Dick Johnson’s HP-12A [HP-13M]
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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
The Museum had an especially Merry Christmas this year because of a generous donation from Alice C. Johnson of $100,000. We greatly appreciate her continuing support of our museum programs. When our Board of Directors returns from their holiday travels we will meet to decide how best to make use of this exceptional donation.

By coincidence, we recently received a Schreder HP-12A that belonged to Alice’s late husband, 11-time National Soaring Champion Richard H. Johnson. Dick made major modifications to this Dick Schreder design and flew it in two National Championships. Many thanks to Steve Leonard of Wichita, Kansas, for helping the museum to acquire this glider and to Scott Fletcher for transporting the glider from South Carolina to Ohio. Steve brought it the rest of the way to Moriarty. We feature this glider in the following pages.

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.
Schreder-Johnson HP-12A, Serial #78

The HP-12 is a single-seat, V-tailed, all-metal glider that was designed by Richard Schreder and made available as plans for amateur construction. Dick Johnson built serial #78 from plans and modified it heavily over a number of years. He probably registered his HP-12 as an HP-12A because he fully expected to make major changes.

Dick Schreder built only one HP-12 to fly in the Standard Class of the 1965 World Championships at South Cerney, England. He finished 15th. The HP-12 featured fixed gear, a 15-m wing, and a Wortmann FX 61-163 airfoil that was later used on the HP-14. [That HP-12 was destroyed in 1972.]

HISTORY OF THE MUSEUM’S GLIDER

Steve Leonard of Wichita, KS, relates this story from Alice Johnson: “Soon after getting back from the 1965 World Championship, a delivery man showed up at the house with a package from Bryan, Ohio, and it was COD. She knew that her husband had commented to Dick Schreder that he thought the HP-12 was a fine sailplane and he was considering building one, but hadn't heard anything further from him about this. Now, here was a delivery man with a package, COD, for "Twelve Fifty". He hadn't brought the package to the door, and it was a rather large truck. Alice said she had to ask, because she didn't think it would be Twelve Dollars and Fifty Cents, and she wasn't prepared to be able to hand over Twelve Hundred and Fifty Dollars in cash! Much to her relief, it was Twelve Dollars and Fifty Cents. It was plans and the tail kit!”

The glider logbook provides details of the building and testing activities. Dick began construction of the HP-12 from Bryan Aircraft plans on July 15, 1965. By August 4, the tail surfaces were signed off by the FAA as “OK for cover.” He began construction on the fuselage on August 7 and by September 1, it was “OK to close.” On December 4, 1965, he began work on the wings and they were “Ok to cover” on February 24, 1966. Obviously interrupted by the flying season, the installation of flaps and ailerons was not completed until November 10. Painting and instrumentation was complete by December 15, 1966, when the final inspection was completed and the Special Airworthiness Certificate was issued in the Experimental Category. The aircraft was registered as N544J and wore Dick’s longtime competition number “44”.

The first flight was on January 7, 1967, and after about 25 hours flying time Dick replaced the landing gear crank arm rod system to “give more positive actuating forces for the wheel extension and retraction.” He reinforced the seat and modified the wheel well doors and closing system.

Dick won the May 1967 Region 10 Championship at San Marcos, TX, and by the time he arrived in Marfa for the 34th U.S. Nationals in July he had 55 hours on the glider. The August 1967 issue of Soaring magazine describes Dick’s third place finish at Marfa in an “HP-13.”

After performance testing of the aircraft in October and November 1967, Dick made major changes to the glider. He raised the wing 5.5 inches, lengthened the aileron push rods, re-routed the flap actuating rod, moved the tow hook mechanism, replaced the tail wheel assembly, and
installed a new cockpit seat bottom. A new Experimental Airworthiness Certificate was issued March 15, 1968. He then flew the aircraft 20 hours before entering the 11th World Soaring Championships at Leszno, Poland, in June. He finished 8th in the Open Class in what was listed as an"HP-13M.”

After the 1968 flying season Dick went to work on the HP again, increasing the span of each aileron by cutting a portion of each flap and adding it to the aileron. This required larger aileron push rods and bell cranks and he installed ball bearings at most joints. Five inches was added to each wing tip for a new overall span of 55 ft 6 in. These changes were signed by an FAA inspector and another new Airworthiness Certificate was issued on April 22, 1969. Additional performance testing in October 1968 showed a best L/D of 37 at 50-55 MPH. After his first flight on May 10, 1969, Dick noted in the logbook that the ailerons were improved. In the National Championships at Marfa, he finished in 12th place out of 82 entrants.

After the 1969 flying season, Dick increased the wingspan to 60.6 ft, added water ballast tanks and fill/dump mechanism, and increased the span of each ruddervator.

The new Experimental Airworthiness Certificate was issued on May 5, 1970. Dick reported in the logbook on May 18, “Controllability & maneuverability good.” A pilot from Brazil flew this glider in the 1970 World Championships at Marfa, TX.


Deciding that he had done as much as he could with the HP-12, Dick flew an ASW-17 in the 1972 Worlds at Vrsac, Yugoslavia, finishing 5th. His last flight in the HP-12A was logged on December 22, 1974, with 734.5 hours in the logbook. The glider was sold to Fred S. Hewitt of Stanton, MN, President of the Minnesota Soaring Club.

Robert M. Park of Harper, Kansas, purchased N544J from the Minnesota Soaring Club on December 7, 1983. Extensive repairs were made in 1984. Robert Park sold the glider to Gary L. Trimpe of Preston, KS, in 1988. Gary re-shaped the nose cone out of fiberglass to better match the profile, as shown below.


John V. Duncan of Princeton, TX, recognized the historical significance of this glider and purchased it on June 24, 2006, with the intent of having it repaired and then donated to a museum. Substantial repairs were made and signed off in 2007.

John Duncan’s widow, Debbie Duncan of South Carolina, donated the glider to the museum on December 29, 2014, with 1453:40 hours in the logbook.

WHAT TO CALL IT?

The FAA paperwork consistently identifies the Johnson ship as an HP-12A. Dick Schreder skipped the number 13 and went on to design the HP-14. Dick Johnson took advantage of this skipped
number to call his highly-modified HP-12 glider (for contest purposes only) an HP-13 and later an HP-13M.

Much experimentation took place among homebuilders based on the Schreder gliders. As a result, there is a good deal of confusion in published sources about the HP-12A and HP-13. Wikipedia reports that a total of 8 HP-13’s were built. Most of these were likely constructed from an HP-11 fuselage and an HP-14 wing, perhaps by homebuilders who were in the midst of construction when the HP-14 came out. The Soaring Society of America’s Sailplane Directory 1997 lists 1 HP-12A and 5 HP-13s in the U.S. This issue of the Directory shows a photo of the HP-12A flying but does not say how many were built.

[Another HP-12A appears in various literature that is a mid-wing, V tailed, single-seat glider that was assembled out of various components, all designed by Richard Schreder. The finished aircraft retains the HP-12 rear fuselage and HP-14 wings and has added an HP-18 V-tail and the forward fuselage from an HP-10. The series of amateur builders, who contributed to the construction were Art Heabener of New Jersey, Tom Hall of Florida, Rudy Kunda and Bill Carlson. They completed the aircraft in 1978. It is not related in any way to Dick Johnson’s HP-12A.]

SPECIFICATIONS
(HP-12A original configuration)

General characteristics & performance
- Wingspan: 54 ft 8 in
- Empty weight: 500 lb
- Gross weight: 850 lb
- Wing Loading: 4.73 – 6.15 lb/ft²
- Airfoil: Wortmann FX61-163
- Fuselage Length: 22 ft 8 in

SPECIFICATIONS
(HP-12A final configuration)

General characteristics & performance
- Wingspan: 60.6 ft
- Wing area: 146 ft²
- Empty weight: 550 lb
- Gross weight: 950 lb
- Gross weight with ballast: 900 lb
- Airfoil: Wortmann FX61-163
- Fuselage Length: 22 ft 8 in

RICHARD H. JOHNSON, ENGINEER, PILOT, BUILDER

Dick Johnson (January 10, 1923-July 23, 2008) was a glider pilot, aeronautical engineer and prolific writer of articles for gliding magazines. He was an 11-time U.S. National Champion glider pilot, 9-time US Soaring Team pilot at the World Soaring Championships, held two World Gliding Records and is a member of the US Soaring Hall of Fame.

Dick was born in Medicine Hat, Alberta, Canada. He grew up in Los Altos, California, where he learned the basics of flight and aerodynamics as a model airplane and glider enthusiast. He won the California State Hand-Launched Model Glider Championship in 1937.

In 1938, wanting to graduate to full-size aircraft, Johnson read Wolf Hirth's book The Art of Soaring Flight. Using a second-hand Northrup primary glider he purchased and being carefully towed by brother Dave driving a 1931 Model A Ford, he taught himself how to fly. Over a period of several months, ground skims were gradually replaced by straight-ahead landings, S-turns, 180 degree turns, and finally 360 degree turn flights.

The following year Dick and Dave purchased a Bowlus Baby Albatross intermediate glider kit, and assembled it in their spare time over fall, winter and spring of 1940. With his brother's assistance, they built a wooden trailer for the Baby Albatross glider, and towed the glider 3,000 miles to Elmira, New York where he entered the 1940 U.S. National Gliding Championships at age 17. As a self-taught pilot Johnson had not been licensed prior to this time, so before entering the contest he received a Private Glider Pilot license at Elmira and obtained a legal registration for his home-built Albatross.

During the contest he earned his Silver C badge (badge #28), and placed 3rd overall in the contest.

By 1941 Johnson owned a Schweizer SGS 2-8 2-seat metal intermediate training glider, had received his Commercial Glider Pilot license and gave flight instruction during weekends on Rosamond Dry Lake in the Mojave Desert of California. At the start of World War II, the U.S. Government took possession of his glider through the War Powers
Act of 1941, and Johnson became a Civilian Glider Flight Instructor, training military glider pilots at 29 Palms Air Academy, California. Training was performed 24 hours a day, 7 days a week for 14 months, with Johnson flying two 6-hour shifts per day - one shift as a glider instructor and one shift as a tow plane pilot. After 14 months of training no additional glider pilots were needed and Johnson obtained a co-pilot position with Pan American World Airways, Pacific Division in Consolidated PBY-3, Martin 120, and Boeing 314 flying boats. He was later assigned to the Military Air Transport Service (MATS) flying PBM-3 and PB-2Y3s. Johnson remained active as the area wing commander of the World War II Glider Pilots Association into his 80s.

In 1952 Dick obtained a BS in Aeronautical Engineering from Mississippi State University in 1952. The following year he completed an MS in Aero Engineering from Stanford University. He was employed as an aeronautical engineer first at Chance Vought, then at Temco Aircraft from 1953 to 1961 before becoming Chief Aerodynamicist at Texas Instruments (TI) from 1961 to official retirement in 1993. He remained an active consultant to a variety of companies through 2008. His projects were:

- Paveway Laser Guided Bomb (LGB)- At TI in 1964 he was instrumental in developing the aeronautical solutions for the initial laser-guided bomb, the BOLT GBU-1, including the unique floating "birdie head" which provided a stable platform for the "smart bomb" guidance system. The "Bolt" was followed by the Paveway I and Paveway II family of laser-guided bombs.
- High Speed Anti-Radar Missile (HARM) 1973, involved in airframe development
- Javelin Anti-Tank Missile 1980, lead airframe development
- Joint Stand-Off Weapon (JSOW) unmanned military glider 1987, lead airframe development
- NLOS (Non Line of Sight) Weapon-lead airframe development
- Paveway III- GBU-24, GBU-27 and GBU-28 ("Bunker Buster")- lead airframe development

He posthumously received the Richard H. Johnson Technical Achievement Award from the Precision Strike Association at the PSA Technical Symposium in October 2009. This award was created in his name to recognize an individual from the public or private sector for outstanding personal technical achievement resulting in significant contribution to precision strike systems. The PSA's documentation for this award indicates that "Dick Johnson personally led the design or redesign of more precision strike airframes than any contemporary. In a number of conflicts over the past two decades, the majority of weapon airframes were Johnson's designs. His innovative designs, or copies of them, appear in nearly every nation's military where precision strike systems are employed."

THE HP-12 DESIGNER
Richard E. Schreder (9/25/1915-8/2/2002) was a successful designer and outstanding contest pilot, who designed, built and flew the HP-8 to win the US National Championships in 1958 and 1960. He was also responsible for the innovative HP-10, the HP-11, which placed third in the 1963 World Championships in Argentina, the well-known HP-14, and the HP-18. The HP-18 was one of the most-successful homebuilts in terms of the number completed and flown (about 50). Many badge legs were flown in this aircraft.

Dick Johnson said, "I personally believe that Dick’s gentlemanly flying, brilliant ideas, and low cost kit production for the U.S. gliding movement were, for twenty some years, the single most significant contribution to the American sport of soaring."

The museum’s HP-18 was featured in the November 2012 issue of our newsletter. The museum also has a very nice HP-11 in addition to the HP-20, his last design. His high-speed life is recounted in an amusing book, “10,000 Feet and Climbing,” written by his daughter, Karen Schreder Barbera.

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 Society of America’s Sailplane Directory 1974, Sailplane Directory 1997, multiple issues of Soaring magazine, and the online Wikipedia. Photos are by Bob Leonard and Kathy Taylor.
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