Little Engine Delivers Lots Of Power

Every so often a really new engine design comes along. The MYT engine from Raphael Morgado fits that description. Morgado is convinced his engine could save money and fuel and create millions of jobs. Looking at his prototype it's easy to agree because the technology behind his new design is, to some degree, familiar.

"It uses the same basic internal combustion technology as conventional engines," says Morgado. "It just packages it differently. The internal components are all there, but the configuration is different."

The MYT concept recognizes that cubic inches or displacement is what matters when it comes to power. By repositioning the combustion components in a circle, Morgado eliminates more than 80 percent of all parts found in a traditional engine. Gone are the traditional crankshaft, rods, pistons and cylinders.

Instead of multiple cylinders, Morgado's engine has a donut-shaped cylinder called a "torus". It's subdivided into eight segments by paddle-type pistons. These advance around the circular cylinder in a coordinated manner. The pistons are attached in two sets at 90 degree spacings to a central ring that, in turn, is connected to the timing mechanism and output shaft.

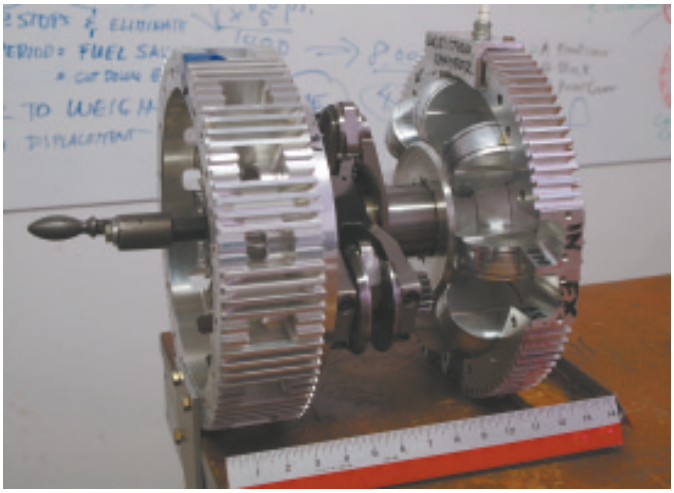
When combustion occurs in the leading set of pistons, they advance rapidly, expanding while the following set contracts. At about a 1/4 revolution, combustion occurs in the second set, and it expands, collapsing the first set of pistons. This alternating expansion and contraction provides a pumping action equivalent to a traditional 4-cyl. engine. The process is timed so each set of pistons completes two cycles of four combustion events per half revolution, or 16 combustion events per revolution. This compares to a conventional four-stroke engine that takes two revolutions to complete one cycle. For a four-stroke engine to compare in power events, it would need to have 32 cylinders.

In terms of displacement, in an MYT engine with a 3-in. diameter and a distance between piston dividers of 3.75 in., the ingested air volume per revolution is 424 cu. in. All this in a package the size of a 14-in. cube. To match that air volume with a conventional engine would require displacement of 848 cu. in., since each cylinder in a four-stroke engine only inhales every other revolution.

"An 8 cu. in. engine could power a full-size sedan, van or pickup, while a 14-cu. in. engine could replace a full size truck engine and would be equivalent to a 1,850 cu. in. engine," says Morgado.

He is hoping to get funding to build a pilot plant this year for limited production and further testing.

If he gets the financing needed to build his plant, and the concept machines prove themselves, Morgado hopes to use initial production to retrofit existing vehicles with the new engines. He says fuel savings alone will be great, and the MYT will never require an oil change.



By repositioning the combustion components in a circle, the MYT engine eliminates more than 80 percent of all parts found in a traditional engine.

"The MYT only has 11 moving parts and 15 parts total," he notes. "An 800-lb. engine in an SUV will be replaced by a 37-lb., 8 cu. in. MYT. Less weight and less friction with so many fewer parts will increase fuel efficiency. You could have better fuel economy in an SUV than a Toyota Prius."

Morgado reports that the U.S. military is interested in his engine design, as are car manufacturers working with hybrid designs. They would use the MYT to periodically recharge batteries. He also reports that he is now working on a two-stroke variation.

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Giant 200-lb. cheeseburger is made on two 4-ft. sq. cooking "grids" made from angle iron and expanded metal. The 4-in. layer of hamburger is wrapped in aluminum foil.

Once it's cooked, the big burger is flipped over and back to put on the bun and 18 lbs. of cheese. Hess sliced the bun with a knife made from a bandsaw blade.

How To Make A 200-Lb. Cheeseburger

If you're looking for a new fund-raising idea, or a publicity-getting event for a community festival, take a look at how Edwin Hess of Chrisman, Ill., cooks up 200-lb. cheeseburgers.

"I thought about it for a couple years before we tried it," says the semi-retired corn and soybean grower. He'd heard about someone cooking a 75-lb. burger and decided it would be a fun challenge to cook a bigger one. He pulled it off the first time a few years ago with a 200-lb. burger, and then repeated the feat in 2008 with 230 lbs. of meat. More than 300 people attended the 2008 event, bringing a dish to pass, pitching in for the cost of the meat, and enjoying the party in Hess's yard.

Here's how he made his giant burger.

The first thing you need is an overhead chain hoist and two 4-ft. sq. cooking "grids" made from angle iron and expanded metal, with wood handles on the sides.

Cover one of the cooking grids with two layers of aluminum foil and cover it with a 4-in. thick layer of hamburger. Then cover the big patty with another two layers of foil and seal tightly. Bolt the second cooking grid over the top and hang the grid from the chain hoist about 3 ft. over the cook fire. Hess built an oak fire in a big metal firepit.

Cook for about eight hours, and flip the burger about halfway through, using a few good men and the hoist. Use a meat thermometer frequently to test for doneness. When the meat is nearly done, prepare the bun. Unless you have a very big oven, your best bet is to purchase one from a local bakery - at an estimated cost of about $100.

To slice the bun, Hess made a big knife out of aluminum bar stock, a band saw blade, and clamps. As the bun is cut he pulls a sheet of plastic into the slice to lift off the top half.

Remove burger from heat. Unbolt the top grid and remove the foil from that side of the burger. Replace the grid, flip the burger, and remove the foil from the other side. Layer on 18 lbs. of cheese slices and put the other half of the bun on top. Then start cutting it up into square burgers.

"Everybody brags on how good it is," says Hess. The slow cooking in the foil steam-cooks the meat and preserves moisture and flavor.

Hess plans to cook a big burger again in the future.

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The cooking grids bolt together and then hang from a chain hoist about 3 ft. above the cook fire.