

# STEARMAN PT-17



Stearman PT-17 by Burnis Fields at the 1987 QSA Meet.



MORE WORLD WAR II ACES WERE TRAINED IN THE STEARMAN/BOEING PT-17 THAN IN ANY OTHER AIRCRAFT | BY NORM GOYER

Throughout the course of aviation history, only a few aircraft could ever be classified as being true classics in their category. There's no question that the J-3 Cub is considered to be one of the best CIVILIAN trainers ever built; and the North American AT-6 enjoys a reputation as the undisputed leader in ADVANCED MILITARY training aircraft; but of the PRIMARY MILITARY Trainers, the very best was the Stearman PT-17, affectionately nicknamed the "Kaydet," and it was built in great numbers.

Because of its name, everybody supposes this great trainer was built by Stearman, but many of them were also built by Boeing. Actually, when the bulk of the PT-17s were being manufactured, both the Stearman and the Boeing Aircraft Companies were owned by the giant conglomerate, United Aircraft (who, by the way, also owned Pratt & Whitney AND Hamilton Standard). This condition became even more confusing when, in 1939, Stearman became the Wichita (Kansas) Division of Boeing Aircraft. So, in reality, all those beautiful Stearman PT-17s are really Boeing PT-17s. (Kind of bursts your bubble, doesn't it?)

How did it all start? The story of Lloyd Stearman and his beautiful biplanes goes back to 1927 when his first aircraft, the C-1 Model was constructed in Venice, California. Even before that, in the early 1920s, Stearman, along with Walter Beech and Clyde Cessna, had already been one of the major designers of the famous Travel Air Series of aircraft. When the value of Stearman's excellent small biplanes became recognized, the flood of orders forced him to move to larger accommodations in Wichita, Kansas. For several years there, Stearman was kept busy, building rugged C-2 and C-3 single-seat



biplanes for Varney, who had a government contract to carry the mail.

Then, in 1931, United Aircraft merged Stearman's company with Northrop in Burbank, California, so back he came. You should remember that, back in the twenties and thirties, only a handful of men were responsible for the majority of aircraft companies and designs, and things could change very quickly.

Production of the Stearman Model 75, as the company referred to the PT-17, continued, and when war clouds gathered over Europe in the late thirties, it increased rapidly. The PT-17 was one of the first training aircraft of which both the Army and the Navy had identical models; the PT-13D/N2S-5s were the first identical, dual-service aircraft. The Navy promptly placed a covered canopy on its Stearman, setting them apart once again.

There were many versions of these biplane trainers; those with the Lycoming 220 engines were called PT-13s, and those with the Continental R-670 220 HP engines were designated PT-17s. Although, on the surface, it may sound confusing, there was definite order in the different names: PT-17, PT-13, N-2 S, Stearman 75, Boeing 75, although they were essentially the very same aircraft, and an excellent biplane.

Why had the Army Air Force and the Navy insisted that their pilots be trained in biplanes? Perhaps it was because those who were buying the airplanes for the government had themselves been trained in biplanes, but a better guess is that their statistics showed that the largest number of BEST pilots to come out of the armed forces' Basic and Advanced Flight Training Programs had been trained in Stearmans.

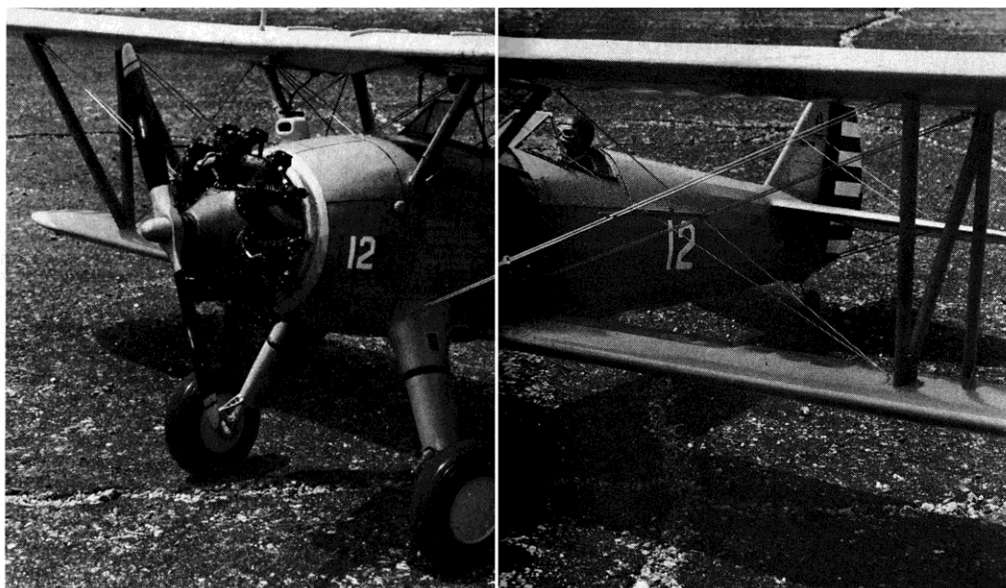
During the early phases of World War II, the majority of primary aircraft in use were PT-17s, PT-22s, PT-19s, PT-23s, and PT-26s. The later were all Fairchild low-wing, wooden-wing trainers with different engines in them.

The PT-22s were very poor primary trainers which didn't fly like other aircraft . . . they were under-powered, overweight, highly unreliable aircraft which were responsible for the demise of several primary students before they were rapidly phased out of the program.

On the other hand, the Fairchilds were a delight to fly, but for a trainer, they were too forgiving; and even when the student really messed up, the aircraft would save his neck by righting itself. In fact, it was almost impossible to make a bad landing with a Fairchild PT-19, and consequently, a large number of under-qualified students sailed through the system, only to wreck the more expensive airplanes in the Basic and Advanced programs. (For example, if a modeler were to learn to fly with a SIG Kadet, a very nice easy-to-fly aircraft, then attempt to fly a Kaos pattern ship right away, he could be in a heap of trouble, and he'd undoubtedly crash the plane.)

In the military, the Vultee BT-13 was used for Basic Training, and Advanced Training was taught in the AT-6; both extremely non-forgiving military-type aircraft which required that the pilot have a firm grip on the realities of aircraft control, and that he fully understand and be prepared to cope with the consequences of the lack thereof.

The PT-17s had everything needed to weed out any potentially marginal military pilots in very few hours. The student flew the Kaydet with its two wings, attached to its barrel-shaped fuselage, from the rear cockpit, and visibility was horrible. The aircraft's wide cockpit and radial engine made it almost impossible to see over the nose, but it taught the student to fly by whatever horizontal references were available, and the Stearman's large wing area, coupled with its low horsepower, made the student learn to fly the wing, rather than the engine. Additionally, the limited number of instruments taught the student to fly by the feel and sounds of his aircraft





**Our own Army and Navy, as well as a large number of other countries, used the trusty Stearman in their service, so there are a wide variety of paint schemes and decorations available to make your Stearman different from the "other guy's," should you so desire. Full-size plans are available from Nick Zirolì, 29 Edgar Drive, Smithtown, New York 11787, USA, Phone (516) 234-5038.**

throughout the duration of World War II.

The popularity of the PT-17s did not end with the war, however. As soon as they were de-commissioned, the very rugged biplanes were put to work as crop dusters, sprayers, and aerobatic airshow aircraft. Pilots who used theirs for aerial applications removed the Continental and Lycoming engines, and installed big Pratt & Whitney 450s from the huge supply of them in surplus Twin Beech C-45s, AT-11s, and BT-13s. For many years, just about every duster airstrip had a huge "boneyard" of discarded warbird airframes, stripped for their larger engines, and surplus PT-17s and some Navy N-3Ns were used for several decades in the rugged duster business, until the more efficient Pawnees, AgTrucks and other special-purpose duster aircraft were produced. Then the boneyards in the back of duster strips grew even higher with the discarded frames of the PT-17s.

The unique PT-17 wasn't finished yet, though. Airshow performers built Super Stearmans, with ailerons on both wings, powered by 450 and 600 Pratts, and decorated them with checkerboard designs to thrill and delight airshow crowds all over the country; some even carrying daredevil wing-walkers, performing death-defying feats, for added excitement.

But the latest purpose of the Stearman is probably the best yet . . . to be patiently and carefully restored to its origi-



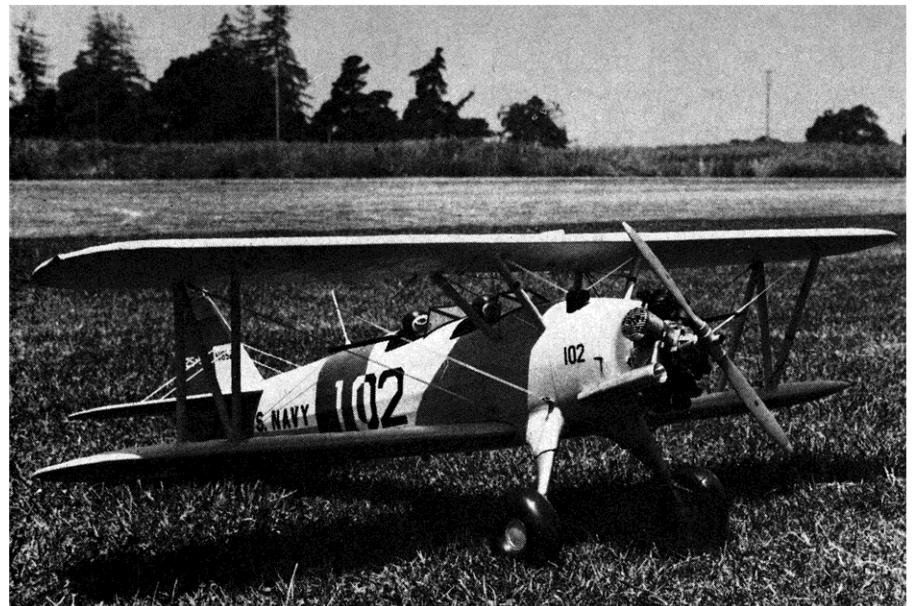
in flight, while very poor ability to communicate with the instructor placed great responsibility on the student to learn by actually trying the controls himself, and by the example rather than the words of the instructor.

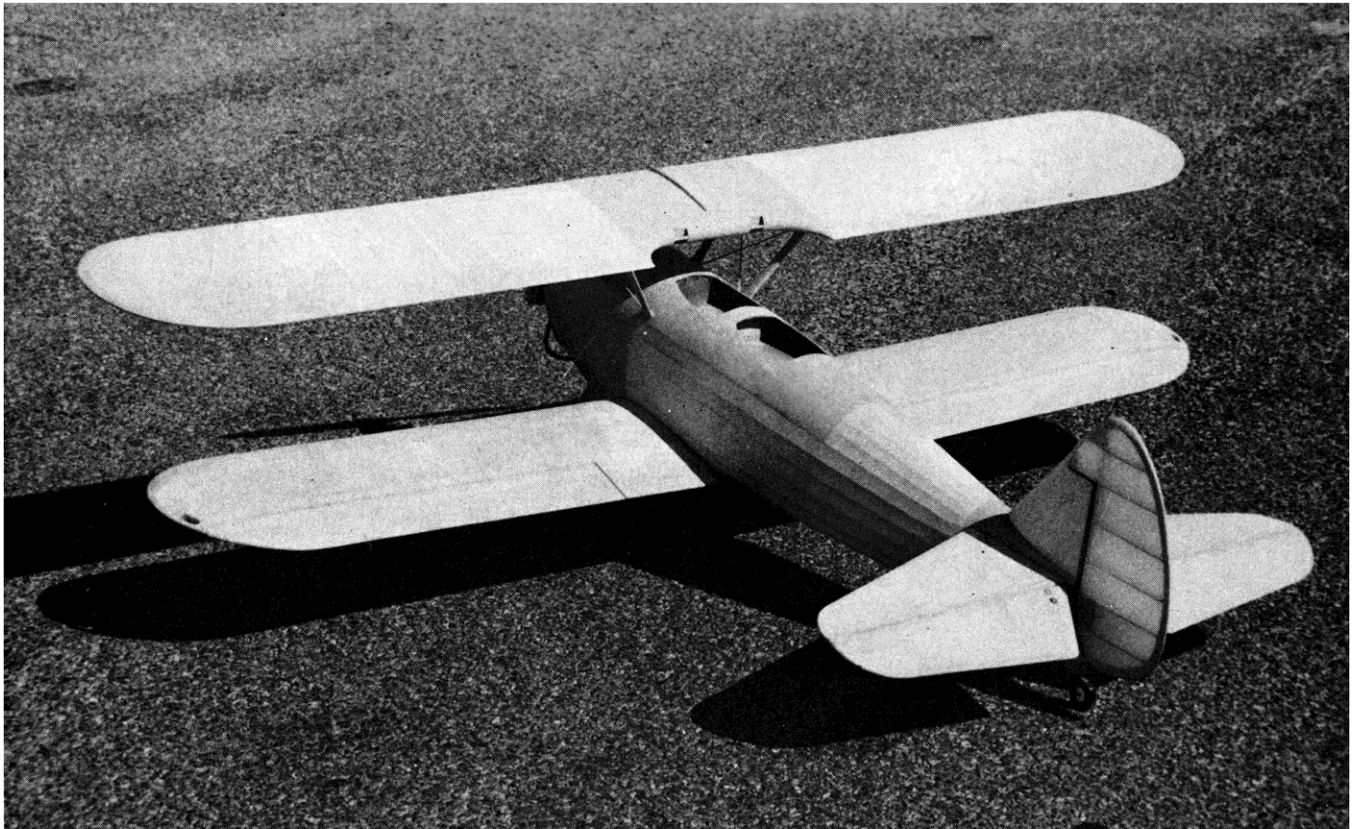
Landings and take-offs were difficult because of the narrow gear and high center of gravity, so the student quickly learned what the rudder and brakes were designed to do. The PT-17 is capable of many aerobatic maneuvers, including spins, loops, rolls and snap maneuvers, but because of the aircraft's relative lack of horsepower, the student was taught to FLY the aircraft through the loop or roll, rather than let horsepower pull it through.

One of the big advantages of learning to fly the Stearman was its ability to absorb an amazingly hard crash, and still protect the instructor and/or the student. Its wooden wings and chromoly fuselage would soak up the impact, and its structure would crumble, rather than the bones of its occupants.

Learning to overcome the Stearman's "faults" turned students into very good pilots, and as they met all the difficulties which were encountered by them with the

PT-17 and the even more challenging ones in the BT-13s and AT-6s, flight instructors soon realized that the Boeing/Stearman Kaydets were just about the best primary training aircraft ever built. So, the Air Force and the Navy Air Corps used them





nal Army or Navy colors, then lovingly maintained and flown to airshows where a white-haired gentleman could take his little one up and show him: "Here's the airplane Grandpa learned to fly, during the big one." Let's be glad someone cares enough about those beautiful

biplanes that this is possible.

I can never look at a Stearman without remembering an incident which took place many years ago at my home field in Northampton, Massachusetts. A pilot friend of mine, Bob Gardner, who was never seen without a 12-inch cigar in his

mouth, had sold another pilot a Stearman, and the new owner of the biplane wanted Bob to go for a ride with him in his "new" airplane. The pilot climbed into the rear cockpit, and Bob obligingly got in the front cockpit. The new owner start-

*(Continued on page 70)*



ed the engine and took off, but his climb was too steep and he stalled the big biplane which promptly rolled over and plunged into the side of the small dike at the end of the runway, landing upside down, with its wings crumpled all over the fuselage. We'd been watching this all happen, so we jumped in a truck and raced to the crash scene to do what we could to help. Well, the pilot had already climbed out of the wreckage, and was standing by the aircraft, pointing frantically to his passenger, Bob, who was still in the front seat. When we got there, we saw that Bob had turned blue, and we thought sure that he had been really hurt. Suddenly, we saw him move . . . he was pointing to his mouth. Then it dawned on us . . . Bob was choking on his 12-inch cigar. We thumped him on the back to dislodge it, fished it out of his mouth, loosened his safety belt, and he fell out on his head. No damage. But make no mistake about it, the trusty Kaydet had saved the lives of two more airmen.

The Stearman PT-17 is one of the great aeronautical anachronisms of all time. By today's standards, it's considered a real antique, but even when it was first built by the thousands, during its prime, it was thought of as an antique. By the time production eventually ended, late in 1944, the amazing number of 10,346 Stearman PT-17s had been built.

Those qualities which make the PT-17 so safe to fly, also make it a rather difficult model to build. Its rounded fuselage requires a box sub-structure, with shaping formers and stringers. The radial engine is out in the open, so a great deal of work is needed to build a scale replica engine around the "real" powerplant . . . no easy task. The biplane's wings have lots and lots of wing ribs, struts, wire bracing, and rib stitching. Building a PT-17 can be a

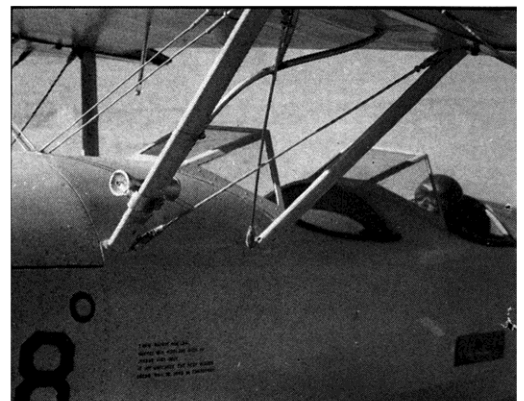
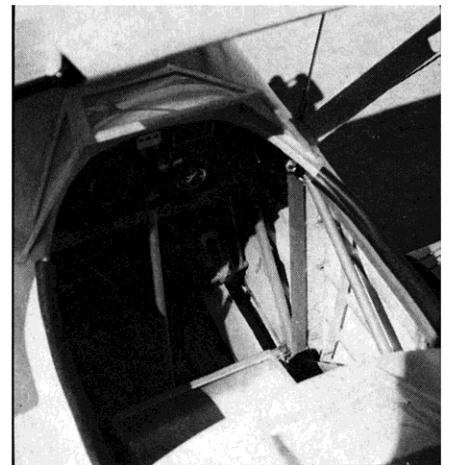
really long-term construction project, they're so beautiful, and fly so gracefully that it's certainly worth it.

At just about every contest I've attended this past year, I've seen several outstanding examples of Stearmans. There have been many plans and models of PT-17s published and produced, including one of the first large-scale R/C ships by Sterling. Royal markets several versions of this popular World War II trainer, as do several other model manufacturers.

One of the best-flying versions of the PT-17 is built from plans by Nick Zirol, presented by *Scale R/C Modeler* in this issue. In total contrast, from our Air Trails collection of historic models, we are reprinting the original Mad Man Yates Controline Champion Kaydet.

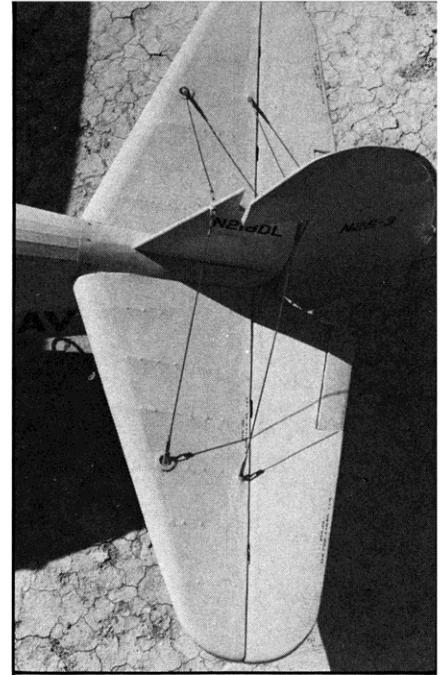
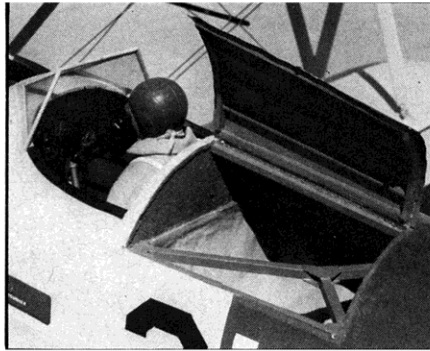
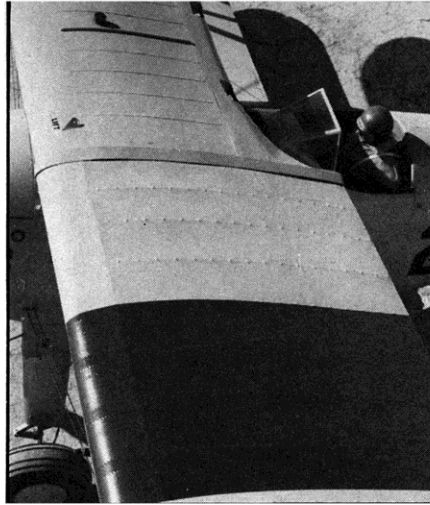
Photographs illustrating this article are of PT-17s, recently "captured" on film at the QSAA Meet in Las Vegas, modeled by Burnis Field, from Barron Plans. Godfrey also puts out large-scale plans for this Stearman, but modelers should watch for flexing of the wings on this version because of its dowel spars which can twist and bend.

At the Scale Masters Tournament, also held in Las Vegas this year, we saw an excellent Super Stearman, owned and flown by a gentleman from Dallas, Texas, who also owns the matching full-scale ship! This expert builder elected to model his aircraft after a Super Stearman, which eliminates the engine detailing, but increases the roll rate, because of the presence of upper and lower ailerons. The aircraft was a great flyer. ●



◀ The Stearman has an abundance of small details which add to the fun of building a good scale model.

Cowling, gas gauge, and forward metal panels all contribute to the distinctive Stearman look. ▼



Be careful while working around the tail section, in order to preserve the unique mounting of the tail surfaces and the tail wheel.

◀ This model by Burnis Fields is equipped with a well-detailed cockpit and baggage compartment.