRAIN DAVID [CA]	**Applicant:** STRAIN DAVID [CA]	**CPC:** F15B3/00	**IPC:** F15B3/00 (IPC1-7): F15B3/00	**Publication info:** EP1240435 (A1) 2002-09-18 EP1240435 (B1) 2004-10-20 Global Dossier	**Priority date:** 1999-12-21
7. DIAMOND-SHAPED FLUID POWERED LINKAGE, SYSTEM AND ENGINE					
Inventor: STRAIN DAVID [CA]	**Applicant:** STRAIN DAVID [CA]	**CPC:** F15B3/00	**IPC:** F15B3/00 (IPC1-7): F15B3/00	**Publication info:** WO0146594 (A1) 2001-06-28 Global Dossier	**Priority date:** 1999-12-21

European patent office link

https://worldwide.espacenet.com/inpadoc?submitted=true&DB=EPODOC&CC=US&NR=2002178719&KC=&F=8&OREQ=0&textdoc=TRUE&FT=E

NOTE: The second and third paragraphs reflect the standard responses we have received from all government ministries, universities, and environmental organizations we've contacted. While they consistently express concern, none have shown a willingness to investigate the patented design outlined—free of charge—in the APS manual. This particular response comes from the Climate Change Policy Branch of Ontario.

Ministry of the Environment, Conservation and Parks

Climate Change Policy Branch
438 University Avenue
14th Floor
Toronto ON M7A 2A5

Ministère de l'Environnement, de la Protection de la nature et des Parcs

Direction des politiques en matière de changement climatique
438, avenue University
14e étage
Toronto ON M7A 2A5

Ontario

357-2023-2479

January 10, 2024

Dave Strain
Email: analystsolpneumatic@bellnet.ca

Dear Dave Strain:

Thank you for your email to the Office of the Honourable Andrea Khanjin, Minister of the Environment, Conservation and Parks, sharing details regarding your invention. I am responding on the minister's behalf.

Please note that the Ministry of the Environment, Conservation and Parks does not currently assess and offer support to technological proposals or inventions. I have forwarded the details of your presentation to ministry staff for their awareness.

Climate change is a serious global problem that presents challenges for our air, water and lands. The Ontario government recognizes both the threat posed by climate change and our responsibility to act.

Ontario has already achieved greater reductions of greenhouse gas (GHG) emissions than any other province or territory in Canada. The majority of Canada's progress toward its 2030 Paris Agreement target has been driven by Ontario. Ontario is currently on track to achieve its 2030 GHG emissions target with 2021 greenhouse gas emissions down 26.1 per cent since 2005. For a full update of Ontario's progress on the environment, and on climate change specifically, please visit this link.

Thank you again for writing and sharing your commitment to sustainability and climate action. I wish you continued success in your work and research.

Sincerely,

Patrick Fancott

Digitally signed by Patrick Fancott
Date: 2024.01.10 23:48:00 -05'00'

Patrick Fancott
Director, Climate Change Policy Branch
Ministry of the Environment, Conservation and Parks

Ministre de l'Environnement et
du Changement climatique

Minister of Environment
and Climate Change

Ottawa, Canada K1A 0H3

JUL 0 3 2025

Mr. Dave Strain
President
Analysts of Pneumatic Systems Limited
analystsofpneumatic@bellnet.ca

Dear Mr. Strain:

Thank you for your correspondence of May 21, 2025, inviting me to meet with you in Toronto or Ottawa to discuss a path to bringing Analysts of Pneumatic Systems Limited's heating, ventilation, and air conditioning technology to practical application. I regret the delay in responding.

Unfortunately, as a result of scheduling constraints, I am unable to accept your invitation.

As you may know, Natural Resources Canada will be in a better position to consider this invitation. Therefore, if you have not already done so, I suggest that you extend this invitation to the Honourable Tim Hodgson, Minister of Energy and Natural Resources.

Please accept my best regards.

Yours truly,

The Honourable Julie Dabrusin, P.C., M.P.

NOTE: This response overlooked our internationally patented invention and focused only on our HVAC advancements.

Referring us to Natural Resources Canada (NRC) is not helpful. Years ago, NRC's Energy Hydraulics Research department thoroughly reviewed our Energy Hydraulics clean energy invention, involving external experts. Because it challenges textbook principles, they declined to comment and referred us elsewhere.

This reflects a broader pattern: government and academic experts consistently avoid engaging with innovations that question established theories, offering no technical justification for their position.

SENES Consultants Limited
121 Granton Drive
Unit 12
Richmond Hill, Ontario
Canada L4B3N4
Tel: (905) 764-9380
Fax: (905) 764-9386
E-mail: senes@senes.ca
Web Site: http://www.senes.ca

90001

9 March 2007

TO WHOM IT MAY CONCERN

Mr. David Strain requested that I provide a letter of support relating to his invention currently patented in the USA and Europe. (The Canadian patent is pending.) He also requested that I state my credentials allowing the reader some assessment of my opinion.

I am Donald M. Gorber, Ph.D., P.Eng., current and founding President of SENES Consultants Limited established in Ontario in 1980. I hold a doctorate degree in Chemical Engineering and have more than thirty-five years experience in the energy and environmental field.

Mr. Strain made a presentation to SENES to discuss his invention. This presentation involved myself and our senior energy scientist/engineer, Dr Mehran Monabbati and provided us with a clear understanding of the principles relating to the invention.

The fundamental basis of the invention is the efficiency differential when comparing a conventional hydraulic actuator to the new diamond-shaped actuator. The efficiency advantage of the new actuator was clearly demonstrated during his presentation. Dr. Monabbati, who holds a doctorate degree in Chemical Engineering, tested the actual model, at both Mr. Strain's location and at SENES, reviewed certifications for the test equipment, and was able to confirm Mr. Strain's claims.

The tests indicated an efficiency advantage of approximately 17% over conventional actuators.

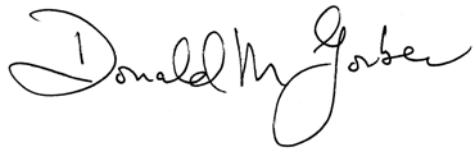
The work done through the stroke of the diamond-shaped actuator can push back a conventional cylindrical actuator. The displacement volume of conventional actuator is slightly greater than that volume of fluid required by the diamond-shaped actuator to accomplish the work. This indicates that the diamond-shaped actuator requires less volume of hydraulic fluid to accomplish the work compared to that of the conventional actuator (at the same pressure).

It should be mentioned that in an old 1874 USA patent (No. 147,519), Mr. Terrance Reilley demonstrated the same efficiency advantage. However, specific knowledge and recent technological advancement in mechanical equipment and instrumentation were required to achieve the results of Mr. Strain's invention.

I believe that Mr. Strain's invention will advance the scientific community's understanding of thermodynamics relating to pressurized fluids and energy to a new level. If fully developed the invention has the potential to reduce energy and as a result a reduction in the use of fossil fuels, thus assisting in the battle against climate change.

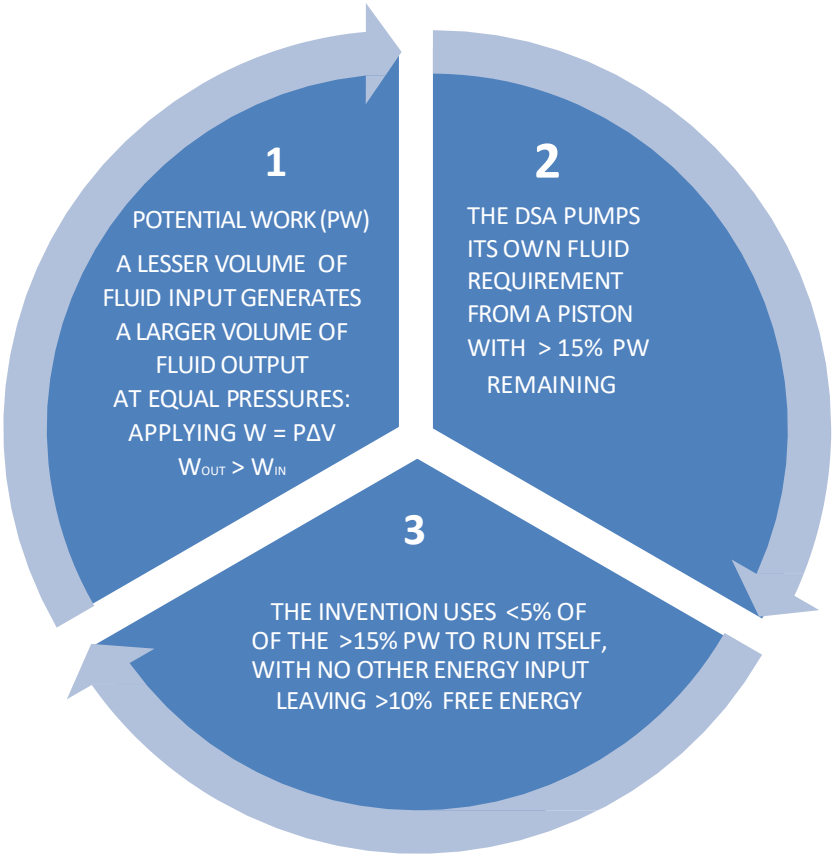
Yours very truly,

SENES Consultants Limited



Donald M. Gorber, Ph.D., P.Eng.
President

SUMMARY



MULTIPLE SCIENTIST/ENGINEERS HAVE CONFIRMED THE INVENTION'S EMPIRICAL CLAIMS.

PATENTS WERE GRANTED IN THE EUROPEAN, USA AND CANADIAN PATENT OFFICES.

THE SOLUTION IS BEING IGNORED BY GOVERNMENT AND UNIVERSITY AUTHORITIES BASED ONLY ON UNWILLINGNESS TO QUESTION THE LAWS OF THERMODYNAMICS.

NO TECHNICAL ARGUMENTS DISPUTING THE ACTUAL INVENTION HAVE BEEN PROVIDED.

WITHOUT RESPECTFUL AND ORGANIZED CHALLENGE OF KNOWLEDGEABLE YOUTH AND ADULTS THIS CLIMATE SOLUTION WILL DIE.

FOR MORE INFORMATION SEE SECTION 13 IN TRAINING MANUAL FOUND AT https://www.apscontrols.org