

Car That Runs on Compressed Air Questioned by Critics (w/ Video)

November 3 2009, by Lisa Zyga



Guy and Cyril Nègre of MDI stand with the AirPod. Image credit: MDI.

(PhysOrg.com) -- As electric cars begin breaking into the short-distance vehicle market, one French company thinks that it has an alternative to the electric vehicle: a car that runs on compressed air. Motor Development International (MDI), located near Nice, France, unveiled its bubbly-looking AirPod last year, and has ambitious plans to begin manufacturing the car by early 2010. But some of its critics think that's a bold claim that will be extremely difficult to realize, especially considering that the company has yet to bring a car to market despite several past attempts.

The AirPod is the creation of father-son team Guy and Cyril Nègre, the

president and R&D coordinator of MDI, respectively. At 220 kilograms, the vehicle runs on 80 kilograms of air compressed to 350 bars (or 350 times the atmospheric pressure at sea level). It has a top speed of 28 mph (45 kph) and an estimated range of 137 miles (220 km). According to the company, it takes about three minutes to fill the tank, using just 1.5 euros of electricity. The driver steers the [car](#) with a joystick, and two passengers can sit in the back seat, facing backward. The only direct exhaust from the car is very cold air.

The Nčgres have been working on pneumatic-propelled engines since the early '90s, when they formed MDI. The latest generation of this technology uses a simpler engine than its predecessors, and the company got a boost in 2007, when Tata Motors bought the Indian rights to MDI's technology. But MDI's efforts to bring a short-distance sedan to market turned in a different direction in January 2008, when the mayor of Paris announced plans to purchase thousands of city cars to be rented out by the hour. MDI created the small AirPod to compete with the electric and other vehicles in the contest to become the city car of Paris.

The Nčgres think that the AirPod has certain advantages over [electric vehicles](#) in the city car market, including its short fueling time and its long-lasting carbon fiber pressure tank, in contrast to expensive batteries that eventually wear out and need to be replaced. MDI estimates that the AirPod will cost about €6000 (\$9,000).

However, not everyone agrees that the AirPod will live up to these expectations. MDI sent their performance specs to IEEE Spectrum, which had some concerns with the company's claims. In their analysis, IEEE Spectrum estimated that the AirPod's range could be less than a third of what MDI has claimed, due to energy being wasted in the process of expanding the air before it is sent to the engine.

Some automotive engineers think that compressed air is simply not a practical power source for vehicles due to the laws of thermodynamics. They point out that the AirPod's 200-liter tank doesn't carry much more energy than one liter of gasoline. In the IEEE Spectrum, two engineers, Denis Clodic of the Ecole des Mines de Paris and Pascal Higelin of the University of Orléans, said that pneumatic hybrids (vehicles that combine compressed air and fuel combustion) are promising. But they worry that, if MDI's AirPod fails, the entire concept of compressed air might suffer from the negative experience.

For the time being, MDI is looking forward to getting the AirPod to market. In early 2010, the company plans to begin producing one AirPod per hour at its first assembly line at Carros, France, and working toward setting up three more assembly plants. The company also hopes that the city of Nice may be interested in using AirPods in a rental car program similar to the one planned for Paris, and possibly in other crowded European and Asian cities.

More information: <http://mdi.lu/english>

via: [IEEE Spectrum](#)

© 2009 *PhysOrg.com*

Citation: Car That Runs on Compressed Air Questioned by Critics (w/ Video) (2009, November 3) retrieved 28 April 2024 from <https://phys.org/news/2009-11-car-compressed-air-critics-video.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.