

JUNE 2016

THE FUTURE OF EVERYTHING

A LOOK AHEAD FROM THE WALL STREET JOURNAL.

Cleared for Takeoff

Personal flight is—finally—more than just a pipe dream. But will the jetpack movement ever leave the ground?

PLUS

Uber's CEO on the next mode of transportation

The Unimprovable Awards: Six things that time can't touch

Is American Ninja Warrior the future of sports?

Virtual reality, Face Swap apps, self-driving cars: We have so many things the future promised us. So why is personal aviation still largely a pipe dream? **JACK NICAS** checks in on the jetpack revolution—and beyond



WE WERE PROMISED JETPACKS

Photo illustration by DYLAN COULTER '67

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DAVID MAYMAN'S RIGHT THIGH IS COVERED by a skin graft, the aftermath of a jetpack crash. In 2010, a "rocket belt" he bought in Mexico shot 1,300-degree steam down Mayman's leg after he missed a landing in Australia, leaving him with third-degree burns. Today, in an avocado orchard north of Los Angeles, the clean-cut, 53-year-old Australian millionaire wears a thick, black flame-retardant jet suit. He asks the small crowd to don protective eye-wear. Fire extinguishers are on hand.

Mayman flips a switch and the two jet engines strapped to his back roar to life. Heat waves and jet fumes radiate from the twin turbines as the engines rev up. And then, without warning, Mayman's feet leave the ground. His upward progress is slow and stable; 10 seconds after liftoff, he's eye-level with a drone hovering at 20 feet. Mayman gives a thumbs-up for the camera and then floats back and forth over the field. It's thrilling to see and overwhelming to hear; this long-promised vision of the future comes with a 120-decibel soundtrack—louder than a chainsaw.

An entrepreneur and aviation buff from Sydney, Mayman retired early to dedicate himself to flying with nothing but the pack on his back. His company, JetPack Aviation Corp., has spent about 10 years and \$10 million on this latest version: an 85-pound aluminum and carbon-fiber contraption that burns 11 gallons of jet fuel for

a 10-minute flight. The nine-person firm is now seeking \$2 million to \$5 million to add rocket-propelled parachutes—in case of unscheduled landings—and bring its jetpack to market for about \$250,000 a pop.

"There's so much further we can take this," Mayman says. "We want to raise that money to fund the R&D. Because somebody's going to do it if we don't."

THE PROMISE OF PERSONAL FLIGHT HAS for decades seduced aviation junkies who—in the face of prohibitive costs and the uncooperative laws of physics—have tried to make Elroy Jetson's hobby a reality. While Mayman's prototype is the closest to the comic-book ideal of the jetpack, a handful of other optimistic tinkers are also competing for the market.

In Dubai, Yves "Jetman" Rossy, a 57-year-old former Swiss Army fighter pilot, drops out of helicopters and fires up his so-called jetwing, a 7-foot carbon-fiber winged with four small jet engines. It can reach 200 miles per hour and fly for about 10 minutes. But the jetwing lacks a key capability in the eyes of jetpack purists: vertical takeoff and landing.

David Mayman contemplates the (nearly pricey) future of personal aviation before a recent test flight.

In New Zealand, Martin Jetpack has the self-flying device closest to market—it went on sale in Australia last year—but furthest from the Rocket Man ideal: The pilot straps himself onto the 7-foot-tall, 440-pound craft, not the other way around. Martin calls the device "an economic and practical alternative to traditional helicopters," with a maximum flight time of 30 minutes and a price tag of at least \$250,000.

Martin Jetpack has letters of intent with three Chinese companies for as many as 100 craft, and the Dubai Civil Defense has agreements to buy 20 more for first responders. Martin says it's also exploring opportunities in first responder, commercial and personal transport markets. There's some talk of having two jetpacks on top of every skyscraper in China.

Martin CEO Peter Coker says, calling them "high-rise lifeboats" for Chinese VIPs in case of a disaster or attack.

And then there's the Flyboard Air, a hoverboard that runs on jet fuel. In April, French jet-ski champion Franky Zapata unveiled the device—effectively a pair of snowboard boots attached to four small jet turbines—which he promptly used to shatter the Guinness world record for "farthest flight by hoverboard," surfing on air for 7,388 feet off the southern coast of France. Zapata says he wants to launch a series of hoverboard races—and even wants to

STYLING BY MARK HALL/STYLING BY BEN BARNETT. GROOMING BY KATHA MURPHY/STYLING BY BEN BARNETT.



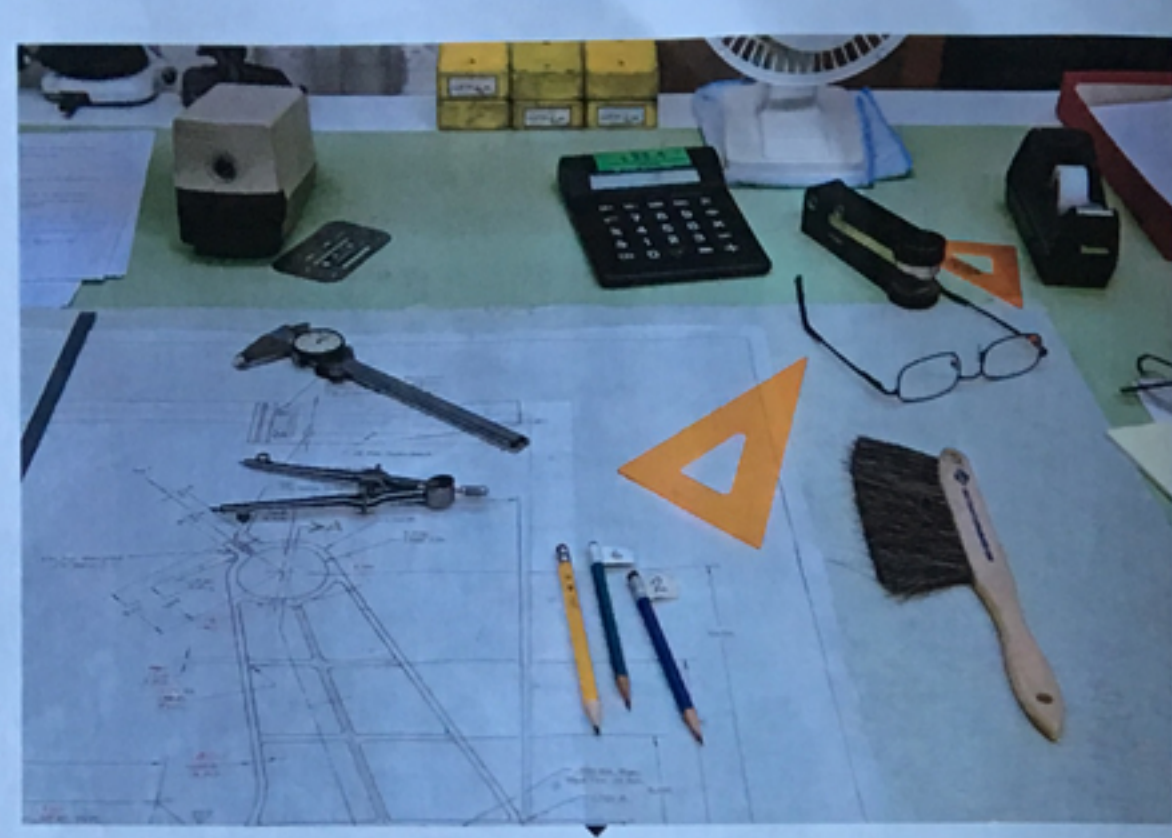
race Mayman with his jetpack—as well as explore military and rescue applications. "We can dream everything, and we can go forward on every crazy idea we have," he says. "Why not?"

Well, several reasons. Jetpacks and similar devices have a long history of becoming more than just a gimmick. They're inherently heavy, deafening and gas-guzzling. They offer flight times in minutes, not hours. And they lack commercial applications. (Jetpack backers go to examples are fighting fires in skyscrapers and helping paramedics beat traffic.) Jetpacks are also likely to inhabit a slice of airspace that is too low for parachutes but high enough for a fatal fall. And even if they hit the market as an expensive toy, they'll cost closer to a Lamborghini than a dirt bike.

Even Google couldn't make it work. "The jetpack is a death trap because the engines go off and you're dead," says Astro Teller, the head of X, the so-called moon-shot factory of Google parent Alphabet Inc. His team dropped the jetpack in favor of a gyrocopter—essentially a backpack helicopter that descends slowly thanks to a rotor that turns naturally, like a maple seed, as it falls. But X shelved the gyrocopter, too, because it required four gallons of fuel a mile and, according to Teller, "it was louder than a Harley."

NELSON TYLER, MAYMAN'S PARTNER IN Jetpack Aviation Corp., first discovered jetpacks around 1945. He was lying in the back of his father's car, listening to Buck Rogers on the radio when Rogers and his girlfriend emerged from a sleek spaceship in matching flying belts. "Forever it's been burned in my mind," he says.

Tyler, a sprightly 82-year-old with a halo of thick white hair, made a career inventing and operating mounts that



The drafting desk of jetpack legend Nelson Tyler.

keep movie engineers stable, mostly on helicopters—work that earned him three Academy Awards for technical achievement. He also invented an early jetski (called the Webbike), a pressurized thermal airship and a remote-controlled bowling ball. But it's the jetpack that has consumed most of his life and his passion.

In 1965, Tyler began hanging around Bill Sutor, an accomplished stunt pilot who was in Los Angeles for a series of promotional flights on a device known as "the Bell Aerospace Rocket." Built by defense contractor Bell Aerospace Systems on a U.S. Army research grant, the rocket belt converted hydrogen peroxide into steam, which shot out of thin nozzles at supersonic speeds, burning through 47 pounds of fuel in less than 30 seconds of flight. Citing the short flight time, the military passed on the rocket belt, which became a stunt device for movies and live events, including the halftime of Super Bowl I and commercials for Pabst Blue Ribbon beer and Keds shoes.

"We were the shortest act in show business," Sutor says.

Sutor was wary of Tyler at first. "I thought: This guy is a pain in the ass," Sutor recalls. "He was there every day wanting to have his picture taken with it." Sutor didn't realize that Tyler was holding a small engineer's scale alongside the belt as he photographed it, calculating its dimensions. Tyler used the photos to build his own rocket belt from scratch, and hired Sutor for flying lessons. For the next two decades, Tyler and Sutor flew the belt in movies and TV shows, such as "Newhart" and "The A-Team." Shortly after Sutor flew at the 1984 Olympics, Tyler sold his rocket belt for \$250,000 to the Copenhagen amusement park Tivoli Gardens.

"Think of the rocket belt as the ultimate drug," Tyler says. "It makes you feel really good, but it only lasts 20 seconds. You get hooked and it's so much fun. I want that fun to last 10 minutes."

Chasing his jetpack fix put

Tyler on a crash course with David Mayman. Mayman learned to fly in 1978 at age 15, before he could legally drive. He retired at 35, after selling a thriving mining consulting firm and making a few successful bets on Australian Internet startups. He has swum beneath the ice of Antarctica and with great white sharks off the coast of Mexico. He skydives. He owns his own helicopter, which has left him unsatisfied. In a copter, he explains, "you're surrounded by cockpits and windscreens and controls. I had a dream of being able to fly without any of that." Mayman began traveling the world to find a turbine engine for a jetpack.

In 2005, an engine maker in Cambridge, England, suggested that Mayman team up with Tyler, who had visited just weeks before. Tyler was skeptical when Mayman called him out of the blue. "So I said, 'I'll see you tomorrow, then,'" Mayman recalls. "And I jumped on a plane that day." The two men met in Los Angeles, where Tyler laid out the structure of their venture. "I basically said, 'You fund it. I'll design it and build it,'" Tyler recalls.

Mayman traveled to Asia, the U.K., the Czech Republic and, finally, Gdansk, a town of 28,000 people in the Netherlands where a firm called AMT was selling a 25-pound turbine with 180 pounds of thrust—a compact but powerful engine intended for large drones. When a single turbine is attached to a person, its spinning blades create a so-called gyroscopic effect that pushes the pilot off course, so Mayman paid AMT an additional \$100,000 to make a sec-

ond engine—a mirror image of the first—that would cancel out the gyroscopes.

Some jetpack engineers say the key to Jetpack Aviation's success is Mayman's deep pockets. "It's just a matter of massaging the right company or having enough money," says Nino Amarena, an engineer for a surgical-robotics firm in Sunnyvale, Calif., who built and flew his own rocket belt. Amarena has been trying to build a jet-turbine pack for years but can't find an engine. "I'm always hoping that somebody's going to put a Tomahawk missile engine on eBay and I'm going to be the

The Jetpack Aviation production factory in Van Nuys, Calif.



first one that sees it," he says. He has set up eBay alerts.

It took a decade, but at 7 a.m. on a Sunday in July last year, Mayman flew a few laps above a pond outside Sacramento, Calif., leaving a wake in the water from his exhaust. "I like to call that place our little Kitty Hawk," says Stefano Paris, a Jetpack Aviation AeroMechanical engineer, referring to where the Wright brothers first flew their plane. "We knew it was going to be spectacular, but we had no idea how spectacular."

Mayman and Tyler then decided to reveal the jetpack to the public in a flight over New York's Hudson River. "When I saw the thing, I near soiled my armor," says Sutor, the former Bell rocket-belt pilot, who watched from a barge. "He was flying away with my dream." Federal Aviation Administration officials were also on hand. "The mission was a complete success," an official wrote to Mayman after the flight. "I do believe that Lady Liberty was smiling during one of your passes, she who had witnessed vessels of antiquity." That's a compliment reflects the relatively easy pass FAA officials have given jetpacks so far. The agency deemed them "ultra-light vehicles," which don't require aircraft certifications or pilot licenses. If jetpacks hit the mainstream, however, that stance may change. The FAA largely ignored model aircraft for decades until sensors and computer chips made them far smaller and easier to fly. The FAA now has more

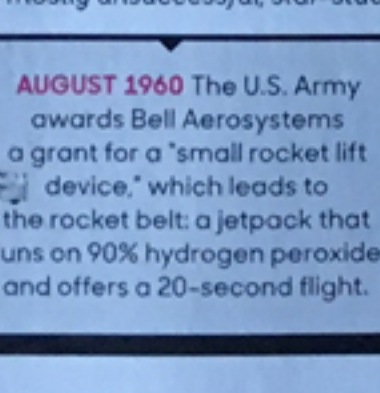
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A VERY LONG RUNWAY

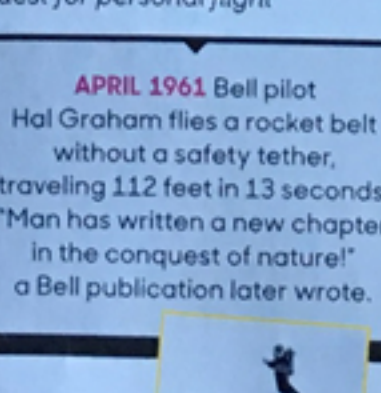
Highlights from the always dangerous, mostly unsuccessful, star-studded quest for personal flight



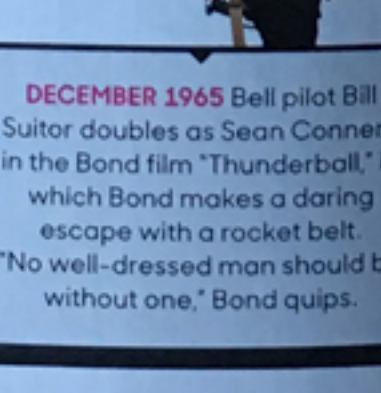
AUGUST 1928 The jetpack roots into pop culture on the cover of the pulp magazine "Amazing Stories." The issue features the first Buck Rogers novella.



AUGUST 1960 The U.S. Army awards Bell Aerospace a grant for a "small rocket lift device," which leads to the rocket belt: a jetpack that runs on 90% hydrogen peroxide and offers a 20-second flight.



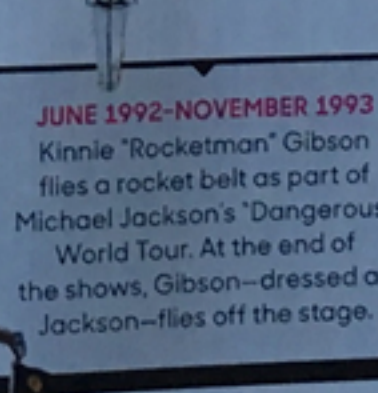
APRIL 1961 Bell pilot Hal Graham flies a rocket belt without a safety tether, traveling 112 feet in 13 seconds. "Man has written a new chapter in the conquest of nature!" a Bell publication later wrote.



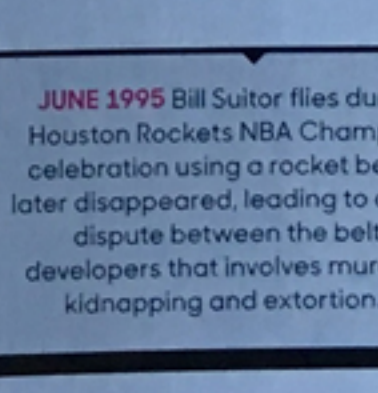
DECEMBER 1965 Sean Connery in the Bond film "Thunderball," in which Bond makes a daring escape with a rocket belt. "No well-dressed man should be without one," Bond quips.



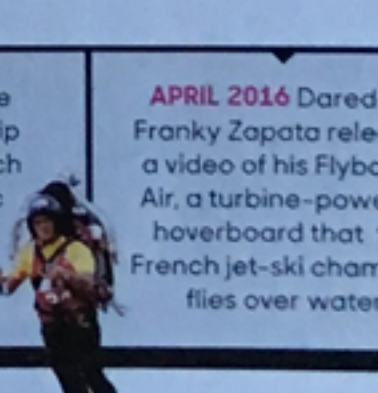
JULY 1984 With Ronald Reagan looking on, Bill Sutor flies a rocket belt as part of Michael Jackson's "Dangerous" World Tour. At the end of the show, Gibson—dressed as Jackson—flies off the stage.



JUNE 1995–NOVEMBER 1993 Kinzie "Rocketman" Gibson flies a rocket belt as part of Michael Jackson's "Dangerous" World Tour. At the end of the show, Gibson—dressed as Jackson—flies off the stage.



JUNE 1995 Bill Sutor flies during the Houston Rockets NBA Championship celebration using a rocket belt which later disappeared, leading to an epic dispute between the belt's developers that involves murder, kidnapping and extortion.



APRIL 2016 David and Franky Zapata releases a video of his Flyboard Air, a turbine-powered hoverboard that the French jet-ski champion flies over water.