

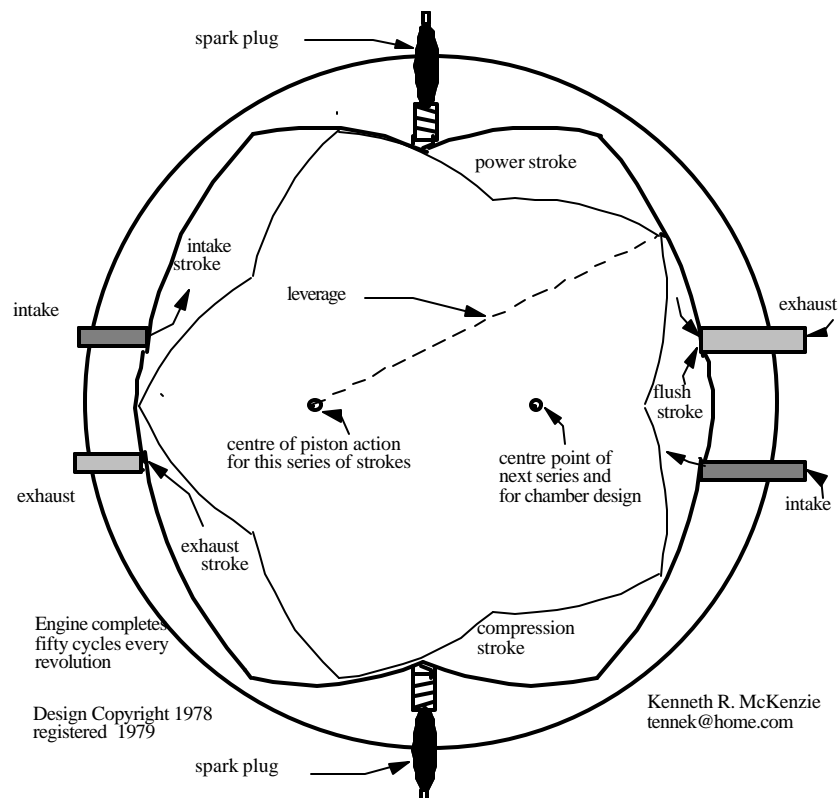
# Khwarzimidic Web Publications

## The Radia Reciprocating Rotary Piston Internal Combustion Engine

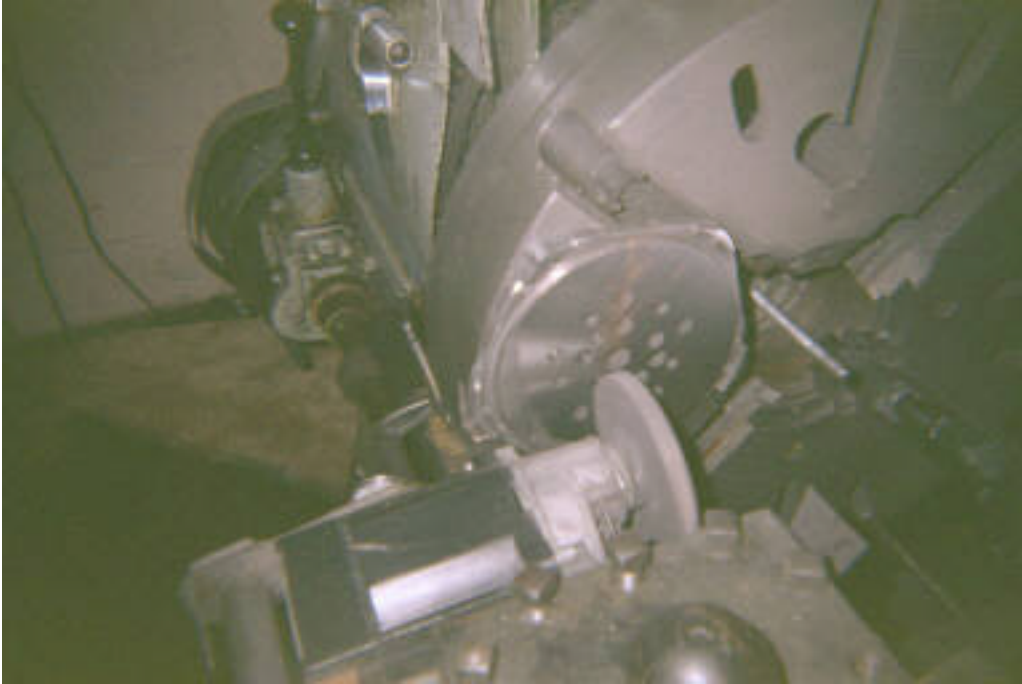


ENGINE PROTOTYPE MADE IN 1988 by Maurice Greenhaugh

The power stroke shown in the sketch draws in fuel to be compressed by the power stroke that takes place after the compression stroke shown at the bottom of the engine. The shown power stroke also forces out the exhaust from the previous explosion and also flushes out the remaining exhaust from the firing before that. **The engine completes fifty stroke cycles in every piston revolution. A one tenth revolution does the functions for two future firings plus the clean up strokes for the two previous firings.**



PISTON TURNS CLOCKWISE  
GRINDING PISTON AND BLOCK SURFACES



GRINDING FACE OF GUIDING PISTON (INTERNAL PISTON SIDE PLATE)





COMPLETE ENGINE DISASSEMBLED



ENGINE BEING TESTED DECEMBER 1999

I want to congratulate the people who have managed to succeed in the development of the wankel rotary engine. They have done the impossible with misinformation and a poor design. The greatest difficulty they solved is the engine only fires in one location causing the chamber on one side to heat up and expand while the other side is cooled by the air fuel intake port. This must tax the designer with sealing difficulties for the rotating piston.

I notified Mazda in 1992 about the wrong placement of the spark plugs in their rotary engine. The leading sparkplug is so positioned that it allows the compressed fuel air mixture to escape into the exhaust chamber area of the engine when the piston tip slides over its one half inch diameter spark plug hole halfway into the compression stroke. The trailing sparkplug hole allows the power stroke pressure to fire into the intake stroke chamber area during the power stroke. This can be corrected by locating the sparkplugs at top dead center.

The intake and compression strokes are opposite each other. It is difficult to seal between a high and low pressure area.

At top dead center, no torque is produced. It consists of a top heavy triangle resting on one point. It is similar to the piston engine when the crankshaft is at top dead center - no torque is produced.

When the piston does turn, it works something like a door that opens faster than the explosion can push it. It creates a partial vacuum and inefficient fuel consumption.

The system for taking power is absurd. As the triangular piston turns, its center has an up and down motion. This they utilize with a crankshaft assembly as their means of transferring power. The crankshaft turns three times for every piston revolution.

If they allowed the crankshaft to spin freely and took their power from a rotary piston engine coupled to a rotary piston pump (or other form of generator) they would have greater utilization of power. The engine should have a piston to piston coupling to the pump. This system should prove to provide astonishing energy. The simple fact is that **energy is created by the generation of an imbalance**. The crankshaft has an inherent balancing characteristic.

## Footnotes

\*The engine was designed by me in April of 1978.

\*The load of the combustion chamber is cushioned by the compression exhaust and the vacuum created during the intake stroke.

\*Each separate combustion only takes place after the piston has rotated 36 degrees.

\*Look at the leverage of the power stroke - the end of the power stroke is the beginning of the following power stroke, therefore every power stroke is cushioned by the following compression and power stroke with the result of suspended torque.

\*The center point for the action alternates to the other side every 36 degrees of rotation.

\*The five center points used to design the piston stop alternatively on the two center points used to design the chamber.

\*Any question of compression ratios can be answered by creating a cavity in the piston.

\*If you make a hard copy of the design sent, cut out the piston, then rotate it over the chamber design, you will find that the design can compress the fuel to over 1000 to 1.

\*There are over one hundred million designs of the engine. There is a design you couldn't differentiate from a circle to a design depicting a five sided star that turns in a chamber. The piston does not have to be symmetrical. The engine design could have a smaller intake and compression than the power stroke.

## *The direction of the designer*

The radia is the radius of a curve between two adjacent points and the distant point of a radia polygon. (The radius is also the diameter.) A non radia polygon has a radius larger or smaller than the radia. (The Wankel engine piston is a good example of a non radia polygon with a larger than the radia radius.)

My agenda is to have the word radia accepted in the English language to describe odd number circular surfaced polygons. This will in time become the root description to the new language of mechanics which the engine design opens a small door to. The Reuleux triangle and the radia triangle are identical.

I do not know if other languages have the same deficiency to describe the art, but if they do, any help correcting it would be appreciated.

There is unlimited designs available using the art such as walking wheels, rotating arms, positive displacement pumps, etc. If you rotate the radia triangle over the radia you will find it will displace more than six times the area of a the radia length straight sided triangle.

Benjamin Franklin took the position (since he enjoyed the privileges of the use of other peoples inventions) that he did not want to restrict others from using what he was fortunate enough to discover. I am in full agreement with Ben.

This art is protected by Canadian copyright, which has through convention an agreement protecting Canadian copyrights almost worldwide. The designer is not opposed to the development of products using the copyright for profit or otherwise. The designer and major holder of the copyright would be opposed to any government patent office that would restrict the use of the art. This would violate the copyright convention to issue a patent for information that is given freely to the public domain and in so doing would restrict the production of products made using the art. The copyright is in full effect until the last copyright holder has been dead for fifty years.

Inventors wishing to use the art in their product designs should have a copyright ownership certificate. The patent application should be for additional value and not the art itself.

**Quote by GLEN SHERMAN from a August 22 1979 newspaper article** - McKenzie is not an embittered genius with a chip on his shoulder and a mortgage on his soul. He is a man both likeable and believable who dedicates himself full time to the proposition that if you have something that works, he can make it work more efficiently. *"I'm convinced I could make a recreational airplane for weekend use that could be operated by pedaling like a bike. I also have a better crankshaft system. I can get twenty percent better efficiency out of a propeller."*