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Hancock County firm spinning along on rotary engine project

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Eric Barger heads Thermo Fan, which makes a twin-rotor RotaMax engine, left, and a single-rotor model.

ARLINGTON, Ohio - Using fuel made from corn and oil made from soybeans during engine testing seems a natural choice for Hancock County's Thermo Fan Inc.

After all, the homegrown engine company is surrounded by fields and literally is based at President Eric Barger's rural Arlington home, with machinery occupying the outbuilding where he and his children once built go-karts, offices where they were-home schooled in the house, and the assembly area in the garage.

Much more unusual is the type of internal-combustion engine - one that uses a rotor instead of pistons - that Thermo Fan has been perfecting for the last year. The project has cost Mr. Barger and other investors more than $2 million so far.

But 18 companies that build products such as boats, two-seat commuter vehicles, air compressors, concrete saws, military drones, and even hovercraft are or soon will be testing the RotaMax engine, and dozens of other firms are interested in the lightweight engine that promises improved fuel economy and less vibration, Mr. Barger said.

"They're people that want to be on the edge, they're looking at what's new," Mr. Barger said. "A lot of companies are not that way."

Mazda Motor Corp. is the best-known user of rotary engines, currently equipping its RX-8 sports car with a 1308cc twin-rotor engine that produces 230 horsepower.

The larger of Thermo Fan's two engines is a 1300cc twin-rotor model producing 175 horsepower, but the all-aluminum engine weighs 150 pounds, less than half of Mazda's cast iron one, Mr. Barger said.

Still, being cost-competitive while building low volumes of engines will be a difficult task for the business south of Findlay, said Jonathan Lauter, president of Rotary Power Marine Corp. in Glen Cove, N.Y.

Rotary Power purchases Mazda rotary engines and converts them for use on various watercraft, and one costs twice as much as an equivalent reciprocating piston engine, Mr. Lauter said.

Haggling over price is exactly why Thermo Fan is staying away from automakers, although companies that make two-seat commuter vehicles and three-wheel models are potential customers, Mr. Barger said.

"We don't see going out and saying to General Motors 'Do you want to buy our rotary engine?' at all," he said.

His company, with six workers, has exclusive rights to build the rotary engine developed by Freedom Motors of Davis, Calif.

Rotary engines like those Mazda and Thermo Fan build have less inertia than reciprocating piston engines, can run at higher speeds, and appeal to those who want good acceleration, said Roger Gault, technical director for the Engine Manufacturers Association in Chicago.

Emissions, meanwhile, are a drawback, he said.

Two-stroke engines such as those used on boats, however, are large polluters, so a lighter and more fuel-efficient RotaMax is a better alternative, Mr. Barger said.

Another advantage to rotary engines is that they can run on fuel alternatives, such as E85, a mix of ethanol and gasoline. The local firm is testing that this week, Mr. Barger said.

"It can run on any fuel, even hydrogen," he said. "The only things you change on it is fuel delivery and the ignition."

Thermo Fan could build 600 engines a month at its current location, requiring 25 employees. Beyond that, the company is willing to open a factory next to a customer such as a boat manufacturer that may need 20,000 engines a year, Mr. Barger said.

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