

The AEROMARINE-KLEMM SERIES

Conceived as a glider in Germany during restrictions on powered aircraft after World War I, the AKL series with their all-wood structures were built in U.S. for short time

by PETER M. BOWERS/ AOPA 54408

■ The Aeromarine-Klemm was one of the milestone American sportplanes of the late 1920's in that it was one of the first serious attempts to make a true and thoroughly proven light airplane available to the American public. Although it enjoyed a relatively short production life in the United States, the basic design had a long period of development behind it in Germany.

The compound name—Aeromarine-Klemm—resulted from an American firm choosing to produce the German design for the U.S. market.

Aeromarine Corporation was founded in 1908 and produced several experimental aircraft designs prior to World War I but did not enter actual production. After reorganizing in 1914 as the Aeromarine Plane and Motor Corporation, Keyport, N.J., the company produced training planes and engines for the U.S. Navy during World War I. It made a valiant effort to stay in business during the lean postwar years, but sold its last plane, a one-only custom flying boat, in 1924.

Although out of the airplane business, the firm kept going by using its engine know-how and metal fabricating facilities to build motor buses. In 1926, it became the Healey-Aeromarine Bus Company. A vestige of aeronautical activity was retained through the production of inertia starters for airplane engines and propellers for the Navy.

In 1928, a year after Lindbergh's transatlantic flight touched off the world-wide aviation boom, Aeromarine management decided the time was right to get back in the airplane business. Having been inactive in the field for several years, the firm did not have a competitive design available. To assemble an engineering staff, then design, test, and certificate an entirely new model would take time.

The quickest way to come up with a production model was to buy an established design and build it. Leading American designs for the personal airplane users of 1928 were still mostly in the big biplane class, with airplanes like the Waco, American Eagle, Eaglerock

and Travel Air using engines from the 90 h.p. war surplus Curtiss OX-5 on up. Contemporary monoplanes were mostly in the light transport class—big five-to-seven-place models of 220 h.p. and up like the Ryans, Travel Air 5000, and Lockheed "Vega." The age of the light airplane hadn't reached America yet, but Aeromarine could see it coming and took the necessary steps to help it along.

Since no proven lightplane was available in America at the time—possibly because of the lack of suitable domestic engines—Aeromarine looked to Europe, where true lightplanes had operated since shortly after World War I. The design chosen was the German Klemm Model L.25, an all-wood two-seater featuring quickly removable cantilever wings which could be hung on the side of the fuselage to simplify storage problems. However, the most notable feature of the Klemm when introduced in the United States was its low-wing configuration. The monoplane was just coming into its own in America, but the low-wing arrangement was a rarity.

Like Aeromarine, the German Klemm firm had a long background in aviation and a history of reorganization and renaming. During World War I, the Daimler-Werke A.G. (for Aktien Gesellschaft, or stockholder's company), located at Sindelfingen, Wurttemberg, was a leading manufacturer of German aircraft engines. By late 1918, it had developed a series of experimental military airplanes to the design of chief engineer H. Klemm but they came too late for military production. Before the Allied Control Commission shut down German aircraft plants after the war, Klemm found his L.11 fighter monoplane could be soared under certain conditions.

Intrigued with soaring flight potential, he designed and built in late 1919 a true glider, the single-seat Daimler L.15. While the glider was permitted in the authorized postwar glider movement resulting from restrictions on powered aircraft, it soon was shelved. It was revived in 1923, first as a glider, then as an airplane powered with a second-hand Harley-Davidson motorcycle engine. By late

1923, the former glider had been modified into a two-seat airplane.

Encouraged by success of the converted L.15, Klemm designed a new lightplane in 1924, the Daimler L.20. This was virtually a powered sailplane, with a 20 h.p. two-cylinder air-cooled Daimler-Mercedes engine and a wingspan of 42 feet seven inches. The L.20 was an all-wood two-seater with a low cantilever wing. The only unconventional feature, a carryover from the L.15, was use of pivoted wingtips instead of ailerons for lateral control.

The L.20 soon was refined into the Model L.25, still with the 20 h.p. engine and the pivoting wingtips, but conventional ailerons were added to the plywood covered wing. Twenty horsepower proved to be marginal for a practical airplane, and the Model L.25A was developed when the 40 h.p. French Salmson A.D.9, a nine-cylinder air-cooled radial engine, became available. The L.25A was a notable success and established Klemm's fame as a lightplane designer. With production concentrated on airplanes rather than engines, the firm was renamed Klemm-Daimler in 1927.

It was the L.25A which caught Aeromarine's interest after imported models appeared in the United States early in 1928. Following an agreement to manufacture the Klemm design at Keyport, the bus company again reorganized and became Aeromarine-Klemm Corporation in January 1929. Under the designation of AKL-25A, the American version received its Approved Type Certificate (ATC) in March 1929.

The AKL-25A at first was viewed with some suspicion by general aviation because of its all-wood construction which looked fragile and glider-like at a time when virtually all American production models had accepted steel tubing for at least the fuselage. Klemm's original structure evolved under European conditions of steel shortages and when wood and skilled woodworkers were available at low costs.

While the long wing span and light wing loading made the AKL-25A a satisfactory airplane by European standards, 40 h.p. wasn't enough for consistent American operations. Consequently, the Aeromarine-Klemm began adding horsepower.

Using many of the structural refinements of the later German L.26 model and some American features of its own, the next Aeromarine-Klemm—AKL-26—was a refinement of the AKL-25A featuring the new 60 h.p. American LeBlond five-cylinder radial engine. This model and the AKL-26A with its five additional horsepower, doubled fuel capacity and a higher gross weight, received ATC's Aug. 23, 1929. Since even this boost didn't satisfy customers who wanted still more power and performance, the AKL-26B model came out with an 85 h.p. LeBlond and was certificated in July 1930.

The 40 h.p. L.25A was operated as a seaplane in Germany but was too underpowered to be practical. The 85 h.p. of the AKL-25B made the added weight and drag of floats less of a handicap and seaplane versions became popular. Aero-



German Klemm L.25 with wings detached and stowed. Wing is plywood covered ahead of the rear spar for torsional stiffness. Fabric covered wingtip pivots to assist aileron function. Note large diameter of propeller on two-cylinder Daimler-Mercedes engine.



One of the earliest Aeromarine-Klemms, the AKL-26, with single cockpit for two occupants, wing tip skids, the pivoting wingtips, and wire wheels without brakes. Note wrinkling of the birch plywood used to cover the fuselage and vertical fin.

Photos by the author



The generous wingspan of the Aeromarine-Klemm made seaplane operation possible on very low horsepower. This is Aeromarine-Klemm AKL-26, also known as AKL-60, with 60 h.p. LeBlond, one of several small American engines introduced during the 1928 aviation boom.

Aeromarine-Klemm AKL-26A had five horsepower more than AKL-26 and carried more fuel at a higher gross weight. Among the refinements added to this 1929 version were the new Goodyear Airwheels and lighting for night flying.



marine built its own floats for these models and even tried an amphibious version. The desire for still more performance led to the adoption of such refinements as speed rings around the radial engine.

Unfortunately for Aeromarine-Klemm and other producers of private-owner aircraft at that time, a good product alone was not enough to keep the firm going during the economic depression after the 1929 stock market crash. Aeromarine-Klemm stayed afloat financially until late 1931 and produced and delivered a total of about 83 various AKL models. The demise of the firm found personnel and facilities reorganizing under the old name of Aeromarine Plane and Motor Company. It soon produced a new three-cylinder radial engine of 40-50 h.p. for lightplanes that gained little acceptance. Aeromarine again folded and its assets, including the Keyport plant, were acquired in 1935 by Burnelli Aircraft, Inc., (Vincent Burnelli was a vice president of Aeromarine-Klemm).

Burnelli continued production of the engine for a while but sold it to Lenape Aircraft and Motors, Inc., of Matawan, N.J. It thus survived for a while as the Lenape *Papoose* and saw service in some Piper J-3 *Cubs*, but eventually disappeared from the business scene.

The old Klemm design briefly reappeared in 1937 when another old-time designer, Horace Keane, modified it by using a Ford V-8 engine during the visionary Department of Commerce campaign to develop low-cost airplanes for the common man through the use of mass-produced automobile engines. The Keane vision never went beyond the prototype stage.

In Germany, Klemm survived the depression under the name of Leichtflugzeugbau Klemm G.m.b.H. (for Gesellschaft mit beschränkter Haftung, or Limited Corporation). He continued to develop new models. These followed the European preference for all-wood lightplane structures until the mid-1930s when steel tubing finally was adopted. The K.L.35, a direct descendant of the old L.20/25 series, became one of the standard primary trainers of the Luftwaffe in World War II. □

SPECIFICATIONS AND PERFORMANCE

	AKL-25A	AKL-26B
Span	40 ft. 2 in.	40 ft. 2 in.
Length	24 ft. 6 in.	23 ft. 6 in.
Height	6 ft. 6 in.	7 ft. 0 in.
Wing Area	210 sq. ft.	194 sq. ft.
Empty Weight	815 lbs.	1,016 lbs.
Gross Weight	1,325 lbs	1,581 lbs.
High Speed	85 m.p.h.	97 m.p.h.
Cruise Speed	75 m.p.h.	85 m.p.h.
Landing Speed	35 m.p.h.	40 m.p.h.
Rate of Climb	375 f.p.m.	750 f.p.m.
Service Ceiling	9,000 ft.	12,000 ft.
Range	325 mi.	385 mi.
Cost	\$3,500 reduced to \$3,350 in 1930	
	\$3,700	