

GZ-22 Goodyear Blimp

GZ-22



Spirit of Akron – Retired on 1999

Role	non-rigid airship
National origin	United States
Manufacturer	Loral Corporation
Designer	Goodyear
First flight	1989
Primary user	Goodyear Tire and Rubber Company
Number built	1

The **Goodyear Blimp** is the collective name for a fleet of blimps operated by Goodyear Tire and Rubber Company for advertising purposes and for use as a television camera platform for aerial views of sporting events. Goodyear began producing airship envelopes in 1911 and introduced its own blimp, *The Pilgrim*, in 1925.

Fleet

There are currently two airships in Goodyear's U.S. fleet – two semi-rigid airships:

1. *Wingfoot One* (N1A), a semi-rigid airship (model LZ N07-101), based in Pompano Beach, Florida
2. *Wingfoot Two* (N2A), a semi-rigid airship (model LZ N07-101), based in Carson, California

Both craft are outfitted with LED sign technology Goodyear calls "Eaglevision." This allows the aircraft to display bright, multi-colored, animated words and images. Goodyear also has blimps operating in other parts of the world. These airships are built and operated by Van Wagner of Orlando, Florida. In May 2011, Goodyear announced it will be replacing its fleet of non-rigid airships with three semi-rigid airships built by Luftschiffbau Zeppelin.

The new airships are 246 feet long, 52 feet longer than Goodyear's old model, the GZ-20. The Zeppelin NT model is also slimmer, has a top speed of 70 miles per hour (versus 50 for the blimp), and has a passenger gondola that seats 12 (compared to seven in the blimp). The gondola also contains a restroom.

Lifting agent

The blimps are filled with helium. The helium is maintained under low pressure, so small punctures do not pose serious consequences for the blimp. One inspection element of the blimps is to look into the envelope for pinpoints of light which are indicative of small holes.

The Goodyear blimps were non-rigid (meaning their shape is not maintained by a rigid internal structure) dirigibles (directable/steerable airships). Inside their exterior envelope, the Goodyear blimps are fitted with air-filled ballonets. As the blimp ascends or descends, the internal ballonets expand or contract to compensate for density changes and to maintain

uniform pressure in the envelope. The latest craft, a Zeppelin NT is a departure from this tradition, as it is a Semi-rigid airship that makes use of a structural truss inside the envelope to provide some of its structural strength.

Models



Enterprise (N1A), a model GZ-20 blimp, flies over the 1981 Indianapolis 500. Goodyear replaced the fleet's old color scheme in 1991.



America (N3A) and *Columbia* (N4A) are moored in preparation for the 1984 Summer Olympics.



Wingfoot Two (N2A), a model [LZ N07-101](#) semi-rigid airship, takes off to provide aerial coverage of the [2016 NBA Playoffs](#).

"GZ" stands for Goodyear-Zeppelin, stemming from the partnership Goodyear had with the German company when both were building airships together. However these models came many years after this partnership had dissolved during the start of World War II. The GZ-1 was the USS *Akron* (ZRS-4), the U.S. Navy's fourth rigid airship used for several tests including as a flying "aircraft carrier".

Classes



Goodyear blimp

The three modern types of Goodyear blimps, since the 1960s, are: *GZ-19*, *GZ-20* and *GZ-22*.

The GZ stands for Goodyear-Zeppelin, stemming from the partnership Goodyear had with the German company when both were building airships together. However these three classes came many years after this partnership had dissolved during the start of World War II. The GZ-1 was the USS Akron, the U.S. Navy's flying aircraft carrier.

GZ-19:

- Introduced in 1963 and discontinued in 1978 after the loss of *Mayflower* (N38A). The design for this class resembles the U.S. Navy's L class blimp.

GZ-20:

- This class was introduced in 1969, with *America* (N10A) and *Columbia* (N3A) being the first two. The *Europa* (N2A) followed in 1972 and was based in Italy, the first Goodyear blimp operated outside of the United States. These blimps are slightly longer than the GZ-19. Beginning in 2014, Goodyear began retiring the GZ-20 and replacing them with the Zeppelin NT. On February 23, 2014, *Spirit of Goodyear* was retired in Pompano Beach after the 2014 Daytona 500. On August 10, 2015, the California-based GZ-20, the *Spirit of America*, was decommissioned. The *Spirit of Innovation*, took over California operations in September 2015 until its retirement in March 2017 as the last remaining GZ-20. In fall of 2017, Wingfoot Two will be relocated to California.

GZ-22:

- The only airship in this class was the *Spirit of Akron* (N4A). Originally built in 1987 to show the U.S. Department of Defense that airships were still militarily viable, it was the largest and most technically advanced ship Goodyear ever had in its public relations fleet, featuring fly-by-wire technology. However, Spirit was lost in 1999 and the company has not built one since, most likely because of the large expense to build and operate one due to its size and advanced technology.

Zeppelin NT:

- In May 2011, Goodyear announced that it would be replacing its aging fleet of GZ-20 blimps (non-rigid airships) with brand new, state-of-the-art Zeppelin NT airships. Construction began in 2012 on the first of three new semi-rigid airships; completed in March 2014, *Wingfoot One* was christened on August 23, 2014, by *Good Morning America* anchor Robin Roberts. *Wingfoot Two*, the name of Goodyear's second semi-rigid airship, was unveiled in April 2016.

Historic Classes

- C class blimp/Type U 1918-1922
 - C-5 (blimp) 1918-1919 - hydrogen variant of C class
- D class blimp 1920-1924
- E class blimp/Type FC 1918-1924
- F class blimp/Type FB 1918-1923
- Goodyear Type AD 1925-1931
- G class blimp 1935-19?
- H class blimp 1921-1923
- J class blimp 1922-1940
- K class blimp 1938-1959
 - K-1 (airship) 1938-1940
- L class blimp 1930s-1945
- M class blimp 1944-1956
- N class blimp 1950s-1962
- USS Akron (ZRS-4) 1929-1933
- USS Macon (ZRS-5) 1933-1935
- Goodyear Duck GA-1/GA-22 1944-?
- Goodyear ZWG 1950s
- Goodyear Type FD 1919
- Goodyear Type TZ 1928-?
- Goodyear Type GZ-19 1963-1978

Dimensions

According to the Goodyear website, the three active GZ-20 blimps are 192 feet (58 meters) long, 59.5 feet (18 meters) tall, and 50 feet (15 meters) wide.

For comparison, the largest airships ever built, the Zeppelin Company's *Hindenburg*, LZ-129, and the *Graf Zeppelin II*, LZ-130, were 804 feet (245 meters) long and 135 feet (41 meters) in diameter. That is, over four times as long and over twice as wide as the current Goodyear blimps. The largest blimp ever made by Goodyear was the U.S. Navy's ZPG-3, at 403 feet (121 meters) in length.

Names



Goodyear Type TZ blimp "Puritan" at the 1933 Chicago Worlds Fair

Since 1928, Goodyear had named its blimps after the U.S. winners of the America's Cup yacht race. This naming method is attributed to then-Goodyear CEO Paul W. Litchfield, who viewed the airships as being like yachts in the sky. Although that practice deviated with the introduction of the *Spirit of Akron* in 1987, the Florida-based *Stars & Stripes* would be the last to carry this honor, ending in 2005.

The America's Cup winner's names: *Puritan, Reliance, Defender, Volunteer, Resolute, Vigilant, Mayflower, Ranger, Rainbow, Enterprise, Columbia, America, Stars & Stripes.*

Non-cup winners names: *Pilgrim, Neponset, Spirit of Akron, Spirit of Goodyear, Eagle, Spirit of America, Spirit of Innovation.*

Foreign based blimps (operated by The Lightship Group since the 1990s): *Europa, Spirit of Europe, Spirit of the South Pacific, Spirit of the Americas, Spirit of Safety, Ventura, Ling Hang Zhe (Navigator).*

Passenger policy

The GZ-20 blimps Goodyear operates in the U.S have seating for only six passengers. No seatbelts are required.

The only passengers that Goodyear will allow on the blimps are corporate guests of the company and members of the press. No public rides are offered. This has been Goodyear's long-standing policy. However, for over 50 years, it had to offer limited public rides at its Miami, Florida, winter base on Watson Island as part of its land-lease deal with the city in order to operate from the island. That practice ended in 1979 when the base was moved to Opa-Locka, Florida.

Sometimes Goodyear has a contest with its dealers of its tires. If a customer buys four new Goodyear tires, they are entered into a contest to go up in the blimp; the winner must go to the nearest blimp base to take their flight.

Night signs

For years, Goodyear has fitted its blimps with a night sign. From neon tubes, to incandescent lamps to LEDs, these signs have helped the company advertise its products and also deliver public service messages from various organizations such as local governments.

- **Neon-O-Gram** Originally called NeonGoodyear, was first fitted on *Defender* back in the 1930s. Neon tubes on

the sides of the blimp which usually just spelled out Goodyear.

- **10 Panel Incandescent Bulbs**
- **Skytacular:** In the mid 1960s, the GZ-19 *Mayflower* (N4A) was fitted with over 3,000 incandescent lamps of red, yellow, blue and green on both sides that for the first time featured animation. Usually moving stick figures, ticker messages or colorful patterns. A small jet engine had to be attached to the blimp's car in order to power the Skytacular night sign.
- **Super Skytacular:** Same technology as Skytacular, but with more than 7,000 lamps on both sides. Super Skytacular was fitted on the new longer GZ-20 blimps in 1969.
- **Eagle Vision**

Accidents

- The *Wingfoot Air Express*, while transporting passengers from Chicago's Grant Park to the White City Amusement Park, crashed through the skylight of the Illinois Trust & Savings Bank on July 21, 1919, killing one crewman, two passengers, and ten bank employees.
- The *Eagle*, tail number N10A, suffered a deflationary incident in May of 1995, when the blimp struck the ground near the Carson, California, mooring site while unmanned. This blimp was repaired and rechristened as the Eagle N2A. No injuries were reported.
- The *Spirit of Akron*, tail number N4A, crashed on October 28, 1999, in Suffield, Ohio, when it suddenly entered an uncontrolled left turn and began descending. The pilot and technician on board received only minor injuries when the blimp impacted with trees. The NTSB report claims that improperly hardened metal splines on the control actuators sheared, causing loss of control.
- The *Stars and Stripes*, tail number N1A, crashed on June 16, 2005, in Coral Springs, Florida, when it was caught in a strong thunderstorm that eventually pushed

the aircraft into trees and power lines. There were no injuries in the crash, although the pilot and passenger were trapped for a number of hours until the power lines could be de-energized. The NTSB accident report claims the cause of the accident to be the pilot's "inadequate in-flight planning/decision which resulted in an in-flight encounter with weather (thunderstorm outflow), and downdrafts..."

- The *Spirit of Safety I*, registered as G-TLEL and owned and operated by Lightship Europe Limited, (but operating in Goodyear livery), caught fire while on landing approach to the Reichelsheim Airport (ICAO code EDFB) and crashed on June 12, 2011, near Reichelsheim, Hesse, Germany. Three passengers were able to jump to safety shortly before the crash, but the pilot died in the wreck.



MAPS GZ-22 Tail Number N4A

The Loral GZ-22 (also known as the Goodyear GZ-22) was a non-rigid airship first flown in 1989 and operated by Goodyear as its signature promotional aircraft, registered *N4A* and named *Spirit of Akron*. Originally built for the purpose of demonstrating the modern military capability of airships to the US Navy, the GZ-22 was originally designed by Goodyear but built by Loral after Goodyear withdrew from airship manufacturing. The GZ-22 had a steel framed and composite skinned gondola with a neoprene-impregnated polyester 2-ply envelope filled with helium. At its 1987 rollout the 205-foot 6-inch long airship was the longest in service. The GZ-22 Type Certificate was issued on 31 August 1989.

On 28 October 1999 the *Spirit of Akron* crashed at Suffield Township, Ohio, when it suddenly entered an uncontrolled left turn and began descending. The pilot and technician on board

received only minor injuries when the airship hit trees. The NTSB report identified improperly hardened metal splines on the control actuators had sheared, causing loss of control and identified the probable cause as being failure by the "flight control system manufacturer to meet design (hardness) specifications".

Specifications

General characteristics

- Crew: 1
- Capacity: 10 passengers
- Length: 205 ft. 6 in (62.64 m)
- Width: 47 ft. 0 in (14.33 m)
- Height: 60 ft. 2 in (18.34 m)
- Volume: 247,800 ft³ (7,017 m³)
- Gross weight: 15,000 lb. (6804 kg)
- Powerplant: 2 × Allison 250-B17C turboprops, 420 hp (312.2 kW) each

Performance

- Maximum speed: 65 mph (105 km/h)
- Service ceiling: 10,000 ft. (3050 m)