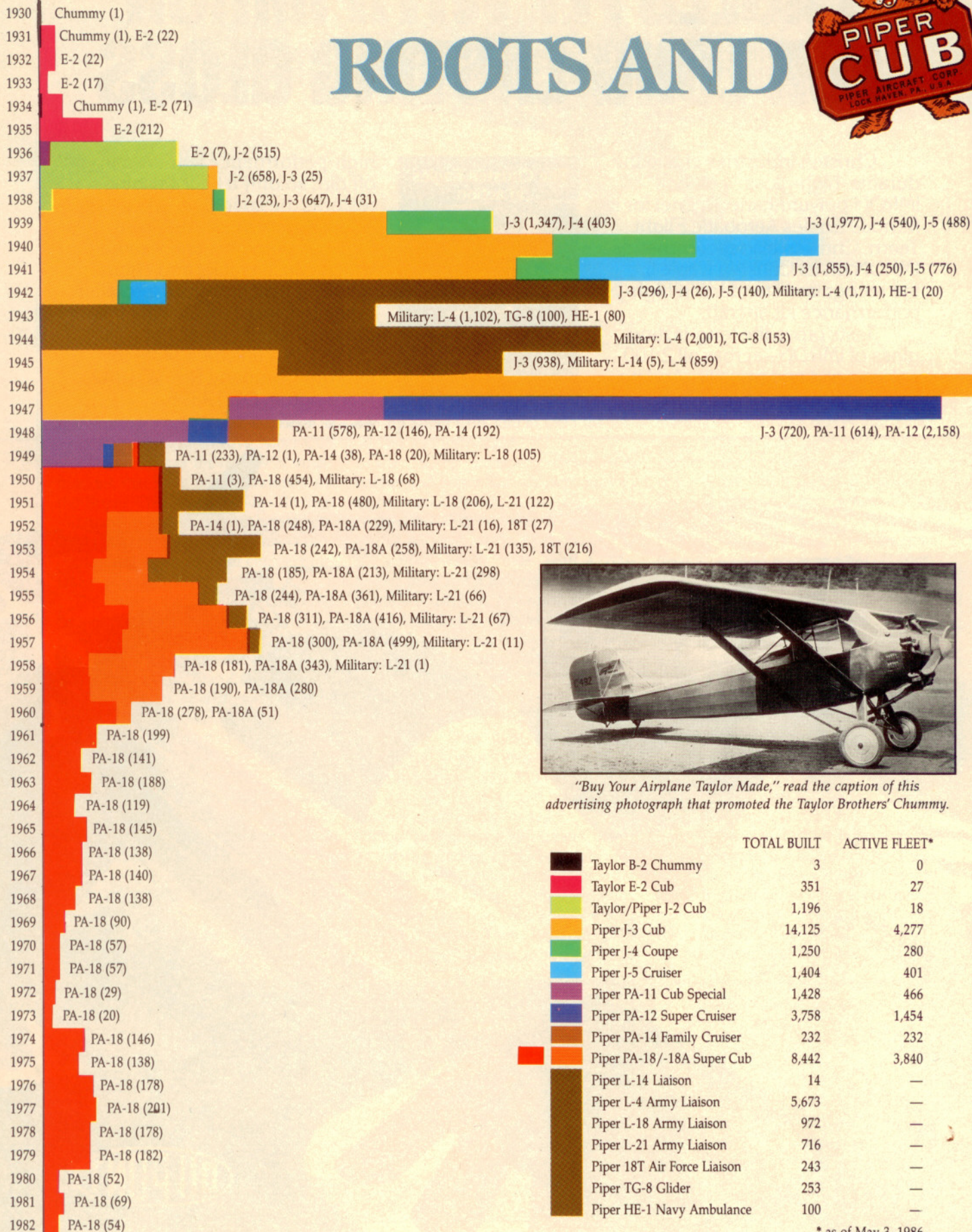




# ROOTS AND



"Buy Your Airplane Taylor Made," read the caption of this advertising photograph that promoted the Taylor Brothers' Chummy.

	TOTAL BUILT	ACTIVE FLEET*
Taylor B-2 Chummy	3	0
Taylor E-2 Cub	351	27
Taylor/Piper J-2 Cub	1,196	18
Piper J-3 Cub	14,125	4,277
Piper J-4 Coupe	1,250	280
Piper J-5 Cruiser	1,404	401
Piper PA-11 Cub Special	1,428	466
Piper PA-12 Super Cruiser	3,758	1,454
Piper PA-14 Family Cruiser	232	232
Piper PA-18/-18A Super Cub	8,442	3,840
Piper L-14 Liaison	14	—
Piper L-4 Army Liaison	5,673	—
Piper L-18 Army Liaison	972	—
Piper L-21 Army Liaison	716	—
Piper 18T Air Force Liaison	243	—
Piper TG-8 Glider	253	—
Piper HE-1 Navy Ambulance	100	—

\* as of May 3, 1986

# OFFSHOOTS



*This 37-hp Taylor E-2 Cub's square tail and open cockpit were reminiscent of the Chummy's. In 1935, the cockpit was enclosed.*



*The J-2's wing tips and tail surfaces were streamlined and the Continental A-40 engine improved, but the old tail skid remained.*

## Mr. Taylor's Cubs

BY PETER M. BOWERS

*(The following is a condensation of an article which originally appeared in the October 1971 issue of AOPA Pilot.)*

The name "Piper Cub" is one of the best-known in American aviation. From before World War II until the middle 1950s, it was a collective term used to identify light airplanes as a class. To a whole generation of Americans not really close to the scene, any small airplane was a Cub.

The associated word is usually "Piper," but once in a while the words "Taylor Cub" appear. It so happens that the same airplane was built by two different firms.

It all started in the middle 1920s, when two brothers, C. Gilbert Taylor and Gordon Taylor, formed Taylor Brothers Aircraft Corporation in Rochester, New York. They designed a two-seat, side-by-side, parasol monoplane called the Taylor Chummy, but even in the aviation boom years of 1928 and 1929 they had difficulty building and selling it. After Gordon died in 1928, C. Gilbert moved the firm to a new plant in Bradford, Pennsylvania. In the process of resettling there, he met William T. Piper, a local oilfield developer, who, with a partner, invested \$800 in the small company and became a director.

By the time the relocated plant was ready for business, the Depression had arrived and wiped out the market for airplanes like the Chummy. Taylor and Piper decided that their future lay with small ultralight types, and Taylor set out to design one. Within 30 days he had developed the basic design of the immortal Cub.

This was a real bare-minimum airplane. Another parasol monoplane, it was essentially a scaled-down Chummy, the major difference being that the seating was tandem in

a single cockpit instead of side-by-side. While side-by-side seating would have simplified the balance problem between solo and dual flight, always a problem in small airplanes, the necessarily wide fuselage would not have been compatible with the chosen powerplant and its small propeller. Although 975 pounds lighter than the Chummy, the new model had a greater wingspan and more wing area. A self-taught engineer, Taylor was sharp enough to realize that good flight characteristics with low power required light wing loading and an efficient high-aspect-ratio wing. As a result, the new design could almost be considered a powered glider.

Since the wing was close to the fuselage, there was no room to climb into the cockpit over the top of the fuselage in the traditional way. The larger Chummy had used a conventional door opposite the seat, but the new model used a unique variation, a long narrow door that spanned both tandem seats and hinged downward on the right side of the fuselage instead of forward. The scant instrumentation was all on the single instrument panel ahead of the front seat (solo flight was from the rear seat). Of course, there were no brakes, and tailwheels were as yet a rarity on light airplanes.

The fuselage and tail were built up of welded steel tubing, while the wing used two wooden spars and ribs that were built up

from strip aluminum formed into a T-section. The airfoil was the USA 35-B. Except for a post-World War II switch to metal spars, this construction was continued on subsequent Cub models. (Piper later used the USA 35-B wing cross-section on the Aztec twin and the Pawnee agplane.)

The original powerplant was the 20-hp Brownbach Kitten, a two-cylinder, two-cycle, air-cooled design that could not quite get the airplane off the ground with the pilot along. It was quickly replaced with a 40-hp French Salmson A. D. 9, a well-known nine-cylinder baby radial. The Salmson engine made a fine little airplane out of the Cub, by contemporary standards, but it had problems of its own. Its foreign origin, plus the fact that it was out of production at the time, precluded its use on a production American airplane. As an alternate, therefore, Taylor installed the new Continental A-40, an air-cooled, flat-four engine that was itself the originator of a famous line. The single-ignition A-40, generally referred to in later years as the "40-horse Continental," actually delivered only 37 horsepower. Not until later models adopted dual ignition did the A-40 deliver 40 horsepower. Fitted with the A-40, the Cub was given the Taylor model designation of E-2. Approved Type Certificate (ATC) Number 455 was issued in November 1931.

Before production of the Cub got under-



*Compare the J-3's balanced rudder with that of the J-2. Floats became a popular option.*



The PA-11 Cub Special resembled the J-3 but had a 90-hp engine and 18-gallon wing tank and could be soloed from the front seat.



The three-seat PA-12 Super Cruiser and four-seat PA-14 Family Cruiser were otherwise similar. William T. Piper Sr. is on left.



90-hp Super Cubs lacked the flaps and balanced elevators of the 150-hp version; tiny '95' on tail refers to the model: PA-18-95.



The L-21 was a 125-hp military Super Cub with oversized rear windows. Note the tandem landing gear for rough-field operations.

way, Taylor Brothers Aircraft went bankrupt, another victim of the Depression. Piper purchased the assets and reorganized the firm as the Taylor Aircraft Company with Taylor as president and himself as secretary-treasurer.

As was customary with many production airplanes of the period, the Cub was offered with alternate engines. The F-2 model (ATC 525) used the Aeromarine AR-3-40, a 40-horsepower, three-cylinder radial that later became the Lenape "Papoose." The H-2 (ATC 572) used the three-cylinder, 40-horsepower Szekely SR-3-40 radial. Taylor even tried an engine of his own design in a G-2 model, but this never got out of the experimental stage. Sales of the Cub variants were minor and are not separated from E-2 sales in company figures.

The year 1935 saw changes both in the Cub and the company. Since the competition was introducing *bona fide* cabin models, Taylor enclosed the cockpit of the E-2 with a light framework and plastic windows, an easy adaptation since the single windshield already fitted between the fuselage and the wing. The access problem was resolved by matching the hinge-down door with a hinge-up window. Sales of the E-2 reached 212 in 1935 and ended with seven in 1936.

Also in 1935, Piper bought out Taylor and became president of the company. Taylor departed and formed a new company in 1936. Piper soon stepped out of the presidency and T.V. Wold became president.

As the E-2 was phased out in 1936, a new Cub model was introduced and was actually advertised for a while as the New Cub. This was the J-2 (ATC 595), which was basically a refined E-2. The aft fuselage superstructure

was raised to the wing to produce a true cabin design, but the up-and-down window-door combination was retained. The overall appearance was changed greatly by rounding off the wingtips and horizontal stabilizer and installing an entirely new fin-rudder combination. The clean-up so improved the performance that with the same A-40 engine the J-2 could operate on floats. Land gear was still the old tailskid and brakeless wheels.

A feature the J-2 carried over from some late E-2s was a removable engine mount, but this did not mean that optional engines were offered. Actually, the feature frustrated some latter-day owners who hoped to be able to install 65-hp Continental engines in their J-2s. The removable mount should have made that job easy, but it could not be done. It turns out that the J-2 fuselage just could not take the extra weight and power—it was not built of SAE 4130 tubing, so FAA engineering would not buy a power increase.

The J-2 was just the right airplane at the right time and easily maintained and increased the E-2's lead in lightplane sales. Although Taylor was out of the company when the J-2 appeared, the company still had the same name, and the airplanes were still "Taylor Cubs." The end of the Taylor Aircraft Company came in 1937, when the Bradford factory burned down. The company was reorganized as the Piper Aircraft Corporation in Lock Haven, Pennsylvania. The 1936 models were all Taylors, but it cannot be determined how many of the J-2s built in 1937 were Taylor Cubs and how many were Piper Cubs, built by the successor organization. The last J-2s were built in 1938, already overshadowed by their successor, the J-3. □

### For Further Reading:

For more information on the Piper J-3 Cub, its forebears and descendants, see the following AOPA Pilot articles:

- Taylor Chummy, E-2 Cub: "Birth of the Cub," May 1964; "Yesterday's Wings: Mr. Taylor's Cubs," October 1971
- Piper J-2/-3 Cub: "A Dream Plane Becomes a Reality," June 1959; "How to Succeed With a J-3," December 1979; "Legally Speaking: Which is the real Cub?" October 1983; "These Planes Scored High in '39," May 1959; "A Visit With an Old Friend," March 1965; "Yes, Ma'am, This Here's One of Them Piper Cubs," December 1979; "Yesterday's Wings: Mr. Piper's Cubs," November 1971
- Piper PA-12 Super Cruiser: "For the Love of 3492 Mike," September 1961
- Piper PA-14 Family Cruiser: "Economy STOL—The 'Super PA-14'," August 1972
- Piper PA-18 Super Cub: "Commuter Cub," January 1985; "Flying Missionary of Yucatan," November 1958; "Pilot Flight Check: The Piper Super Cub," July 1975; "Yankee Duster in Latin America," March 1958; "Yellowbird One," November 1966

The following books are also of interest:

- Aviation and Pennsylvania.* Frank Kingston Smith; James P. Harrington. The Franklin Institute Press, Philadelphia, Pennsylvania, 1981.
- Jeeps in the Sky.* Andrew Ten Eyck. Commonwealth Books, New York, New York, 1946.
- Mr. Piper and His Cubs.* Devon Francis. The Iowa State University Press, Ames, Iowa, 1973.
- Operation Grasshopper.* Dario Politella. Robert R. Longo Company, Wichita, Kansas, 1958.
- The Piper Cub Story.* James M. Triggs. Tab Books, Blue Ridge Summit, Pennsylvania, 1978.
- The Putt-Putt Air Force.* Patricia Strickland. U. S. Department of Transportation, Federal Aviation Administration, 1971. □