



Southwest Soaring

Quarterly Newsletter of the U.S. Southwest Soaring Museum

September 2014



Woodstock I

U. S. Southwest Soaring Museum, Inc.
A 501 (c)(3) tax-exempt organization
An affiliate of the Soaring Society of America

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Directions to the Museum

Approximately 35 miles east of Albuquerque on Interstate 40, take Exit 197 onto Old Highway 66 in Moriarty, NM. The museum is the big building on your left.

Museum News

We continue to make progress on building the Wright 1902 Flyer. George Applebay and Gene Tieman have built a mountain of parts for the wing ribs, struts, etc.



WOODSTOCK I, N429RB

This month we feature the museum's newest glider, a homebuilt Woodstock that was donated to the museum by Charles R. (Randy) Beskow of College Station, TX.

The **Maupin Woodstock I** is a single-seat, all-wood glider made available as plans for amateur construction.



DEVELOPMENT AND DESIGN

The Woodstock was designed in the late 1970s by Maupin, with assistance from Irv Culver, who designed the wing airfoil. Culver's airfoil is of 18% thickness at the root, thinning to 13% thickness at the wing tip and incorporates no washout.

The aircraft was introduced in the May 1978 issue of *Soaring* and plans were first advertised in the September 1978 issue.

The aircraft's design goals were low cost and simplicity of construction. Four design principles were employed: (1) using the least expensive materials, (2) using as little material as possible, (3) keeping the design simple, and (4) utilizing as many common parts as possible. Jim explains in the May 1978 issue of *Soaring*:

“Following principle # 1, I used Douglas fir (which costs about one-quarter as much as aircraft spruce) for all major structural parts. And except for the fuselage, all tail and wing skins are birch, which sells for approximately one-half the price of mahogany.

“In keeping with principle #4, Woodstock uses the same piano hinge for elevator, aileron, dive brake, rudder pedal, and even seat bottom hinges. Cable is used on all control systems. Sixteen

pulleys are used and fourteen of these pulley brackets are exactly alike and interchangeable. The other two pulleys are identical but larger. It's worth noting the idea is not new and comes, in fact, from Lewin Barringer (*Flight Without Power*, p. 36).”

The resulting airframe is all-wood. The wing and tailplane ribs are made in pairs from marine-grade fir plywood using a bandsaw. The wing spar is a hollow box for the first 8 ft from the root and then changes to a "C-section" outboard. Top surface spoilers are provided.

Woodstock bears a family resemblance to the Duster, except the Woodstock is smaller and lighter. Jim made it a point to incorporate the good features of other sailplanes, in this case even to the general appearance of one in particular. Inside, the objective is simplicity, practicality, and reliability.

The wing is set shoulder-high on the fuselage. The fuselage tail arm is long and the horizontal tail comfortably large, which provides good pitch stability. The tail carries large, fixed vertical and horizontal stabilizing surfaces, which provides good stick-free (hands and feet-off) stability.

The main landing gear is an 11-inch go-cart wheel mounted as a fixed monowheel. The wheel brake is fashioned from aluminum sheet and employed as a band brake, actuated by a bicycle brake lever mounted on the control stick. Approach control is by wing top surface spoilers.

As an option, wings of 13.1 m were offered which increased the calculated glide ratio from 24 to 26.5.

SPECIFICATIONS (Woodstock I)

General characteristics & performance

- **Wingspan:** 39.0 ft
- **Wing area:** 104.7 ft²
- **Wing loading:** 4.29 lb/ ft²
- **Empty weight:** 245 lb
- **Gross weight:** 455 lb
- **Aspect ratio:** 14.5
- **Airfoil:** Culver 18%-13% custom
- **Maximum L/D:** 26.5 @ 39 kt, 45 mph
- **Min sink:** 2.6 fps @ 35 kt, 40 mph

THE DESIGNERS

Jim Maupin came by his interest in aviation honestly, as his father was a military pilot in World War I. Jim flew C-47s over the Hump between

India and China during World War II. He ran the Dutch blockade of Indonesia in 1948 flying supplies for the rebels during that nation's struggle for independence. Jim remained in Indonesia for four years as an aviation affairs advisor to the new nation. It was during this time he flew a locally-built Grunau Baby - and found himself hooked on soaring for good. Upon his return home he obtained a degree in philosophy from Loyola University.

Readers may have first encountered Jim Maupin in the May 1971 issue of *Soaring* magazine. He was introduced as the kit builder for the Duster sailplane, designed by Hank Thor and Ben Janssen. The Duster was a successful all wood, kit-built sailplane, with more than 70 completed and flown. Jim was living in San Pedro, California, and building the BJ-1B prototype with a partner at the same time he was tooling up to build kits. He operated DSK Aircraft with Norm Barnhart and provided high-quality complete metal and wood kits for the Duster. After having participated in the construction of the first 100 Duster kits, he left to pursue his dream – a low cost, simple sailplane that would be a joy to fly.

Irv Culver designed the Woodstock airfoil sections, sized the empennage, control surfaces, and provided the technical insight into the aerodynamic design on the Woodstock. He also participated in another Maupin design, the 15-meter Windrose glider.

Culver was a well-known American aerodynamicist. Most notable of all his accomplishments, Culver is credited for solving a fatal flaw in the Lockheed P-38, which killed several pilots. He also designed the ultrathin wing on the F-104.

He was described by Lockheed Aircraft Vice President for Engineering Willis Hawkins as the “young genius who saved Lockheed’s bacon more than once ...” Culver worked along with such engineering giants as Kelly Johnson and Henry Combs at Lockheed’s Skunk Works on the SR-71.

Barry McGarraugh drew up most of the plans and fabricated much of the prototype hardware for the Woodstock. Larry Lichina and Pat Kibby prepared the remaining drawings.

OPERATIONAL HISTORY

The Woodstock first flew in 1978 and won first place in the 1984 Sailplane Homebuilders Association design contest.

Gary Osoba won the US Region 9 Sports Class contest in 1998 with his Woodstock. Osoba also earned many US National and World Records in the Ultralight Category, including: Straight Distance, Distance to a Goal, and Distance up to Three Turnpoints for a flight of 340 miles (1998); speed around a 100 km triangle of 52.4 mph (2000); and Out and Return Distance of 162.1 mi (2000). In July 2008 Osoba flew his Woodstock on a flight of over 791 km (492 mi) from Zapata, Texas, to northeast of Lubbock, Texas, likely the longest distance flight ever achieved in a Woodstock.

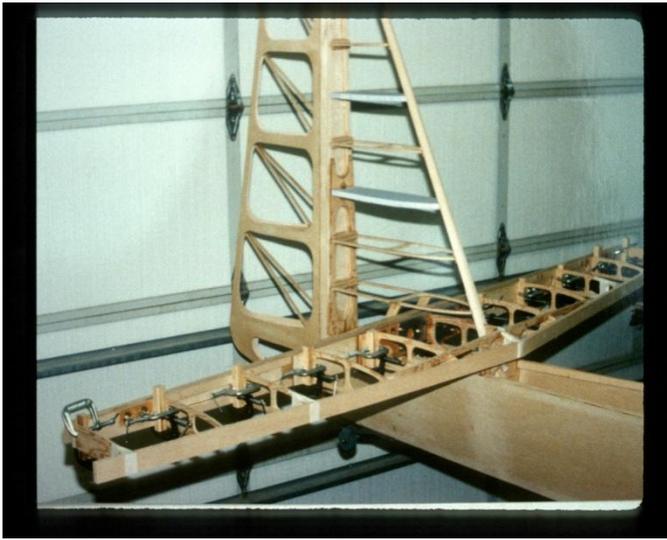
HISTORY OF THE MUSEUM’S GLIDER

The museum’s Beskow-Maupin Woodstock, N429RB, serial #429, was built by Randy Beskow of Midland, TX. His wife, Judy, gave him the plans for Christmas in 1984. Randy reports:

“Judy supported the project all the way, even to the point of ordering almost all of the materials for it. I would work on the plane at night and on weekends and make a list of the materials needed. Then Judy would call the aircraft supply houses and order the parts while I was at work. Now you know why my Woodstock is named ‘Miss Judy’.”



Randy kept careful records while building the Woodstock and has accurate information on construction hours (1621 hours). A Special Airworthiness Certificate was issued in the Experimental Category on February 23, 1994. It was first flown on March 19, 1994, at the Soaring Club of Houston’s field north of Hempstead, TX.

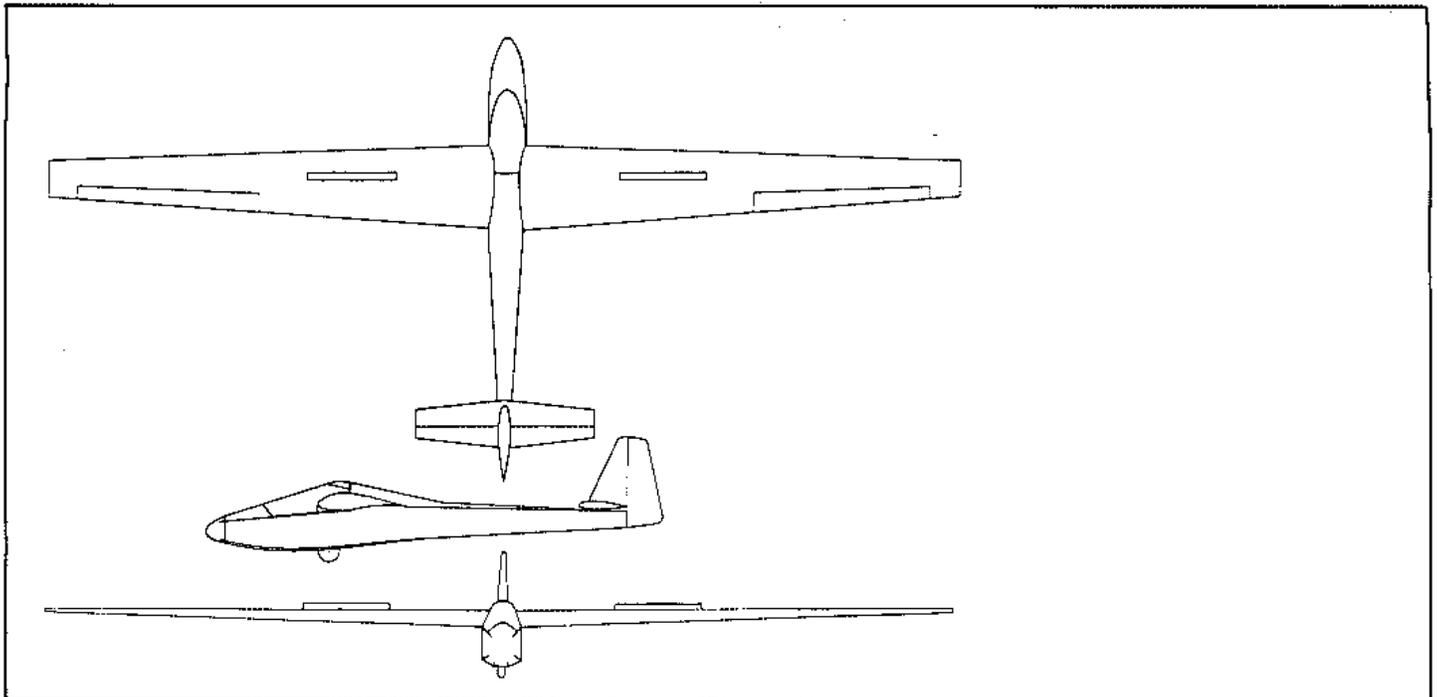


The last flight was on May 1, 2014. Randy donated his Woodstock I to the museum on August 14, 2014, with 308 flights and 482 hours in the logbook.

Acknowledgements: The preceding account includes information from the museum's file of documents and logbooks for this glider. We also synthesize information from the Soaring Club of Houston Newsletter (2008), the Soaring Society of America's *Sailplane Directory 1997*, *Soaring* magazine for May 1978, May 2003, and other issues, and the online Wikipedia. Photos are by Gene Tieman, Randy Beskow, and Kathy Taylor.

Member News

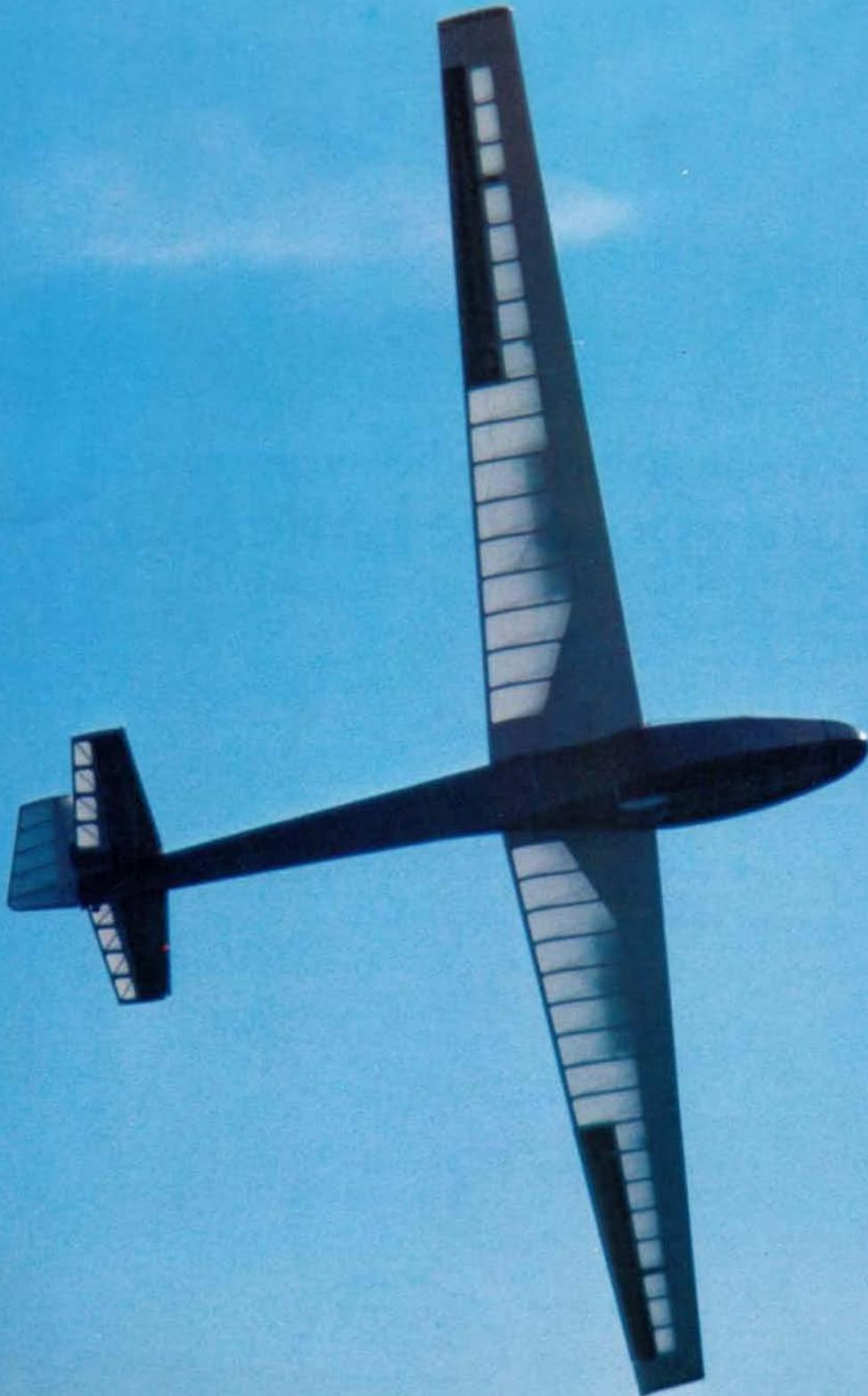
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