DOWNLOAD PDF RUSSIAN ROTARY VANE ENGINE

Chapter 1 : Russian Billionaire's Natural-Gas Hybrid Electric Car, Yo

Rotary Vane Engine proposed to power Russian hybrid car 'Ñ‘ Ð¼Ð¾Ð±Ð¸Ð»ÑŒ' (Yo Mobile). calendrierdelascience.com

Proposed rotary-vane engine has ring working chamber with intake and exhaust holes, end face covers, output shaft and vane rotors dividing chamber space into sectors insulated from each other, spark plug and periodically speed change mechanism. Periodically speed change mechanism is made in form of gear train with external and internal meshing and gear ratio equal to two. Wheel of gear train is rigidly coupled with vane rotor, and pinion is arranged from end face of engine, has fixed axle of rotation and is rigidly coupled with crank. Slider secured on crank axle-shaft slides along guide rigidly secured on shaft which has axis of rotation found between axle of pinion and axle-shaft of crank and mechanical coupling with drive shaft. The invention relates to internal combustion engines with uneven movement of the working bodies in the annular working chamber, its best use as a section of a multiple of the internal combustion engine, it can also be used as a rotary volumetric machine type, pneumatic and hydraulic machines, when creating pumps, compressors, hydraulic drives. Known rotary machine, comprising a housing, end cover with Windows inlet and outlet of the working environment, coaxial shafts with gears mounted on the shafts of the rotors with blades, forming a working chamber and the intermediate shaft with gears. Moreover, the mechanism of uneven rotation of the rotor is formed with oval gears. The use of oval gears makes it difficult to use this machine because of ethnological their manufacture. So this machine has a mechanism uneven rotation of the rotors in the form of a complex gimbal mechanism with adjusting screw for regulating performance by changing the angle of refraction in the hinges. This mechanism may not provide the desired amplitude of the rotor to create a high-performance machine without increasing the number of blades of the rotors. Applied in this rotary machine mechanism with intermittent movement of the rotors has a significant n the wealth is that inescapable shock on all parts of the machine SU, A. Closest to the proposed invention in its technical essence and the simplicity of the design is a rotary vane machine, comprising a fixed housing, inside which a rotating blade rotor with variable speed, so that the volume, which is divided housing rotors is changed cyclically. The rotors are mounted on coaxial shafts having at the free end of carrier. The mechanism for periodic speed changes are made in the form mounted on the inner end of the output shaft drove with freely rotating on axes gears, drives are installed axis, and a stationary gear, a member engaged with these gears. Drove on the ends of the shafts and rotors have a radial slot through which passes the axle mounted on the drive gear. The objective of the invention is to rid of vibration processes, caused by an inability to balance the rotating parts, to offer a solution that allows you to get any compression between two pairs of lobed rotors, and to improve the smoothness of the variation of the angular velocity of the rotary-vane rotors, to increase the reliability of the mechanism for periodic speed changes. This task is solved in the engine, containing an annular working chamber with inlet and outlet openings, end cover, output shaft and vane rotors dividing the internal volume of the chamber on insulated from each other sector, the spark plug and the mechanism for periodic speed changes, which is made in the form of a gear with external or internal toothed gear number two, the wheel which is rigidly connected with the vane rotor and the gear is located at the end of the engine has a fixed axis of rotation and rigidly connected to the crank, the axis of which is mounted a slide sliding on the guide rail rigidly mounted on the shaft, which has a fixed axis of rotation, located m the forward axis of the gear and the axis of the crank, and kinematic connection with the drive shaft. In addition, the kinematic connection is established through the rigid connection of shafts with the guides on the output shaft or through a gear transmission of two or more toothed wheels, one of which is rigidly fixed to the control shaft and the other on the shafts with the guides. In addition, each pair of lobed rotors can have one or more gears with the crank positioned on one end cover of the housing or on two opposite, and a corresponding number of shafts with the guides. The analysis of the prototype shows that the engine is mechanism design periodic speed changes, it is devoid of vibration, as in its design all the parts are balanced, it provides any degree of compression, which depend on the location of the axis of rotation of the shaft of the guide relative to the axis of the gear with the crank and the axis of the crank.

The reliability of the engine is achieved by setting the mechanism for periodic speed changes required number of nodes, the components of this mechanism. Figure 1 presents an example of the layout of the nodes periodically shifting, located on the opposite end covers of the casing, and their communication through the drive shaft external engagement between the vane and gear. On Phill example of the layout of the nodes of the mechanism for periodic speed changes, located on the opposite end covers of the casing, and a linkage gear external engagement between the vane and gear. Figure 3 presents an example of the layout of the nodes of the mechanism for periodic speed changes on one end cover of the housing and a linkage gear external engagement between the vane and gear. Figure 4 presents an example of the layout of the nodes periodically shifting, located on the opposite end covers of the casing, and a linkage drive shaft inner engagement between the vane and gear. Figure 5 presents the drawing, which shows an example of the relative positioning of the axes of rotation of the node periodically change speeds to achieve the desired compression ratio. Figure 6 presents an example of the arrangement of fastening and joining parts of the engine with cranks at one end cover of the housing and a linkage gear with external toothing. The engine contains a mechanism for periodic speed changes, each pair of lobed rotors 2 and 3 has a rigid connection with the wheel gear 1, gear 4 which is rigidly connected with the crank 5 axis 6 which is mounted a slide sliding on the guide rail 7, is rigidly fixed to Nabal 8. The shaft 8 is an output shaft for the scheme Figure 1, Figure 4 , scheme figure 2, figure 3, 6 , it is not the weekend, it is rigidly mounted a gear-wheel 9 that is included in the gear 10 fixed on the output shaft Engine operation is carried out as follows. In the working chambers, between the two pairs of lobed rotors, simultaneously undergo weight cycles workflow engine: The engine has a spark plug and two holes, through one of which served a combustible mixture, and through another exhaust gases are removed. The movement in the camera two pairs of lobed rotors going in a circle in one direction, and in a dead point of their angular velocity is the same and equal to half the angular speed of rotation of the shaft guides. The angle between the blade rotor at this point is minimal Figure 5 and is determined by the location of the axis of rotation of the shaft of the guide relative to the axis of the gear with the crank and the axis of the crank. After passing the dead point one pair of lobed rotors reduces the angular velocity to the minimum, the other gradually gaining speed and its maximum has an angular velocity equal to the angular velocity of rotation of the shaft 8 with the guides 7 Fig. The cycle is repeated through degrees to the shaft 8 with the guides , in this case, due to the presence between the crank 5 and the blade rotor 2 and 3, a reduction gear 1 and 4 bladed rotors rotate only degrees, providing a full cycle four-stroke engine. Schema Figure 1, figure 2, figure 3, Figure 4 , allowing the engine to four-stroke mode, the totality of symptoms lead to the same technical result, namely a gradual change of angular velocities between the lobed rotors, creating between them a necessary degree of compression, to ensure transmission of the torque on the drive shaft. A rotary vane engine, containing an annular working chamber with inlet and outlet openings, end cover, output shaft and vane rotors dividing the internal volume of the chamber on insulated from each other sector, the spark plug and the mechanism of periodic changes of speed, characterized in that the mechanism for periodic speed changes are made in the form of a gear with external or internal toothed gear number two, the wheel which is rigidly connected with the vane rotor and the gear is located at the end of the engine, have the t fixed axis of rotation and rigidly connected to the crank, on the axis of which is mounted a slide sliding on the guide rail rigidly mounted on the shaft, which has a fixed axis of rotation located between the axis of the gear and the axis of the crank, and the kinematic connection with the drive shaft. The engine according to claim 1, characterized in that the kinematic connection is established through the rigid connection of shafts with the guides on the output shaft or through a gear transmission of two or more toothed wheels, one of which is rigidly fixed to the control shaft and the other on the shafts with the guides. The engine according to claim 1, characterized in that each pair of lobed rotors can have one or more gears with the crank positioned on one end cover of the housing or on two opposite, and a corresponding number of shafts with the guides. Proposed two-cycle rotary vane double-acting internal combustion engine has body with ring space covered by end face covers and divided uniformly over circumference by at least four radial partitions, rotor with at least four radial vanes limiting, together with radial partitions of ring space, chambers formed in between and installed coaxially relative to body for rotation and oscillation around its axis, intake and exhaust manifolds, power mechanism converting rotation and

oscillation of rotor into rotation of shaft with flywheel of engine. Body has two ring spaces, each closed by end face covers. Chambers of each ring space communicate through valves arranged in body between ring spaces through holes in end face covers. Valves are also installed in radial partitions. At least each of two diametrically opposite chambers of one of ring spaces communicates with two manifolds for delivering fuel-air mixture of air, and at least each of two diametrically opposite chambers of other ring space communicates with two manifolds for delivering air and at least two, with manifolds for discharging exhaust gases. Power mechanism is installed in body and is made in form of slider-crank mechanism with slide installed in guides for reciprocating and articulated with cranks installed on rotor shaft from one side and on engine shaft, from other side. Combustion chamber is installed on larger capacity cylinder, being operating cylinder. Smaller capacity cylinder is used to deliver air into combustion chamber. To increase power by means of more effective two-stage delivery of air, engine is furnished with additional third cylinder with rotor on the same shaft. To warm air delivered into combustion chamber and simultaneously cool cylinder liner of operating cylinder, air delivery channel is formed by space between engine body and cylinder linear. Combustion chamber is made in form of cylindrical cup divided by partition into two sections. Each blade of rotor contains working chamber with valve and extensible window. Moreover, engine contains storage chamber, third, first and second channels and orifice pneumatically coupling compression chamber with working chamber. Invention contains description of five design versions of engine. Compression rotor is essentially united cylinders and segments penetrating in turn into corresponding spaces of rotor with combustion chambers, thus compressing fuel-air mixture. According to invention, in spaces of rotor with combustion chambers MINUS electrodes are turned into threaded sockets for which recesses are made in rotor body, and PLUS electrodes are built in cylindrical segments of compression rotor. Grooves are made in cylindrical segments of compression rotor which register with cavities on other rotor, forming combustion chamber, and ignition distributor is installed from end face part of compression rotor, compression rotor being rotor of ignition system. Proposed engine consists of compressor and gas turbine arranged in different housing but on one rotor. Block insert to form bypass clearance are installed in passage parts of compressor and turbine. Swinging blades are used in engine which are installed on rotor drums by means of joints. Turbine blades are provided with counterweights arranged in space of turbine rotor drum. Valves-partitions with seals are mated with shaped surface of rotor. Valves-partitions are installed on shafts with synchronizing segments in valve bodies on which camshafts with driven sheaves, cams to control displacement of valves-partitions and cams to control intake valves are secured in bearing supports. Engine is furnished with damping devices with damping springs. Vanes are rigidly secured in middle part of body on rotor, and four spring-loaded turnable vanes are mounted diametrically opposite in crosswise manner. Four vanes in form of triangular prism are rigidly secured on rotor in crosswise manner and diametrically opposite. Covers are provided with crosswise diametrically opposite L-shaped channels, said channels in one cover designed to take in fuel, and in other cover, to let in air. Four crosswise and diametrically opposite through ports are made in middle part of body at turnable vanes. Crosswise diametric channels are made at edges of rotor engaging with bores of body covers. Said channels communicate with drillings made on end faces of shaft of rotor to take fuel from one side and to let in air from other side. Four sealing rings are installed at edges of crosswise diametric channels on rotor. Each pair of blades is two parallel extending plates. Engine contains also combustion chambers formed between plates of each pair of blades and extending devices. Plates are made inform of working and auxiliary ones, extending successively and consisting of two parts of different thickness. Toothed racks and pushers for engagement with extending device are made on parts pf plates of larger thickness moving in guide rotor. Extending device for each pair of blades is rack-cam-crank-connecting rod mechanism including slider with toothed rack coming into engagement with gear-cam shaft on which two incomplete toothed wheels are blind-fitted at both sides on central gear, displaced relative to each other and provided with accelerating and brake cams. Cavities forming combustion chambers with plates are made on rim surface of rotor between plates of each pair of blades. According to invention ring is installed stationary inside engine body inner surface of which is made curvilinear, and vane drive mechanism is installed for engagement with curvilinear surface of stationary ring. Vanes of working member are installed in pairs, one pair of vanes being rigidly

secured on hollow shaft and furnished with bypass valves with air flow swirlers, and other pair of vanes being coupled with inner shaft by means of pin for turning relative to first pair. Cam for engagement with vane drive mechanism is made on inner shaft. Proposed rotary machine has rotor block housing accommodating synchronously rotating rotors coupled by gear wheels providing relative transmission of rotor torques. Machine is provided with inner vertical and horizontal partitions with variable thickness walls forming, together with walls of block housing, cylindrical spaces for rotors. One turnable nozzle set is installed inside rotor block, set being made in form of cylinder with branch pipe and cutouts in sides of set housing. Torque from rotors to power takeoff shaft is transmitted through drive gears installed on ends of diagonally opposite shafts and flywheel with internal gear rim. Rotors are made in form of curved blade wheels. Number of outer helical teeth is one less than that of stator. Outer rotor teeth profile and inner stator teeth profile envelope each other. Rotor and stator teeth chords are proportional to number of teeth thereof. Rotor is made of laminated profiled rope having metal, for instance steel, covering. The metal covering is connected directly to rotor by mechanical covering compression or with the use of intermediate material placed between the rotor and the covering, namely with the use of thermosetting plastics or glue. Working rotor surface may be coated with material selected from antifriction materials, for instance with polyamide or rubber, here the stator may have metal teeth. Profiled rotor rope is made of metal wire and has metal core. Proposed rotary air motor contains stator with exhaust holes and rotor with radial blades and shaft. Motor is furnished with electric generator installed on shaft of motor and electronic frequency meter providing continuous information on speed of motor shaft. First output terminal of generator is connected through first decoupling element to first output terminal of capacitor and to first output terminal of electronic frequency meter supply input, and through second decoupling element, to information input of electronic frequency meter. Second terminal of generator output is connected to second terminal of capacitor and second terminal of electronic frequency meter supply input. The main supplying separating roller is mounted at the inlet, and main transmitting separating roller is mounted at the outlet of the device for supplying fluid. Each of the rollers has side hollows that entrain the fluid when the roller rotates. The rollers are set in the housing of the device by means of the side section having no hollows.

Chapter 2 : Rotary Steam Engines.

A rotary vane pump is a positive-displacement pump that consists of vanes mounted to a rotor that rotates inside of a cavity. In some cases these vanes can be variable length and/or tensioned to maintain contact with the walls as the pump rotates.

It seems highly unlikely that the doors on which everything depended could be made to open and close without serious steam leakage as they would have to be fully open before the piston arrived, and so partly open for some time before. Another engine using the same unpromising sliding-door approach was the first Galloway engine. Somewhat earlier, the Flint engine used a similiar approach but with revolving doors. The Turner rotary engine. The toroidal casing B contains a circular piston F, mounted on a radial arm G. N,O are the steam ports. The piston was made of several segments with springs to push them outwards against the cylinder "and it is thus made tight without any packing of hemp. Note doors K, L, with their casings M. This is a plan view of the engine. Circular doors K, L in the toroid open and close to let the piston pass, retreating into the casings M when they are making way for the piston. The doors were slightly larger than the internal diameter of the toroid, and fitted into grooves against which they were ground "so they will fit tight without any packing. The doors are driven by an eccentric groove Z Y on the underside of a plate attached to the output shaft H above the engine, which moves levers 9, 10; these are connected to the doors by curved rods H, which pass through stuffing boxes in the engine casing. According to Bourne the plate also operates the admission and exhaust valves. The eccentric groove Z Y carried on a star-shaped plate with reinforcing ribs. Door-operating lever 10 can be seen on the left. One of the unusual features of the Turner engine was its vertical output shaft; this was probably adopted to avoid unbalanced gravity forces on the swing doors. This necessitated bevel gears I above the engine to drive the usual horizontal shafting. Further research in Galloway has shown that the lower structure Q underneath the engine toroid is indeed a sort of valve chest. T,V are boxes or cups at each end of a lever pivoted about W. How these "valves" were supposed to work and how they were actuated currently remains obscure- possibly there was some sort of cam on the main shaft. S is the condenser, presumably of the jet type, and looking rather small for its purpose. Galloway says "There are defects of a sufficiently prominent nature to account for its failure. He says the resulting collision would leave the engine "injured beyond repair" and one can hardly disagree. Whether this engine was ever built and tested is currently unknown.

Chapter 3 : ØªØ®ØªÙ‡ Ø³Ù•ÛŒØ¯ | Russian Rotary Vane Engine

The Russian made rotary vane engine appears to be quite innovative with its functionalities The Yo Mobile car was an anticipated series of hybrid electric vehicles that were planned to go into manufacturing by the Russian car manufacturer - Yo-auto.

How are the vanes sealed? Waste of time and money. It achieves nothing that we are not already achieving. The future is not some gimmicky Rotary Vane. How will it behave then? Music sounds like Creedence Clearwater Revival at the beginning of the video. Green Genes 1 year ago Way too many parts. Repair would cost a fortune in labor alone. But you think you that you could, you know, explain how it works? Ignition is only in the one area of engine, so it creates lots of temperature difference and dilatancy. Shockwave Shockwave 1 year ago You forgot that it should run on vodka A li 1 year ago rotary engine used in the future because you can convert most energy to power rhiann gacusan 2 years ago it looks like a 2 stroke doubled engine. Amar Khelil 2 years ago viri good Hydrogen Sh 2 years ago This engine failed. It was announced more then 6yrs ago and nothing happened. We are talking about all those revolutionary engines, antigravity machines gravitsapa lol and blah blah Piter 1 year ago like Su T50 new tank or TopolM? Piter 1 year ago what you know about Russian tech moron? Hydrogen Sh 2 years ago cruel. Rose Recruitments 2 years ago Lovely animation. Rowan Barnett 2 years ago inherent issue with axial engines is low torque. Juan Jose Papaleo 2 years ago el mejor motor es el que no tiene movimientos alternativos y trabaja de forma autonoma sin combustible,es a ondas de electromagnetismo,esta en desarrolo en mi cabeza cuando lo pueda ejecutar sera demasiado tarde estare muerto martianshoes 2 years ago What is the music? And until power cells improve exponentially. I still say external combustion holds more answers. Brs Sa 2 years ago Russia atleast makes tehnological progres comperd to America Andrew Phillott 2 years ago found another pattern for similar engines but cant seem to find it again. If you build engines you know what I mean. Haider Khan 2 years ago I feel offended to be shown so many screws around. This appears to be using a new gearing system maybe? If running off diesel, a small light engine replaces a massive huge Cat diesel with ease and far less the operating cost and fuel consumption. This engine could be manufactured and sold outside of nato countries and still make billions. It just needs an investor to set up a factory somewhere to build one. I tried to believe that this engine could change something, but unfortunately, the piston engine lobby is too powerful to make it happen. Scott Birse 2 years ago Does no one any good in your head. Put your balls in a vice and invent it. Then opensource the design and stick it to the big companies. Been afraid to put it on paper. Everything I do gets stolen. Thomas Lee Mullins 2 years ago I think that is really creative and has a lot of potential. It is like the diesel electric trains but for other vehicles. You Tube 2 years ago I say make nuclear powered cars and be done with all the BS tyler bonser 2 years ago Computer animation, makes everything look like its the best thing ever. Sudhir Roy 2 years ago it is very good The Q 2 years ago Lube? Der Eichbert 2 years ago This Motor does cost Fuel. I agree with your comment. It looks as oil will get in to combust chamber at spark plugs. And some will exit at exhaust port under transition. I am only car repairman. As a mechanical engineer designing engine power train components, I laugh at the truth of the original comment. Meanwhile thousands of people at any given time are driving around being propelled by my work. D Ron Wilson 2 years ago Powers anything up to a pencil sharpener. As for a rotary engine that works, what about turbines? I Hear that they are low consumption IF you operate them on optimal rev numbers. Hey moron, do you have any idea how powerful these things are? Now forever, Ron Wilson will be known as a complete and utter retard. Are all Wilsons this dumb? FukU 2 years ago This will prob never see any phase of real production I will have to guess. He is not russian. Just wait until battery technology advances. James Moughamian 2 years ago Combustion engines of any type are dead technology if your moving below the speed of sound. They hit their stride in the 20th century just as steam engines did in the 19th century. Do our planet a favor and let it go. Cant hold it back anymore. Well, unless you enjoy doing an engine rebuild every 50,kms. This is a nice idea i suppose. But has this ever been built physically? I assume many of us would like to read some statistics too. TaintedMojo 2 years ago Maintaining a seal on that configuration would be a nightmare itsabig 2 years ago

All rotary engines suffer from the same blind engineering concept. RadioGaGa 2 years ago Anything with a timing system larger than the combustion chamber is retarded for engine design William Gallant 2 years ago Just looking at the animation has me thinking about the Wankel Rotary Engine, unbalanced, torque, high oil consumption, and terrible gas mileage and performance. Maybe if these type of engines were balanced by firing on two sides, balanced performance, an entirely new way to lubricate, and feed fuel. Dani El 2 years ago Well done for trying, but: LOL It looks way more complicated. They would be igniting above something that should contain engine oil. How is it lubricated? I can only imagine that the loss of energy due to friction would be massive. It already is massive in traditional engines, but here you have twice the piston rings than in normal combustion engine, plus who knows how the circumference would be sealed. My guess is not easily and the seal will degrade in no time. Combustion engines are slowly but inevitably dying, so better stop wasting your time doing this and start working on alternatives rayman 2 years ago I totally agree. Could you imagine the centrifugal forces acting on those pseudo-pistons? NOT to mention the losses of energy on start-stopping inside the chamber.

Chapter 4 : Rotary Vane Engine P1 Â» Download Mp3

A swing-piston engine is a type of internal combustion engine in which the pistons move in a circular motion inside a ring-shaped "cylinder", moving closer and further from each other to provide compression and expansion.

Due to a two month delay in getting the gears for the small motors, Morgado was set back in his time frame; and rather than reschedule the SAE Oregon event again, SAE opted to cancel it for now, with the possibility of scheduling something again in the future, once everything is running and ready to go. In normal, mass production, of engines, a block is cast in order to be more affordable. He still believes the larger motors will require casting; but now he has a version he can quickly build into a prototype. Furthermore, Morgado notes that casting is not as strong as machining from a solid billet. He really needs funds to get the right equipment to speed things along. Allan [The good news is that he is building several prototypes and he will, eventually, get it right. Hopefully, sooner than later. Getting the two halves to form a perfect circular cross-section would seem to be quite a feat. Combine this with the claimed output torque of over ft-lbs. The size of the engine also yields its own problem, in that there does not appear to be sufficient material to support the type of output that the inventor claims. While there are several high-strength materials that may be able to provide adequate strength, they are typically not used in internal-combustion applications. None of this commentary is intended to disparage the work that Raphial Morgado and his team have put into this engine, of course. Try using sand casting. At the Ohio State Fair, several years ago,there was a sand casting demo. The demonstrator invited any one to bring him an object to sand cast. Took it back to the fair, for sand casting. I was able to give her a solid aluminum skillet and birthday greeting in one. This should work for other metals, as well. It would certainly be worth checking out. Casting sand is relatively cheap compared to the alternatives. Morgado, Inventor, Co-founder Location:

Chapter 5 : Rotary-vane engine

Just looking at the animation has me thinking about the Wankel Rotary Engine, unbalanced, torque, high oil consumption, and terrible gas mileage and performance. Maybe if these type of engines were balanced by firing on two sides, balanced performance, an entirely new way to lubricate, and feed calendrierdelascience.com, just maybe, we'll see a really new design.

Steam engines[edit] Swing-piston engines were initially introduced during the s as alternate steam engine designs, prior to the widespread introduction of the steam turbine. In these examples the "piston" is typically not cylindrical as in a modern internal combustion design, and is generally rectangular in cross-section as seen from the top, rotating in a flat disk "cylinder". From the side they are either flat plates or pie-wedge shaped. The term "swing-piston" is not entirely accurate in these cases, but the operating cycle is identical and is properly considered here. The first known example was introduced by Elijah Galloway in for ship propulsion. It featured a single vane rotating through degrees. It appears this version was never built, although a model still exists in the Science Museum. Galloway also designed a wide variety of pure rotary engines using vanes as well. This design used two or three flat plates that were geared to move closer or further apart as the cycle continued. When the plates were at their closest point, steam was admitted between them using a valve, pushing them apart as the cycle continued. When the plates reached their maximum distance, an internal passage was uncovered that allowed the partially expanded steam to flow across the center of the device into the area on the other side of the vanes, which were now at their minimum distance. In this fashion the design was effectively a compound engine. Charles Parsons examined the concept and appears to have produced two swing-piston engine designs before moving on to the steam turbine. The Roots brothers designed a swing-piston engine of a unique type, although they are better known for their supercharger design. His design had six pistons in total, three each attached to two disks. The disks were geared to each other to form six chambers between the pistons, such that at any one time one set of three chambers were "close together" while the other set of three was "wide apart", varying between those two extremes as the disks rotated. The timing was arranged such that the chambers reached their "close together" point over the spark plug, and their "wide apart" point over the intake and exhaust ports. This action is similar to the Wankel, the primary difference being that Wankel creates compression and expansion via the shaping of the engine and rotor, as opposed to the relative motion of the pistons. Ultimately the exhaust would be used to drive a turbine, that power being used to drive a propeller to produce a turboprop. For this role the exhaust gas was too hot to be used directly in a turbine, given the available materials, so the engine featured a second "exhaust port" that vented cold pressurized air, which was then mixed into the hot exhaust. For direct power use, as opposed to driving a turbine, this "third area" of the engine can simply be left open to the air to avoid losing power to compression that will not be used. The initial test engines had some minor problems, notably with sealing, but these were worked through and the engines were under test during One particularly nice feature of swing-piston engines is that they can be bolted back to back along a common crank shaft to make a larger engine, and with each additional stage the running becomes smoother and the only part that needs to be made larger is the crankshaft. A similar arrangement with a radial engine is generally more difficult to arrange, especially cooling, and ones with inline engine arrangements soon become so long that keeping the crankshaft from vibrating becomes a serious problem see Chrysler IV for example. While the power-to-weight was good, the density of the engine was simply superb. The overall turboprop looked much more like a jet engine than a piston one. The swing-piston gas generator was located in the middle of a long nacelle, with a five-stage axial compressor in front and a three-stage turbine behind. The compressor was used both to act as a supercharger for the piston engine, as well as provide cold air to cool the turbine. Why all this complexity to produce a new version of an engine, the turboprop, whose primary advantage was simplicity? The main problem with conventional jet engines is that the combustion takes place in an open chamber, which is considerably less efficient than the closed chamber of a piston engine, where it has constant volume or close to it. The Otto cycle or Diesel cycle used in piston engines has a much lower specific fuel consumption than the Brayton cycle of a traditional gas

turbine engines at low speed. Lutz later patented the design under "Rotary compressor and other engines", United States Patent 2,, BMW experimented with a traditional engine with poppet valves on the combustion chambers, which had been used a number of times previously in experiments. Another approach entirely is to recover some of the heat of the exhaust in a heat exchanger and use that instead of fuel to heat the compressed air, a concept used by General Motors in a series of automobile turbines. Generally, however, improvements in the basic piston engine in "low power" roles have kept any of these advanced designs out of the marketplace. In the s, a number of inventors re-introduced the concept as if it were new.

Chapter 6 : Raphial Morgado and MYTâ„¢ Engine trick or treat - Revolution-Green

This is "Russian Rotary Vane Engine" by Dragan Stanojevic on Vimeo, the home for high quality videos and the people who love them.

Use in brass instruments[edit] Rotary valve for a double horn In the context of brass instruments , rotary valves are found on horns , trumpets , trombones , flugelhorns , and tubas. Many European trumpet players tend to favor rotary valves. Joseph Riedl is credited with the first use of rotary valves on brass instruments in Rotary valves Use in industry[edit] In industry, a rotary valve is used to regulate the flow of a product, usually to reduce the flow rate to a level more suitable to the process being undertaken. Typical applications are for feeding a weighed hopper or for feeding a mill that can be clogged by the product. As part of the material exchange process, the valve is often used as a measuring or metering device. A rotary valve in the pharmaceutical, chemical and food industry is used to dose and feed solid bulk products within the processes. Airlock type rotary valve is often used to enter or extract material from two chambers with different pressure level. Use in engine design[edit] Itala rotary valve engine Itala rotary valve cooling The rotary valve combustion engine possesses several significant advantages over the conventional assemblies, including significantly higher compression ratios and rpm, meaning more power, a much more compact and light-weight cylinder head, and reduced complexity, meaning higher reliability and lower cost. As inlet and exhaust are usually combined special attention should be given to valve cooling to avoid engine knocking. Rotary valves have been used in several different engine designs. In Britain, the National Engine Company Ltd advertised its rotary valve engine for use in early aircraft, at a time when poppet valves were prone to failure by sticking or burning. This particular design is four-stroke, with the rotary valves operated by overhead shafts in lieu of overhead camshafts i. The first sale of such an engine was part of a natural gas engine-generator. Rotary valves could allow for a more compact and lightweight cylinder head design. They rotate at half engine speed and lack the inertia forces of reciprocating valve mechanisms. A company in the UK called Roton Engine Developments made some progress in with a 2 rotor one for inlet and one for exhaust on a motorcycle single cylinder Husaberg. They filed patents and got an example running in but were backed by MG Rover who subsequently went bust, leaving Roton without enough funds to continue. A prototype casting was produced in on a Kawasaki Ninja parallel twin unit. This unit is still in development phase at the time of writing but is significant as it has the potential to run much higher compression ratios than even other rotary valve engines due to a significant but undisclosed new cooling method of the combustion chamber and the ability to eliminate the throttle completely, making it vastly more economical at lower engine speeds, so it is claimed. Use in production engines[edit] UK company RCV Engines Ltd uses rotating cylinder liner technology as a specialized form of rotary valve in some of their four-stroke model engine and small-engine line-up. The power output was Use in chromatography[edit] Rotary valves are used for loading samples on columns used for liquid or gas chromatography. The valves used in these methods are usually 6-port, 2-position rotary valves.

Chapter 7 : The Russian Rotary Vane Engine! - Muscle Cars Zone!

Rotary-Vane EngineDevelopers of the Yo-Mobile which has not been produced yet but has already become well-known, reported that they almost reached the finish line, and that the prototypes are ready.

The car will be called Yo, which is how you pronounce the letter "e" in Russian, and built by the new Russian automaking firm, to be called e-Auto. Rotary-vane engine Developed by several dozen Russian engineers, the Yo known as the City Car when announced in late October is a series hybrid. Its wheels are driven by two small electric motors, but the electricity to supply them is created by an internal combustion engine powered by either gasoline or natural gas. Most remarkable, the combustion engine is a rotary-vane design in which pistons move in a circular path rather than up and down as in a conventional engine. It has very few moving parts, and runs smoothly due to the lack of reciprocating parts. Yo chief engineer Andrei G. Ginzberg said the design was used in Germany in the s but then abandoned, with only Soviet scientists continuing to work on it at a lab in the Siberian city of Novosibirsk. No battery pack The engine runs at a constant speed, which means it can be tuned for maximum efficiency. But rather than a lithium-ion battery pack as in most hybrid and electric cars, the new Yo uses a bank of capacitors to deliver extra power when needed for acceleration. Capacitors are lightweight and can deliver high power for short periods--up to 10 seconds, perhaps--but store very little total energy. A battery pack stores lots of energy, but may be limited in its power delivery and is expensive, as well as heavy, whereas the target weight for the Yo is less than 1, pounds. Maximum speed is roughly 80 miles per hour, but the company claims the car will return fuel economy of 67 miles per gallon. With both its gasoline tank and natural-gas cylinders fully filled, the range of the Yo is said to be miles. Russian domestic market The Yo is meant to be a simple, affordable car for the Russian domestic market, perhaps in the vein of the boxy Lada Classic sedan. That vehicle is still recognizable as the Fiat introduced in the mids. When it was replaced, Fiat sold the tooling to Russian carmaker Lada, which has since built more than 5 million of them. Prokhorov showed three different Yo models at a media event: At the launch event, he managed to sit in both the front and rear seats of the compact Yo. Natural-gas cars a rarity Toyota actually showed the first-ever natural-gas hybrid, the Toyota Camry CNG Hybrid concept it unveiled in At the moment, only one natural-gas powered car is sold in the U.

Chapter 8 : Russian Rotary Vane Engine - calendrierdelascience.com

It turns out that the rotary vane engine design strongly resembles Raphial Morgado's MYT engine. "Morgado recalls a couple of Russian groups coming to his ranch to see the technology a few years ago, and he remembers that one group was reluctant to sign the NDA, but he insisted.

Our patented modifications have transformed this simple design into a major contender for all other competing technologies for the use in anything that requires spinning an output shaft with unsurpassed torque! The Vengeance Power Engine was initially designed as a sealed turbine internal combustion engine to compete with the existing piston engine. It has been tested in harsh conditions where high heat and high pressures are experienced. Due to its tremendous torque output at low RPM, it will outlast and outperform any other positive displacement expander on the market today. The expansion ratio can easily be tailored to any specific application for optimized efficiency. Because it is a positive displacement engine, it is more efficient than a standard turbine of its size. Also, turbines need to run at very high speeds to compensate for blow-by losses. All other positive displacement expanders are designed with specific tolerances according to their application. If the parameters change during operation, the expander would not operate as it was designed. If the temperature was to rise during operation, the internal clearances would become tight enough to cause the expander to seize. This is called poor off-design performance. The Vengeance Power Engine is not a poor off-design performer since it is designed to operate at any temperature and will not suffer if the working fluid condition changes. It is the only engine on the market today where one engine can be removed off of an assembly line and used in over five different applications without any modifications. This is why it is the most dynamic engine in the world. It is a true rotary because it does not use a crankshaft to transfer reciprocating motion into rotary motion, which reduces the efficiency of the engine. The forces from the expanding gasses from combustion, steam or compressed air are transferred directly into rotary motion simplifying the process and obtaining the most mechanical energy from the working gasses. Since it is a positive displacement engine, it can easily be throttled for various RPMs. The engine provides maximum torque at start-up. It can also idle and run at a very low RPM without stalling like a turbine engine. It does not require high velocities to compensate for blow-by past the vane tips like a turbine. The exhaust temperatures are much cooler since more of the thermal energy from combustion is transferred into mechanical energy to turn the output shaft. The simple design allows the engine to be scaled to any size for any power requirement. The engine uses many off-the-shelf components that have gone through rigorous testing under very harsh conditions before implementation. Since the engine can run at lower RPMs with optimal power delivery, reliability is greatly increased. As an internal combustion engine, it can burn conventional fuels such as: The design also makes this unique engine capable of combining the Brayton Cycle and Rankine cycle to increase the efficiency of the engine where a fluid is boiled from the heat of combustion and then the pressurized steam gas can be introduced at the opposite side of the rotor to double the torque output of the engine.

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This is the weirdest engine I have ever seen. According to Duke Engineering, their axial engine is the most efficient and lightest engine you can put in boats, light aircrafts, and generatorsâ€"the mechanical engine of the (near) future!

So lets do a summary of the pros on cons of what Raphial has achieved and what remains unsupported. What Raphial has done is develop a particular timing mechanism for one. The efficacy of that timing mechanism is completely unproven in a combustion environment. Raphial never ran the engine under its own power burning fuel. The most that he ever did was add fuel while still spinning it with air. He never developed any fuel metering or injection mechanism. Nor has he ever had anyone develop an ECU that would control a fuel metering system. Stress on the cooling system. Raphial has gone through multiple iterations of engine sizes for his various development proposals. He never completes one. I believe there has been: It has been 6 years since he has done any testing. Other companies are in this area and moving ahead with major investment and sponsorship. There are many critical questions to answer before it can even be determined if a viable complete engine can be realized from his design. Many people point to the DOD assessment of the engine. All test runs was done on a metal work bench Raising fund on the hype of the applications flying devices etc is very misleading given all of the above and the actual results obtained by others. Other engine technologies are more mature and down the track.. The following are previous claims that failed to materialize which casts doubt on why thing would change in the future with another round of funding: The big news that we were able to break on that show was that they are now ready to go into production, being up and running as soon as possibly six to twelve months from now. This was last weeks new announcement? Now an Italian company is marketing a breakthrough gun called the Chiappa Rhino DS than is very similar to that patented design. IGPI has increased its line of gensets for sale with continuous output capabilities from 10 â€" kW that will draw from at least three revolutionary technologies and result in a guaranteed minimum fuel improvement of three times better than conventional gensets of comparable output. Industrial Green Power Inc. IGPI has announced a line of gensets for sale with continuous output capabilities from 10 kW to kW that will draw from at least three revolutionary technologies and result in a guaranteed minimum fuel improvement of three times better than conventional gensets of comparable output. Other similar Engine Technologies The following are just a sample of the many engine technologies out there. The earliest was patented around So the question from a risk point of view is 1. How original is Raphial Morgado Engine technology? Are others closer to maturity and how do they compare? Why has not a VC or engine manufacturer picked up the option or funded further research? Through some technical errors I could not past the drawing on the two patents listed belowâ€¦will have our technical staff try and amend the problem. It sounds oddly like an aviation powerplant. The Web site says it can be used for almost everything from RC cars to generators to family sedans. This will cause the piston rotor to rotate with the two twin pistons pairs and develop torque.