Goose Riders in the Sky 9/14/2011

To resurrect a worldwide market, a small-town startup melds a 70-year-old design with modern manufacturing.

by Irwin Speizer and Edward Martin

Not much is left except the smell of oil on old metal. The cockpit is stripped, its instruments useless. A wiper dangles on one side of the arched windshields, creating the appearance of a man squinting into fog. Twin control wheels with chipped black paint crown the yokes that the pilot and co-pilot pulled and pushed to take the airplane up and down. They're disconnected. The wings are gone.

That's for now. But emerging from the past — from a time some call the Golden Age of Flying — is an enterprise that offers a glimpse of the future of manufacturing in North Carolina. On a hillside in Gibsonville, where the only water to be seen is the dew on morning glories, V.L. Manuel is building seaplanes. His Antilles Seaplanes LLC is manufacturing an aircraft that began life in 1936, re-creating it, piece by piece, from scratch. Its Grumman G-21 Goose is no lark: Nobody else in the world is building seaplanes. "Is the market 50 airplanes a year? Yeah, sure," says Jens Hennig, operations manager of the Washington, D.C.-based General Aviation Manufacturers Association. "Is it more? Possibly."

Manuel hopes so. An accountant and former Internal Revenue Service agent, he and friends have invested about $7 million in the venture and are seeking a few million more to speed up the timetable. In a new 20,000-square-foot factory, its floors as clean as a nun's conscience, a handful of workers pore over the original drawings on workbenches. Machinists and mechanics grind and rivet metal, stamping out parts to microscopic tolerances. Computer-controlled lathes hum while welders' crackle.

A pair of gutted fuselages waits as corroded and worn parts are stripped and duplicated, the beginnings of a stockpile for when production begins, possibly next year. The two old Grumman G-21s are being rebuilt as demonstrators. But the airframes of Antilles Seaplanes' Gooses will be new, down to the last nut and washer. More than 20 potential buyers from around the world have signed nonbinding preproduction contracts, Manuel says.

"That's the wave of the future," says Teresa Ratcliff, director of the North Carolina Industrial Extension Service at N.C. State University. "That is, finding a niche in the global market and then marketing yourself through electronic

commerce. That's what is going to propel the renaissance of manufacturing in North Carolina."

On a wall in Manuel's office hangs a world map. "Anywhere there's blue on that map and there are no airfields, we can sell them," he says. "The allure is that it can get you places you can go only by boat and seaplane. That's why they were so romantic. That's why they made movies about them."

In 1936, Humphrey Bogart and Pat O'Brien starred in *China Clipper*. Bogie played the pilot of a Martin M-130 flying boat, which began overseas service only a few months before the movie was made. The lumbering four-engine giants took more than a day to span the Pacific, their passengers dining on white linen, sipping martinis in wood-paneled lounges and drowsing in sleeping berths.

That same year, a gaggle of New York millionaires, wanting to fly from their Long Island mansions to the Manhattan docks near Wall Street, commissioned Grumman Aircraft Engineering, then based in nearby Bethpage, N.Y., to build 10 smaller flying boats. Thus hatched the Goose. The G-21, with its twin 450-horsepower Pratt & Whitney air-cooled engines and 51-foot wingspan, could carry 10 people, cruise at 180 mph and fly 800 to 1,000 miles nonstop.

The Goose won legions of fans. It was perfect for reaching remote locations and island hopping. The Navy would acquire 222 for rescue and reconnaissance work. The Coast Guard and military services in Britain, Canada, France and Portugal used them in similar roles. Grumman produced 345 by October 1945, when it quit building them in favor of more-advanced planes. Manuel says about 60, scattered across the globe, are still flying.

In the fall of 2000, Manuel was talking with one of his accounting clients. Tim Henderson owns Aero Accessories Inc., a 40-employee maker of parts for older aircraft that's also in Gibsonville, a town of about 4,500 straddling the Alamance-Guilford county line. "It's time you got a plane," Manuel said, offering to go in with him. As Henderson leafed through an aviation magazine, an ad for a Goose for sale in Miami caught his eye. "He just thought it was a neat plane. I didn't know whether this was real or what, but I thought we might pursue it. With his background, we could get the plane and refurbish it. Heck, we had the rest of our lives to do it."

The two friends, both now 56, have been airplane buffs since they were kids. Henderson grew up in Greensboro and, after getting out of the Army and graduating from aviation tech school, started a business repairing propellers and engines of small aircraft, first in Winston-Salem, then in Burlington. A pilot,

he became expert in getting Federal Aviation Administration approval for the design and manufacture of parts. A Wytheville, Va., native, Manuel graduated from Elon College and spent about a year and a half as an IRS agent before joining a private accounting firm. After becoming a certified public accountant in 1983, he started a firm in Graham.

When they arrived in Miami in November 2000 to buy the plane from Franklin Aviation Enterprises, a broker of old aircraft, they discovered the company was the sole source of spare Goose parts. Owner Dean Franklin made them an offer. He was 92 and had been trying to sell his business. "I sat there for three days listening to stories he was telling about the aviation industry," Manuel says. "This man started in his teens, when aviation was in its infancy. Howard Hughes once bought a plane from him. He took the plane and flew off and didn't pay. A few months later, he saw Hughes, and Hughes said, 'Did I ever pay you for that plane?' Hughes took out his billfold and paid him in cash." Franklin was also an acquaintance of singer Jimmy Buffett, a Goose aficionado who wrote about the plane in his novel *Where is Joe Merchant?*

Franklin showed them his warehouse. Their eyes popped at what he had: tons of parts. Plus he owned the original drawings, blueprints and rights. The CPA began calculating. "We could just buy everything, have enough to fix our airplane and then sell the parts off. We'd have a free airplane." They closed the deal for their first Goose — since then, they've bought three others in Alaska and Seattle — and arranged to have it disassembled and loaded on trucks.

"Thirteen tractor-trailer loads later, we were in Gibsonville with tons of airplane parts. Some of it was brand new; some was just torn apart. We started cataloguing and quit when we got to 150,000 parts." They rented a former Cone Mills warehouse to store them. When calls poured in from Goose owners seeking parts, Manuel and Henderson dropped the idea of restoring a plane as a hobby. This was a business, and it needed a name.

Maybe it held bad memories for Maureen O'Hara. Someone had suggested that Manuel and Henderson name their com-pany Antilles Air Boats after the commuter airline started in 1964 by Charles Blair, a famous military aviator and Pan American Airlines pilot who married the movie star in 1968. She never returned their calls. She had run the company several years — the first woman CEO of a regularly scheduled U.S. airline — after he was killed in 1978 when the Goose he was piloting from St. Croix to St. Thomas crashed. They settled on Antilles Seaplanes instead.

If the name, taken from an island chain in the West Indies, is unlikely for a company in landlocked Guilford County, so is the setting. Up a graveled road on a bulldozed hillside, Antilles occupies a windowless, metal building. Eight employees, most of them with experience at other aviation companies, bend over machinist tools and drills.

Chris Jensen used to work for TIMCO Aviation Services, a 1,300-employee Greensboro company that performs aircraft maintenance. He pops rivets in a nearly formed tail section. Its complex curves and bends look like sculpture. The holes and curves align perfectly. The 70-year-old blueprints, not surprisingly, still work. “We call it magic,” he quips. Nearby sits a nearly completed wing that also serves as a fuel tank. Manuel estimates it has about 5,000 rivets.

Building an airplane from scratch is an enormous task. First must be created forms over which hydraulic presses stamp aluminum into intricate shapes for wing struts, bulkheads and other parts. Computer-controlled machines mill aluminum stock to pieces with tolerances of .0003 inch. Some parts are made with a technology called waterjet cutting, tiny streams of extremely high-pressure water carrying an abrasive such as garnet powder.

This is what is known as advanced manufacturing, reliant upon the kind of technology and experience that cannot be carted off to whichever Third World nation has the lowest wages. Some call it the last, best hope of U.S. manufacturing. Ratcliff cites Flextronics International in Youngsville and Zebulon, Acme Electric in Lumberton and Keihin Carolina in Tarboro as other companies engaged in precision metalworking.

Despite the complexity involved in building any airplane, part of the Goose’s appeal is its simplicity compared with aircraft of more recent vintage. Manuel slaps the end of a cable in one hand and points to a flap on a wing with the other. On the Goose, the pilot and co-pilot muscle the yokes and wheels to move cables connected to flight controls. There is no complex and potentially troublesome hydraulic system. Engines are sent to specialized rebuilders certified by the FAA for overhauls; instruments are rebuilt by certified avionics shops or bought new. Otherwise, Antilles can do all the work to make new planes.

Unlike conventional airplanes to which pontoons are mounted for water landings, the Goose is a true seaplane: It lands on its boatlike hull. Pontoons on the wingtips are there only to steady it. It also has retractable wheels to land on runways. But from a bus-iness standpoint, the advantage Antilles Seaplanes holds is as much in its business plan as in the airplane’s design.

On a workbench, Manuel clears parts off a blueprint. Its white lines trace how Grumman engineers designed the landing-gear strut in the early 1930s. "We started out $20 million ahead," he says, tapping a finger on the blueprint. That's the minimum cost of designing and getting a new plane through the lengthy, complex process of FAA certification. By using plans approved more than 70 years ago, Antilles avoids those expenses. The result? The Antilles seaplane, with rebuilt Pratt & Whitney piston engines, will be priced at about $1.3 million, substantially less than similar conventional aircraft. With an FAA-approved upgrade to 680-horsepower turbine engines, it'll cruise at more than 240 mph for up to 1,200 miles and sell for about $2.3 million.

To expedite production, the first planes will hew to the original design, though later models might incorporate carbon fiber and other advanced materials. Buyers can customize cockpits and instruments, sticking with the original layouts or opting for such high-tech gear as global positioning systems and radar. Their choices might hold some surprises. When Jimmy Buffett visited the plant, Manuel assumed he would order one with turbines. The original engines were known for being smoky, cranky — though reliable — and loud, with an unmistakable guttural roar. "Jimmy shook his head," Manuel says. "He said, 'Naw, man. I want to hear that thing go grrrrrrrrrrr.'"

With either engine, the Antilles Goose is a curious blend of the old and new. Manuel hoists a wing strut and taps the aluminum part onto a parts rack. It makes a ringing sound. "This one is two to three times as strong as the original and a pound-and-a-half lighter," he says. He glances around. The floor is laid out to accommodate assembly lines. There will be 50 workers, maybe more. "We will turn out a plane a month. We'll probably be able to improve on that."

In Raleigh, Chris Brown watches the progress of companies like Antilles Seaplanes. A professor at N.C. State University, he is director of the North Carolina Space Initiative, which released a study last year that shows only about 2,300 are employed in the state by companies building airplane equipment and parts. Though North Carolina likes to brag about being first in flight, it ranks 34th in aerospace and aviation jobs — and many of the 39,000 who hold them are airline employees.

"We don't have many large Boeing-type companies, though we do have Goodrich, which makes aerospace parts, [based] in Charlotte, and GE, which makes jet engines, in Durham and Wilmington. So our aviation industry is primarily going to be of companies like Antilles. We have a strong manufacturing tradition in the state, and they can pull from that."

In the nearly 103 years since the Wright brothers' first powered flight at Kill Devil Hills, North Carolina never gained more than a foothold in airplane

manufacturing. During World War II, Fairchild Aircraft built a twin-engine trainer in a converted rayon mill in Burlington. During the Cold War, Western Electric made parts for surface-to-air missiles in the complex that grew up there.

"What we do have is an incredible capability in the new aerospace economy," Brown says. "We have the manufacturing infrastructure, the expertise, the links to research at the universities. We just haven't had the 'aha' moment when we realize we can become a player in the aerospace economy." There's nothing radical about Antilles' approach, Ratcliff notes. Military shops at Cherry Point and Elizabeth City are re- creating helicopters with new parts.

In a glassed-in room over the factory floor, Manuel gazes down on an array of machines and thousands of airplane parts in various stages of completion. "I fell into this, but now this is my life," he says. "I practically live here." Though still an investor, Henderson no longer is active in the company. His general manager at Aero Accessories died last year, forcing him to focus his attention there.

As the manager of Antilles Seaplanes, Manuel has his hands full. He pulls sheaths of job applications from a drawer. The company recently began hiring airframe technicians, engineers and others with required FAA certification, planning to put them to work as production ramps up. A market study he and his investors commissioned shows demand for about 200 planes worldwide. After sales begin, Antilles will have to train and certify mechanics and pilots, both potential sources of income. He has a plan to build cockpit simulators. He already has a test pilot lined up.

Manuel is meeting with potential investors, including a group from Kuwait. With or without them, he says, Antilles will be building new planes. But with more money, it can build them faster with equipment it needs for tasks it now has to outsource, such as heat-treating metal parts. He won't reveal exactly when the first new Goose will roll off the assembly line. That, he says, would only put more pressure on everybody involved.

But timing might be on his side. The small-plane business is on the rise after several disastrous decades. U.S. production of airplanes under 12,500 pounds — the Goose weighs about 7,000 — peaked in 1978 at about 17,000, then plummeted when crash-related lawsuits threatened to bankrupt many manufacturers. Some found themselves liable in crashes involving 40-year-old planes. In 1994, only about 500 small planes were produced. But legislation that year put an 18-year limit on liability. About 3,600 small planes will be made worldwide this year. Hennig, the General Aviation Manufacturers Association official, says Antilles could have the seaplane market to itself well into the future.

“We’ve received inquiries from Guatemala, the Transportation Ministry of Fiji, South Africa,” Manuel says. “The Greek government is interested in 20 planes to fly to the Greek islands. A man from Palm Beach, Florida, wants one with seats for just him and the pilot — but with a winch in the back to pull his Jet Skis on board. He wants to fly back and forth to his private island.” One of Antilles’ old Grummans once ferried crews to king-crab boats in remote Alaskan ports; New Orleans-based petroleum prospectors used another. Seaplanes are simpler to fly than helicopters, more reliable, less expensive and have longer range.

Those are the practical points in Antilles’ favor. Maybe the signs are right, too. On a recent steamy afternoon on that bone-dry Gibsonville hillside, as if on cue, four wild geese landed and began snipping at sparse blades of grass.