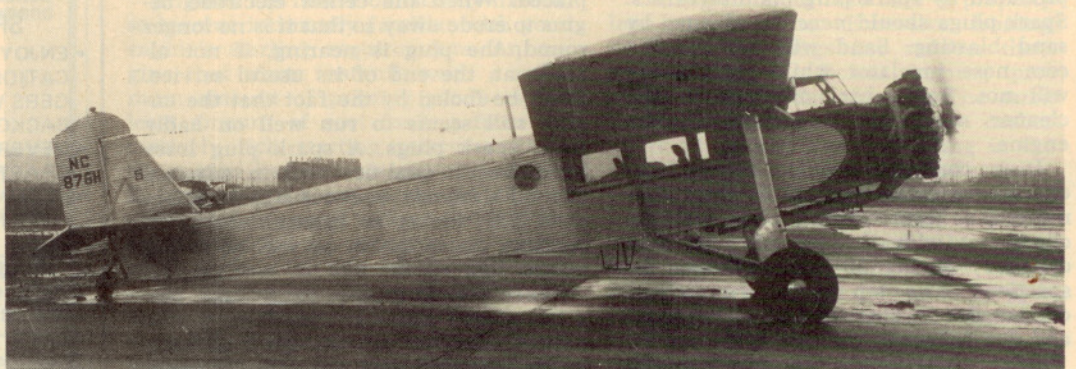




An H-47 photographed at Spokane, Wash., after Northwest Airways changed its name to Northwest Airlines. Photo by Bernard Schureman.



After their withdrawal from trunk airline operations, Hamiltons like this H-45 were used for freight and bush flying operations. This former Northwest Airlines airplane was acquired by Continental Air Freight. Photo by Gordon S. Williams.

# Yesterday's Wings

## The Hamilton Metalplanes

by PETER M. BOWERS / AOPA 54408


■ The name "Hamilton" today brings to mind the Hamilton-Standard propeller, a fixture of the industry since the early 1930s. This was not always so.

Back in 1926, the Hamilton Manufacturing Co. of Milwaukee, Wis., was a noted manufacturer of wooden airplane propellers and all-aluminum pontoons. From this base, it advanced to the building of airplanes in 1927.

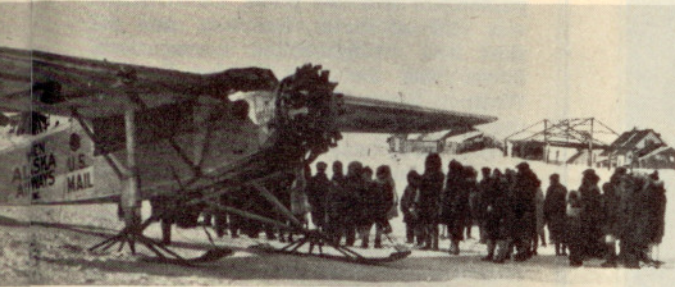
The first Hamilton airplane was an all-metal shoulder-wing monoplane powered by the 220-hp Wright J-5 Whirlwind engine. Designed by James S. McDonnell, later founder of McDonnell Aircraft Co. (which became McDonnell Douglas), this first model was intended to be a combined mail and passenger plane. As with some contemporary designs, consideration for the mail came first; the four-passenger cabin was something truly unique for the time.

Since the cantilever wing was thick, and the root occupied so much of the side area of the fuselage, there was no room for conventional cabin windows. Instead, transparent panels were installed in the lower wing root from the leading edge back to the rear spar to provide light and visibility for the passengers. The two pilots sat side-by-side at dual controls in an open cockpit nested into the leading edge of the wing.

Construction of the new monoplane, which was named Metalplane, was somewhat unorthodox in using an aluminum frame covered with sheet aluminum. The sheets were stiffened with beading that followed the longitudinal



The first Hamilton airplane of 1927 was identified publicly as the Metalplane; no model number was given. Note the transparent lower portion of the wing root that served as the cabin windows. Photo by Arthur Price.



The rugged construction of the Metalplanes suited them to Alaskan operations; this ski-equipped H-45 was used by Wien Alaska Airways. Photo courtesy Noel Wien.

### HAMILTON H-47

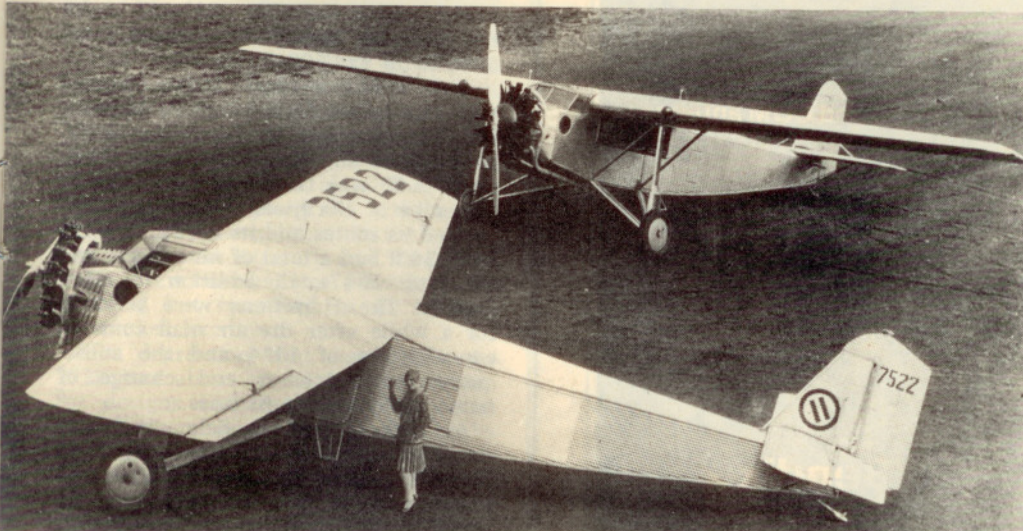
Data for Long-Wing version in parentheses

#### Specifications

Powerplant	Pratt & Whitney Hornet 525 hp @ 1,900 rpm
Span	54 ft 5 in (60 ft 5 in)
Length	34 ft 8 in
Area	387 sq ft (420 sq ft)
Empty weight	3,450 lb (3,699 lb)
Gross weight	5,750 lb (5,865 lb)

#### Performance

High speed	145 mph
Cruise speed	121 mph
Landing speed	52 mph
Initial climb	900 fpm
Service ceiling	15,000 ft
Range (140 gal)	600 mi



A pair of Hamilton H-47s in an early company publicity photo. The light-colored rectangle on the fuselage of the plane in the foreground is the background for the insignia of Universal Airlines, which had not yet been applied.

curves of the airplane instead of being parallel-rolled corrugations in the manner of the contemporary Ford Trimotor.

In spite of a second place in the 1927 Ford Reliability Tour and a good showing in the efficiency events associated with that year's National Air Races, the first Metalplane was a design without a market and remained a one-only machine. The wing span was 48 feet, five inches, the gross weight was 3,056 pounds, and the high speed was 120 mph. Few other figures are available.

The first Hamilton airplane to go into production, the H-45, was an entirely different concept developed by Professor John Ackerman. Again designed with combined mail and passenger operation in mind but with more consideration for the passengers this time, the H-45 was a conventional high-wing cabin monoplane with seating for six passengers and two pilots. Construction was still all metal, but this time the skin had straight-rolled corrugations. Power was the new 420-hp Pratt & Whitney Wasp that had just come on the commercial market.

The wing was full cantilever construction but short struts were used to stabilize it on the fuselage and relieve the stresses of uneven landing impacts, since the main landing gear legs attached to the front spar of the wing instead of to the fuselage. Cost of the new model, which was also marketed under the name of Metalplane, ranged from \$23,200 to \$24,500.

Two H-45s entered airline service with Northwest Airways on its Milwaukee-Chicago route in September 1928, well before the Approved Type Certificate A-85 was issued to the model in November. Northwest gradually expanded its routes and its fleet grew until by 1934 it had a total of nine H-45s and the later H-47s, in addition to other models. The Hamiltons were retained for a while after the air mail contract cancellations of 1934 and the subsequent reorganization and change of name to Northwest Airlines.

As with all new models, there was room for minor improvements; the H-45 got a three-foot, four-inch increase in wing span, a two-inch reduction in length, and a gross weight increase of 350 pounds. For most manufacturers, such changes would have resulted in a revised designation like H-45A, if not an

entirely new model number, but such was not the case with Hamilton; the ATC was merely revised to reflect the new figures.

The expansion of Northwest's routes through the Rockies and into the Pacific Northwest called for airplanes with more power. Hamilton met the requirement with the H-47, which was essentially the long-wing H-45 airframe fitted with the later 525-hp Pratt & Whitney Hornet engine. ATC-94 was issued in December 1928 to replace the lesser Memo Certificate 2-14 that had been issued in November. A seven-place sea-plane version of the H-47 was licensed under Memo 2-125 of September 1929, and several variants using the 525-hp Wright Cyclone engine were licensed under Memo 2-129 of February 1929.

The H-47 then underwent the same kind of changes that had been made to the H-45; the span was increased by six feet and the gross weight went up by 115 pounds, again with no designation change. The basic difference between the two models was supposedly the Wasp engine in the H-45, but FAA records show that some H-47s were fitted with Wasps and retained their H-47 designations. The H-47 Metalplanes cost between \$24,500 and \$26,000.

While the Metalplanes did a good job on the airlines, they were forced out of the business by legislation that banned single-engine models from passenger-carrying on most trunk airline operations. This bit of paperwork diverted the Hamiltons and some other single-engine airliners into the bush-flying business, with Alaska the final area of operations for the Hamiltons.

After getting into production on the H-45 and H-47 models, the company became the Hamilton Metalplane Div. of the Boeing Airplane Co. in February 1929. When Boeing joined in the formation of United Aircraft and Transport Corp. a few months later, Hamilton was included but remained in its original Milwaukee location.

The depression that started late in 1929 just about wiped out the market for designs like the Metalplane, and Hamilton ended airplane production in 1931. The propeller business continued, however; after a merger with the Standard Steel Propeller Co., the combined firm became known as Hamilton Standard and is still a part of United Aircraft, which has since been renamed United Technologies. □