

THE GOODYEAR AMPHIBIANS

by

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The Goodyear Amphibian was designed and developed prior to 1944 in an effort to produce a practical, light-weight utility and passenger amphibian. The prime design considerations were safety and simplicity. The GA-1, first of the series, was a two seater powered by a 113 h.p. Franklin engine, and was of all metal construction, with plywood wing tips and fabric covered wings. The hull was a NACA 40 BE type, and the aircraft featured a retractable windshield, wing slots, and a two way radio. The GA-1 was only flown experimentally, and never recieved a type certificate from the C.A.A. Only one was produced, and it was first flown during September 1944.

The next in the Amphibian series was the GA-2. The GA-2 also had a NACA 40 BE hull with a modified bow section, and was of all metal construction, except for fabric covered wings and rudder. The GA-2 was equipped with an aeromatic propeller, wing slots and a retractable water rudder. Seating capacity was increased to three, and a 145 h.p. Franklin was installed. Sixteen GA-2's were built, and the type was certificated by the C.A.A. The GA-2's recieved a very extensive service testing, in the United States, Canada, Mexico, Central America and Europe.

Following the GA-2 was the XGA2PT, which was a nine tenths scale model of the proposed GA-22 four place amphibian. This aircraft used a modified NACA 163-11 hull, which was known as the "Planing Tail Hull". Very complete hull tests were made, with the results verifying NACA test data. These were the first tests carried out with the planing tail hull installed on a full sized aircraft. The hull was proven to be superior in many respects to conventional hull designs, in that takeoff runs were improved, the aircraft could be operated in rougher water, and special water handling techniques were no longer required. The XGA2PT was of all metal construction, with fabric covered wings and rudder, and the overall performance was described as "better than that of the GA-2".

The next phase in the evolution of the Goodyear Amphibian was the GA-2B. This was a modified GA-2, with many of the features of the XGA2PT included. The NACA 40 BE hull had a modified bow section for better spray control, and a 165 h.p. Franklin engine was installed.

The GA-2B, of which six examples were built, was first flown in June 1949 and recieved Type Certificate #784 from the C.A.A. in August 1949. It retained the all metal structure, with fabric covered wings and rudder. The GA-2B was fitted with a full equipped instrument panel, crosswind landing gear, wing slots, Sensenich two position propeller, retractable water rudder, radio reciever and transmitter, landing condition indicator, and an after body step on the hull to improve takeoff characteristics. One GA-2B, c/n 4022, N-5503M, was operated from the Goodyear factory near Phoenix, Arizona, until July 1958, when it was reported to have crashed. One other example is reported to be based at the Akron, Ohio, plant.

The logical four-place development of the GA-2 series is the GA-22. This is an all metal, four place amphibian powered by a 185 h.p. Continental engine. The GA-22

utilized previous design improvements of the Amphibian series, and the well tested NACA Planing Tail Hull. The outer wing panels, ailerons, flaps and tail surfaces have magnesium skins. The GA-22 was equipped with crosswind landing gear, wing slots slotted flaps, Hartzell controllable pitch reversible propeller, retractable water rudder, cabin speaker, fully equipped instrument panel, stall warner and hydraulically operated flaps and landing gear.

In March 1953 the latest in the series was flown. This aircraft was known as the GA-22A and had a 225 h.p. Continental engine, increased payload and range, a faired step on the hull for less aerodynamic drag, and a revised wing center section incorporating "Bondolite" (Goodyear bonded sandwich material) which gave added strength to the structure, with less weight and lower aerodynamic drag. The GA-22A is the current Goodyear Amphibian, and it is now undergoing final flight tests for C.A.A. certification.

Data Table

Model	GA-1	GA-2	XGA-2PT	GA-2B	GA-22	GA-22A
Engine	Franklin 113 h.p.	Franklin 6A4-145-A3	Franklin 6A4-145-A3	Franklin 6A4-165-B3	Continental E-185-8	Continental E-225-8
Wing Span	36' 0"	36' 0"	36' 0"	36' 0"	38' 0"	38' 0"
Total Wing Area	178 sq ft	178 sq ft	178 sq ft	178 sq ft	209 sq ft	209 sq ft
Gross Weight	2065 lbs	2200 lbs	2500 lbs	2300 lbs	2875 lbs	3000 lbs
Useful Load					1000 lbs	1100 lbs
No. of Seats	2	3		3	4	4
Max Speed/SL	110 mph	120 mph	120+ mph	125 mph	135 mph	148 mph
Cruise Speed	100 mph	110 mph		112 mph	125 mph	135 mph
Fuel	30 gal	30 gal		42 gal	60 gal	60 gal
Range/Cruise		300 miles		400 miles	350 miles	615 miles
Number Built	1	16	1	6	1	1
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Note: GA-22 range at gross weight with 3 people and 60 gal fuel is 650 miles.
GA-22A range given is for 4 people and 60 gal fuel.