



JEFF SKILES

COMMENTARY / CONTRAILS

The Goodyear Blimp

A super colossal, gargantuan, humongous, bag of gas

BY JEFF SKILES

EAA AIRVENTURE OSHKOSH continues at full throttle just off in the distance. The air show has only just ended, yet here on the vast expanse of Pioneer Airport, the world is serene. I stand alone gazing across the manicured grass at the EAA museum waiting expectantly with only a little bit of trepidation for what is to come. I hear the roaring sound of engines in the sky, and as I turn to look, 14 men—big men—pour out of a trailer and run onto the field arranging themselves in the form of a giant horseshoe. In the heavens above a great gasbag pirouettes and points its bulbous snout toward the ground. It dives at an uncomfortably steep angle as if trying to bury itself in the sod of Pioneer Airport. The engines roar again as the ship hurtles to the ground, but then the nose rises dramatically, and it rounds out for a featherlike landing. The men assembled on the ground grab for the railing that runs around the base of the gondola and the ropes dangling from the nose. They

steady the blimp with their weight and muscle as another flight of the Goodyear blimp comes to its conclusion.

A ladder appears and passengers begin to deplane (deblimp?). As the airship is relieved of their weight the men outside take a stiffer grip on the ropes and railing, holding the blimp to the ground. The passengers climb out, and I, along with four others, quickly scramble aboard to even out the weight. The door is closed and in unison the men outside lift the blimp as high as their arms will reach, then they pull the gondola to the ground again bouncing it on its lone tire before letting go. The blimp is propelled into the air by this action, and our pilot throttles up the two engines and then heaves mightily on the big round wheel at his side. The blimp cants noticeably upward and staggers off into the air.

Another landing, another takeoff, and another group of excited passengers, such is the life of the Goodyear blimp, flight after flight hopping rides, circling stadiums, providing aerial TV coverage, and all the while displaying the blue and yellow colors of Goodyear and its 115-year-old logo—the winged foot of Mercury.

Goodyear has been manufacturing blimps and dirigibles since the very early days of its existence. The corporation formed an aeronautical division more than a century ago to manufacture rubberized fabric coatings for aircraft and lighter-than-air ships. Goodyear built its first blimp only a few years later, beginning a long history that continues to this day.



WHAT'S A BLIMP?

Not surprisingly the body of a blimp is basically a gigantic polyester fabric bag. The only solid parts of the blimp are the gondola, the tail structure, and the aluminum battens that provide stiffness to the nose. The Goodyear blimps are technically referred to as non-rigid airships. However, they will soon be replaced by the new semi-rigid airships built in partnership with the Zeppelin company of Germany.

ANATOMY OF A BLIMP

The Goodyear Blimp's maximum weight is just under 13,000 pounds, surprisingly light when you consider that the bag is almost two-thirds the length of a football field, but once helium is added it achieves neutral buoyancy and weighs nothing at all.

The blimp's bag is filled with helium except for two ballonets, a French word meaning "small bag" that quite literally

defines their purpose. Arranged fore and aft within the blimp's main bag the ballonets contain air that is forced in by the wash from the propellers and whose exit is controlled by cable-operated valves. As the airship ascends the helium inside expands. This expansion is compensated for by letting air out of the ballonets. Likewise on descent expanding the ballonets with outside air allows the blimp to maintain its full-figured Rubenesque form. The ballonets can also be used to trim the blimp because air is heavier than helium. More air in the front ballonet and less in the rear will make the airship fly nose low and vice versa.

A blimp must be in motion to maneuver. It requires airflow over its tail surfaces to pitch and yaw. It also develops aerodynamic lift from the bag while in motion, allowing it to climb. All of this is not a problem while flying, but it does make landing more of a

challenge. A blimp pilot can't land at 50 mph and count on using brakes to slow to a stop. Instead a blimp landing is a bit like docking a seaplane. You need enough speed so that the rudders and elevators have control to maneuver, but not so much that you careen into the ground scattering the assembled ground crew like bowling pins.

BLIMP SCHOOL

The controls of a blimp are quite different from an airplane. There is no yoke or stick, only rudder pedals and a large wheel mounted to the side of the pilot's seat like that of a wheelchair. The rudders have significantly greater throw than those on an airplane and all controls are used to maximum effect while in the air, which makes flying the blimp somewhat of a workout. Several turns of the wheel can make the airship dive at the ground at an alarming angle, and the opposite for a climb. Thirty degrees



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up or down is the normal operating envelope for the Goodyear blimp. A light aircraft would probably never see more than 10 or 15 degrees of pitch change on a typical flight.

The only means to turn the blimp is to yaw the great bag overhead. There is little finesse involved; simply punch the rudder all the way to the floor, and the airship slowly lumbers off in the direction you desire. The blimp is inherently stable with the weight and mass of the gondola hanging below the bag, and it will never roll inverted. About 30 degrees before your rollout heading, apply full opposite rudder. The bag will ponderously roll level. While directional control is fairly straightforward, pitch is not. New airship pilots like me will tend to over control resulting in a continuous phugoid oscillation as the nose hunts up and down. Landings are an advanced maneuver best left to professionals.

In the heavens above a great gasbag pirouettes and points its bulbous snout toward the ground. It dives at an uncomfortably steep angle as if it is trying to bury itself in the sod of Pioneer Airport.

The Goodyear blimps each travel with a crew of 21 people: four pilots, 16 ground and maintenance personnel, and one public relations representative. A caravan of support vehicles accompanies the blimps wherever they go. The blimp itself is capable of a maximum speed of 50 mph but will travel at a more pedestrian pace of 35 mph to keep from outrunning its support staff. If a pilot had to set the blimp down without the crew, it would require venting helium and deflating the bag.

THE FUTURE OF AIRSHIPS

Blimps are costly to operate, and their days may be numbered. It's not the airships themselves so much as the size of the ground crew that is changing the landscape of lighter-than-air flight.

In the next few years the Goodyear blimps will be making their final ascents. Their retirement is on the horizon, and they are the last of more than 300 such airships produced by Goodyear over the last century. A renewed partnership with the Zeppelin company is replacing these iconic symbols with Goodyear's first semi-rigid airships. These are Zeppelin NTs, and they are not blimps but dirigibles. The Zeppelins will be built in America, and the first of this new fleet, *Wingfoot One*, is already flying. It and its sister ships will carry on the tradition of Goodyear airships for years to come. **EAA**

Jeff Skiles, EAA Lifetime 336120, is an ATP and CFII-ME who has been an airline and light airplane pilot for almost 40 years. He previously owned a Cessna 140 and a Waco YOC and currently flies a Cessna 185. Jeff can be reached at JeffreyBSkiles@gmail.com.