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Cover: Dinner after day 1 of the Vintage & Classic Meet. Left to right: Bob Leonard, Steve Leonard, Tony Condon, Ron Leonard, Bob Whelen, Morgan Sandercock, George Taylor, Dave Leonard, Barbara Leonard (with back to camera).

On the cover is a photo from the museum's Vintage & Classic Meet. The weather was stormy, but there were some good flights. Thanks to the participants for making this a fun weekend.

The museum recently has become the owner of a beautiful Rolladen-Schneider LS-3a. The donor was Bob von Hellens who kept the glider and its trailer in excellent condition. We would like to sell this package to raise funds for the museum. Please contact Bob Hudson or George Applebay or any other member of the Board of Directors if you are interested in acquiring this aircraft. Contact information is to the left.

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.

Member News

Are you receiving the newsletter by U.S. mail? Consider receiving it by email. This saves museum resources and you can read the newsletter sooner and in full color. Contact us at kathytaylor1000@msn.com to change your preference. Check the newsletter mailing label for your member number and expiration date.

Glasflügel Mosquito, N235A

In this issue we feature a one-of-a-kind sailplane, the Motor Mosquito, serial #79.



Design and Construction

The **Glasflügel 303 Mosquito** is a composite 15-meter span single-seat sailplane manufactured by Glasflügel Segelflugzeugbau GmbH between 1976 and 1980.

Designed for the 15 meter racing class, the Mosquito replaced the H-301 Libelle in Glasflügel's production line. The Mosquito was derived from the Club Libelle, from which it differs in having a retractable landing wheel and new canopy. It married the Standard Class Hornet fuselage with a new flapped wing employing the FX 67-K-150 airfoil. The wing featured innovative interconnected trailing edge dive brakes with variable camber flaps. The glider has automatic connection for all controls: ailerons, elevator, air brakes and water ballast.

An interesting feature is the new type of airbrake/flap combination developed jointly by Holighaus and Hänle. This was described by Dick Johnson in *A Flight Test Evaluation of the Mosquito* as follows: "The airbrake actuation raises a forward-opening flap on the wing's aft top surface. As this upper flap opens past roughly 20 degrees, it begins to force the lower conventional flap to larger deflections. The upper flap then functions to both balance the lower flap airloads and to increase drag. Full air braking rotates both the upper and lower flaps through roughly 60-degree angles. The system works beautifully, and impressively steep landing approaches can be made with little practice."

The maiden flight of the Mosquito took place on February 20, 1976. The Mosquito (and the Schempp-Hirth Mini-Nimbus that shares the same wing) was contemporaneous with the Rolladen-Schneider LS3 and ASW 20. The Mosquito was superseded in 1980 by the Glasflügel 304, designed by Martin Hansen.

The 303 Mosquito is sometimes referred to as the H303 or H-303. This is incorrect, as the H designates gliders designed for Glasflügel by Ulrich and Wolfgang Hütter.

SPECIFICATIONS (Glasflügel 303 Mosquito)

General characteristics

- **Crew:** one
- **Length:** 6.39 m (20 ft 11 ½ in)
- **Height:** 1.4m (4 ft 7 in)
- **Wingspan:** 15.0 m (49 ft 2½ in)
- **Wing area:** 9.86 m² (106.1 sq ft)
- **Wing loading:** 42.6 kg/m² (8.72 lb/sq ft)
- **Aspect ratio:** 23.0
- **Airfoil:** Wortmann FX-67-K-150
- **Empty weight:** 227 kg (500 lb)
- **Max takeoff weight:** 420 kg (926 lb)
- **Water Ballast:** 120 kg (265 lb)
- **First flight:** February 1976

Performance

- **Stall speed:** 35 kt (65 km/h)
- **Never exceed speed:** 146 kt (270 km/h)
- **Rough air speed max:** 135 kt (250 km/h)
- **Maximum glide ratio:** 42 at 61.5 kt (114 km/h)
- **Rate of sink:** 0.58 m (1.9 ft)/sec at 43 kt (80 km/h)

The Company

Ing. Eugen Hänle (10/5/1924 - 9/21/1975) and his wife, Ursula Hänle (1926 – 4/1/2009), founded the firm Glasflügel Segelflugzeugbau GmbH in 1962. They also completed and flew their first sailplane, the Hütter H-30, in their home, flying it in 1962.

Before forming Glasflügel, the Hänles were involved in the manufacture of fiberglass fans, rotors, and propellers, and contributed to Ulrich Hütter's 100 kW wind generator project. Their experience with fiberglass was applied to the many problems encountered with the H-30, and working with Wolfgang Hütter, the H-30 evolved into a prototype for the H-301 Libelle.

Glasflügel (*glass wings*) was located in Schlattstall, south of Kirchheim unter Teck and is recognized by the logo of a dragonfly.



Glasflügel was the first company that produced more than 100 aircraft of a type in fiberglass construction. It was also responsible for a large number of innovations in sailplane design and technology: quick assembly systems for wings and tailplane, automatic control connections, trailing edge airbrake-flap combinations, hinged instrument panels, the parallelogram control stick, and automatic trimming are some innovations introduced by Glasflügel and later adopted by other manufacturers. Some of these are standard features in nearly all gliders produced today.

These innovations helped Glasflügel to considerable commercial success and the company was highly regarded.

In 1964 the H-301 (Open Class) Libelle received the first German and first U.S. Type Certificate issued to an all-fiberglass aircraft. It had flaps, water ballast and retractable landing gear. Early models also had a tail parachute for glide path control. Both of the Hänles and the Hütter brothers contributed to the design.

The H-201 Standard Libelle was developed from the H-301 in 1967. The changes to meet Standard Class requirements consisted of removing the flaps

and tail braking parachute, and replacing the retractable landing gear with a fixed wheel. It featured a new Wortmann wing section and terminal velocity dive brakes. The prototype made its first flight in October 1967, with a total of 601 being built.

The H-201 and H-301 Libelles were very popular and influential designs. Their very light wings and extremely easy rigging set a new benchmark.

Other gliders produced by Glasflügel included the BS-1, Club Libelle, Hornet, 304, Kestrel, 604, and others. The 304, designed by Martin Hansen, was intended to replace the Mosquito.

Glasflügel encountered financial difficulties in the 1970s which led to cooperation with Klaus Holighaus of the firm Schempp-Hirth. From May 1975 to 1979 Glasflügel carried the name Holighaus & Hillenbrand. The Mosquito was the first sailplane to be produced under the name of Holighaus & Hillenbrand.

The death of Eugen Hänle in a power plane accident in September 1975 aggravated the company's position. After further changes in ownership in 1979, it was finally dissolved in 1982 as a German-Brasilian Aircraft Consortium.

In 1982 Hansjorg Streifeneder purchased the production molds and type certificates for all Glasflügel gliders. He formed a new company under the name Glasfaser (*glass fiber*) Flugzeug Service GmbH, later moving the company to Grabenstetten. Streifeneder had built and flight tested gliders for Glasflügel for 13 years prior to its bankruptcy. Initially, he concentrated on maintenance, surface finishing, service, and repair of Glasflügel aircraft and also gliders from other manufacturers. Currently, his company offers a wide range of services to the international aerospace industry, specializing in composite technologies. Glasfaser recently prepared the wing molds for Dick Butler's Concordia open class motorglider.

In 1997, HPH Ltd of Kutná Hora, Czech Republic, acquired the complete technology for the Glasflügel 304, and produced the glider under the name Glasflügel 304cz with very minimal changes. No fundamental modernization was needed because of its advanced features and construction.

Summary of Glasflügel Manufactured Aircraft

Description	Year	Number Built
H-30 GFK	1962	1
H-301 Libelle	1964-1969	111
BS-1	1966-1968	16
Standard Libelle	1967-1974	600
Kestrel	1968-1975	129
Glasflügel 604	1970-1973	10
Libelle 202	1970	1
Libelle 203	1972-1973	2
Libelle 204	1973	1
Club Libelle 205	1973-1976	176
Hornet	1974-1979	89
Hornet C	1979-1980	12
Mosquito 303	1976-1980	200
Glasflügel 304	1980 until 1982	62
Glasflügel 402	1981	1
Falcon	1981	1

In 1970 Ursula Hänle and Wolfgang Hütter formed a new company called Start+Flug GmbH Saulgau. They manufactured the H-101 Salto, an aerobatic V-tailed glider derived from the earlier H-30. 72 were built.

History of the Museum's Glider

Serial #79 was manufactured and imported to the U.S. in 1977 by Harry R. Miltner, Jr, of Ellensburg, Washington. Shipping damage required replacement of the rudder and minor repairs to the fin before it could be flown. The airworthiness certificate was issued February 2, 1978. By August 1983 the glider had 453 hours on the airframe.

Beginning in September 1983, Harry Miltner installed the engine, a Bombadier Rotax GmbH 501, and retraction mechanism, completing the job in September 1984. This is the same engine employed by the Eiri Avion PIK20E. After an extensive testing program, a Special Airworthiness Certificate was issued on September 20, 1985.

By May 1, 1994, the glider had flown an additional 393 hours with 99 hours on the engine and a total time of 837.9 hours.

Carson & Claud Gilmer of Rock Springs, TX, donated the Mosquito to the museum in 2005.

The museum also has on display a Glasflügel Kestrel that has been loaned by Steve Leonard of Wichita, KS.

The Motor Mosquito





Acknowledgements: The preceding account includes information from the museum's file of FAA documents and logbooks for this glider. We also synthesize information from the Soaring Society of America's "Sailplane Directory 1997," Martin Simon's "Sailplanes 1965-2000" and "Sailplanes 1945-1965," *Soaring* magazine, "Jane's All the World's Sailplanes," Richard H. Johnson, "Flight Test Evaluations," "Wind Power for the World: The Rise of Modern Wind Energy," Preben Maegaard, ed., and Wikipedia and other internet sites.

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