NASA VACUUM TEST ON LIFTERS

Visit of Clive Thompson (a writer in New York) at NASA

To follow up on these far-out (antigravity/ electrogravitic) claims, I go to NASA. It turns out that a scientist there named Jonathan Campbell has a lifter-style capacitor. He was even granted a patent in 2001.

"It had been theorized that thrust generation from this phenomenon was feasible, but no working prototypes had been developed, until now," boasts the NASA press release. The patent set off an uproar in the lifter community, with hobbyists penning bitter denunciations of Campbell. Most lifter builders, it seems, regard their invention as a classic open source project - antigravity for the public good, jet packs for all!

What matters to me is that Campbell promises to do an all-important vacuum test. It's a delicate affair, he notes. Anyone can pump air out of a bell jar, he tells me, but creating a true "deep vacuum" costs tens of thousands of dollars. He'll let me know when he's ready to run the test. Excellent. This is what I need: an actual, rigorous scientific experiment by a credible institution.

Yet NASA was uneasy about letting me see Campbell's work, stalling for six months. Finally, I wrangle an appointment.

When I pull up at NASA, the PR handler - a nervous man in a brown suit named Steve Roy - checks my trunk for bombs. He escorts me into a meeting room, where seven others, including several scientists and more PR managers, are sitting. Apparently, I'll be conducting this interview in front of a crowd. I'm further informed that I can't have any copies of the materials they'll show me. "Security," Roy shrugs. I feel like I'm in a Tom Clancy novel. Obviously, there's no secret antigravity program being conducted at NASA - but judging from their paranoid behavior here, you'd be forgiven for thinking that they'd reverse engineered the stuff from a UFO that crashed in the back lot.

Campbell is a polite, gray-haired Southern gentleman in a white shirt and red tie. He tells me he was hired by NASA to work on electrical propulsion systems, investigating early prototypes of ion engines. "We worked with mercury, before mercury was considered hazardous to your health," he recalls. "But we liked it because you got heavy ions."

In 2001, he saw Cameron's lifter design. Campbell wondered whether it could form the basis for a new engine. He says he didn't rip off anyone's work; on the contrary, Campbell claims, he relied mainly on Brown's publicly available patents. As Campbell tells it, he took out the patent not to profit off lifters but to ensure future public funding - and thus, public access. "We've had all sorts of flak," he drawls.

Still, his immediate goal was to answer the scientific questions. He knew that electrical-thrust systems have promise. "According to old-fashioned physics," he says, "there's a lot of force when you start dealing with high voltages." If the lifter idea worked in a vacuum, it would be a serious breakthrough.

In the corner of Campbell's lab is a thick stainless steel base about 3 feet square, over which stands a 3-foot-tall glass bell jar. NASA's lifter sits beneath the glass. It's slightly different from the usual design. Campbell wanted his device to rotate, not float, so that it would be easier to measure the thrust. He created two capacitors that are tubular, like tiny jet engines - with the hot wire on one end, a gap, and a metal tube for the ground. Each capacitor is mounted on the end of a rotor, driving it like a pinwheel. Last fall, they tested the contraption in regular air - shooting it with 27,000 volts at 20 microamps. Bingo: It generated 3 millipounds of force, and the rotors spun at 60 rpm.

Then, in December, they finished tweaking their vacuum. They were able to get the pressure inside the bell jar down to the equivalent of low-Earth orbit - 10-7 torrs, to be precise. They put the device inside and hit the juice.

Nothing happened.

It wouldn't budge an inch. They jammed the voltage up to 50,000 volts, and still nothing. They repeated the tests several times but didn't dare use higher voltage. "We had lightning coming out the back of it," says Andy Finchum, Campbell's assistant, pointing to a set of plastic guards he set up after nearly frying himself. "You could start hearing the hiss at those voltages, and that's when you don't want to get close!" He hands me a thick gray pressure gauge. "These are $1,500 apiece, and we toasted one."

To check if it was an equipment error, they brought the bell jar back to sea-level pressure - and the rotor started spinning again. The device itself wasn't malfunctioning.

Campbell folds his arms and declares antigravity dead.

"There's no performance in a vacuum," he concludes. I ask him about the more bug-eyed theories of lifter fanatics. Some claim that lifters create electrical fields that push against space-time; a few think the devices harness the hypothetical zero point energy field. Could there be a new type of physics here? "We don't expect to find one," Campbell says dryly. "And if you come across something, don't tell me about it - go straight to Oslo and the Nobel Committee."

Still, Campbell maintains that lifter-style thrusters have several advantages over existing propulsion systems. They have no moving parts, no fuel on board, and can receive their energy remotely. He spins scenarios and actually seems to be getting excited again himself. "It's possible that we might be able to use this for something like a Martian glider," Campbell says. "It lends itself to beamed-power type applications - where you have a power platform in Martian orbit beam the energy down to the glider in the planet's atmosphere." He says he's already tweaking his current design, aiming to make it more efficient: "We're talking maybe even a pound of thrust out of one of these little devices the size of my thumb. We've got some promise here!"