

**Model Number :** VE-7

**Model Name :** Bluebird

**Model Type:** Advanced Trainer

The VE-7 was a two-place, tractor biplane, advanced trainer. In response to a government request for an advanced training aircraft, Vought built a number of VE-7's for test, the first being delivered on February 11, 1918. As a result, in May 1918, the Signal Corps ordered 14 VE-7 airplanes. The Navy eventually ordered 60, one of which was a VE-7SF, which made the first takeoff from America's first aircraft carrier, USS Langley, on October 17, 1922.

After highly successful tests at Hazelhurst Field, the VE-7 was shipped, along with several duplicates, to the Airplane Engineering Department, McCook Field, Dayton, Ohio, for official flight and mechanical tests under the supervision of foreign and American aircraft officials, who were all unanimous in praise of the machine and its exceptional qualities.

Then in March of 1918, the airplane was extensively tested in open government competition with seven other makes. It was given the topmost recommendation that the VE-7 be procured immediately to replace several existing types then in rating by the official Test Board, with the additional use for training. The official report stated that *"If the VE-7's were to be used for all training (primary and advanced), a saving of time would result as the student would be capable of at once handling a service-type machine without having to be put through the stepping-up process, as is at present the case."*



The VE-7 received high praise from many ranking and influential officers. Lt. Col. Virginius E. Clark declared the VE-7 as the finest training airplane yet produced and the only one designed as a sensible production machine. Brig. Gen. Billy Mitchell said *"this Vought machine, a training type, has all of the air qualities of the single-seater and will out-maneuver the French Spad, Nieuport, and the English SE-5."* Officers of the English, French, and Italian Aviation Missions were equally unanimous in the choice.

The Bureau of Aircraft briefly considered building the VE-7 as a fighter. Two designs were promulgated: the VE-7A, a short-range fighter, and the VE-7B, a long-range version with a machine gun mounted on the fuselage behind the aft cockpit. However, the decision to stay with the already proven European fighters was locked in, and the VE-7 was developed purely as an advanced trainer.

Common sense and simplicity were key terms used in describing the VE-7. It was the first airplane to be extensively flight tested and stress analyzed by the U.S. Army and proved to be the most uniform design sand-bag-tested up to that time. Reports commended it highly on mechanical, flight and maintenance features. Aside from its excellent performance, it was beautiful to behold, with a finish that rivaled the finest automobile and smart, blue trim, earning it the nickname, "Bluebird."



The reports on the VE-7 represent the few surviving records of such tests conducted on an aircraft of the World War I era. They were prepared under the able direction of Lt. Alexander Klemin, USA. Professor Klemin established the fundamental criteria for

stress analysis of aircraft which became the basis of procedure for all succeeding tests performed by the U.S. military services. The following excerpts from the VE-7 tests are of interest:

*“No changes from the basic design are recommended, and the wing truss is perfectly satisfactory from a structural point of view.*

*“For flying qualities, this is the finest handling ship I ever flew.”*

As a result of the flight tests and comparison with other manufacturers’ planes, the Army awarded Lewis & Vought the contract to build its VE-7 “Bluebird.”

<b>Dimensions</b>	
Wingspan	34.29 ft
Overall Length	24.17 ft
Height	8.58 ft
<b>Weights and Capacities</b>	
Empty Weight	
Gross Weight	1937 lb
Useful Load	545 lb
Fuel Capacity	
Oil Capacity	2.8 gal
<b>Powerplant Characteristics</b>	
Type: Wright E-2	
Rating	150 hp 180 hp (1919)
Displacement	
Weight	
Size (length X diameter)	
<b>Performance</b>	
Maximum Speed, Sea Level	106 mph
Landing Speed, Sea Level	48 mph
Stall Speed, Sea Level	
Initial Rate-of-Climb	1176 ft/min
Cruise Speed, Sea Level	
Range at Cruise Speed	
Service Ceiling	18500 ft
Absolute Ceiling	20000 ft
<b>Crew: 2</b>	

<b>Armament:</b>

## **VE-7 Bluebird: The Aircraft That Got a Company off the Ground**

When Chance M. Vought started pursuing his company's first Army contract, he already had the idea for an airplane that would surpass the Wright-Martin V, the VE-7 Bluebird. It was here that Chance Vought's engineering genius became visible. Barely 91 days after he secured the contract, he delivered the first VE-7 Bluebird to the government for test on February 11, 1918.



By contrast, Vought's latter jets (i.e., F8/A7) took about 4 years from company contract to military initial operational capability (IOC). However, today's more complex jets (i.e., F22) are anticipated to reach IOC about 14/15 years from contract initiation.

Production methods were expedient, with component sections like the fuselage and wings completed in the loft, lowered by rope and pulley through a removable window and assembled on the street below. After the Hispano Suiza 150-hp engine was installed, it was run up with the airplane's tail tied to a telephone pole. Next, it was trucked 25 miles to Hazelhurst Field to enter an Army Signal Corps competition against some large American companies for a contract. The contract was to build an advanced trainer to replace Curtiss Jennies, Standard, Thomas-Morse and other aircraft. The little biplane, with the words "Aeroplanes Vought" painted on its tail, was Vought's hopeful offering in the direction of a military contract.



In May 1918, the Signal Corps ordered a paltry 14 VE-7's from Vought. It was the policy in those days, when a company submitted a winning design, that the government purchased the plans and rights to build the aircraft as they chose. Consequently, while Vought was building its VE-7's, the Aircraft Division at McCook Field was able to build two of their own. It was also policy to place quantity production contracts with companies other than those who developed winning designs (low bidders). In late October 1918, Gen. William L. Kenly, Chief of the newly formed Department of Military Aeronautics of the Army, placed an order for 1,000 VE-7's with two other companies. The Springfield Aircraft Corporation, Springfield Massachusetts, which like the Lewis & Vought Corporation had been organized only the previous year, received a contract for 500. The order for the remaining 500 was placed with the Sturtevant Aeroplane Company, Jamaica Plains, Massachusetts. Four days later, Gen. Kenly recommended that the order be increased to 3,000.

## Contract Cancellation - A Familiar Experience

### VE-7 Bluebird - Production



Two weeks later, the war was over. The Armistice had been signed, and both of these contracts were canceled. Of the fourteen purchased in May from Lewis & Vought, five or six were delivered before the end of the war. Four Springfield VE-7's were delivered, and the two at



McCook Field were completed. The VE-7 was not in production earlier because of an interim program which had all the available Hispano engines diverted to upgrade the Curtiss Jenny from the 90-hp JN-4D to the 150-hp JN-4H.

While the massive contract cancellations caused many companies to go under, Vought was fortunate; the Army contract remained in force and deliveries continued. The new company's first big payday came on July 19, 1918, when it received a \$100,000 check from the Army Signal Corps in payment for VE-7 deliveries.

Vought's total wartime output is not known, but it did not stop with the November 11, 1918 Armistice.

In 1919, as the crated VE-7's were arriving at McCook Field, Vought demonstrated his deep personal interest in every facet of his planes; he hung around the crew of Master Sergeant Jack Harding, supervising the work of putting each ship together. Harding stated that it was foolish to argue a point with Chance because he knew a lot more about airplanes than any of them. *"The VE-7 was the sweetest ship I was ever in,"*

was his personal evaluation. As impressed with the man as he was the machine, Harding continued, *"Vought was the most natty dresser I ever saw – always wore spats and carried a cane, was a man of outstanding personality, and he seemed to have been able to bring out some of his personality in his airplanes. He never came to McCook Field without his airplane finished in every respect."*



After the lack of success for the VE-8 and VE-10, the energetic young engineer/executive immediately went after follow-up contracts to keep his little factory (now moved to a ground-level plant) operating. He knew his VE-7 was a winner and set out to prove it. Although the Army was his first customer, the Navy also became interested in his plane.

The Navy had ordered its initial 20 VE-7's in October, 1919, and the first one was delivered the following year, on May 28th.

From that date through the early 1990's, there never was a day when there was not a Vought airplane on a U.S. Navy aircraft carrier, battleship, cruiser or destroyer. Vought built airplanes for the Navy and Marines through the 1980's.

The Navy version of the VE-7 fitted with the Wright-Hispano 180hp E engine, was built by Vought and by the Naval Aircraft Factory (NAF). Procured originally for training purposes, the performance of the Navy VE-7 was such that it was used for a great variety of work under a number of sub-

designations:

- VE-7 - Initial production version standard two-seat trainer, of which the U.S. Navy received 20 from Vought and 16 from the NAF
- VE-7F/VE-7SF - Equipped with Vickers machine guns
- VE-7G - Gunnery trainer with a synchronized Vickers machine gun forward and a 7.62-mm (0.3-in) Lewis machine gun on a trainable mount in rear cockpit; 19 built by NAF
- VE-7GF - VE-7G with flotation gear for ditching at sea
- VE-7H - Single-float seaplane version, nine built by NAF
- VE-7S - Conversion to single-seat fighter with Vickers machine gun and SE-1345 radio set
- VE-7FS - Single-seat fighter version with flotation gear; four built by Vought and 24 built by NAF
- VE-7SH - Single floatplane conversion of VE-7SF

In the observation models, the observer rode in the forward cockpit, a reversion to the early World War I practice. The VE-7 made a nimble single-seat fighter, a role in which it served as first-line equipment until 1926, with the pilot occupying the former rear cockpit.

VE-7 landplanes operating over water were frequently fitted with emergency flotation gear of a design developed at the RAF Experimental Station on the Isle of Grain during World War I. Although this feature had been tested on earlier experimental U. S. Navy aircraft, the VE-7's were the first U.S.



service models to be so equipped. To prevent nosing over when alighting on water, a Grain-developed hydrovane was installed ahead of the wheels.

The seaplane versions were the standard observation and scouting aircraft of the fleet in the early post-war years, being carried aboard battleships and cruisers and launched by catapult. A larger vertical fin was frequently installed on the seaplane versions and was sometimes left in place when the airplane was temporarily converted to a land plane.

### [VE-7 Bluebird](#) - As a History Maker

The VE-7 made history by being the first airplane to take off from the Navy's first aircraft carrier, the converted coal ship *U.S.S Langley*. On October 17, 1922, LCdr. Virgil C. (Squash) Griffin made the first launch at the controls of the nimble fighter that had originally been designed as a training plane. The launching used a unique technique, described as follows by RADM Tate, then a junior naval aviator:

*"We were operating just north of the Tongue of the Shoe, seaward of the main channel from Norfolk, Va. A trough about 6 feet long, set up on sawhorses was rigged at the aft end of the flight deck. When the tail skid of the VE-7 used in the test was placed in the trough, she was in the flight attitude.*

*We had no brakes, so the plane was held down on the deck by a wire with a bomb release at the end. This was attached to a ring in the landing gear. 'Squash' Griffin climbed in, turned up the Hispano Suiza engine to its full 180 hp and gave the 'go' signal. The bomb release was snapped and the Vought rolled down the deck. Almost before it reached the deck-center elevator it was airborne. Thus, the first takeoff from a U.S. carrier."*

Other reminiscences of the VE-7 included the following from RADM Jackson R. Tate (Ret)

*"The Naval Aviation News review of the VE-7SF was in some slight error. The VE-7 was not an advanced trainer – trainer for what? It was the hottest thing we had. The plane was a beautiful thing to fly. The Gottingen modified wing foil and area made it both fast and a good performer at altitude. It was hot at acrobatics in its day few planes got on its tail. We literally made thousands of landings with the VE-7."*



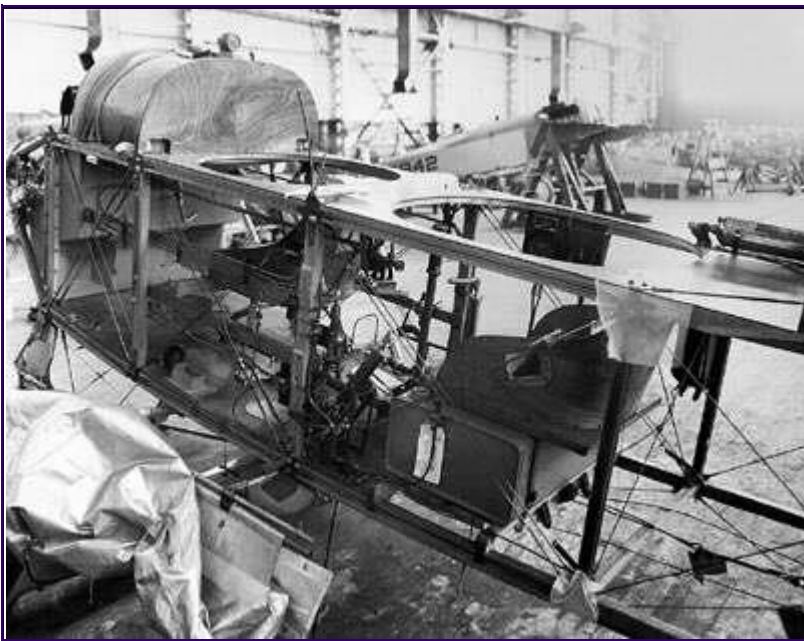
*"I shifted from a Langley experimental pilot to the first carrier fighter squadron, VF-2, with the VE-7FS planes. This Vought-equipped squadron developed the first carrier squadron tactics including squadron landing circle and approach. It was a hot outfit."*

And so began Vought's long history with the U.S. Navy



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**Brigadier General "Billy" Mitchell, Assistant-Chief of the Air Service, photographed by a Lewis & Vought VE-7 advanced trainer at the Bolling Field Air Tournament , May 14 - 16, 1920. Only small numbers of the VE-7 were produced, as the demand for this type of aircraft was met by converting Curtiss JN-4s to Hispano-powered JN-4Hs.**



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**Cockpits.**



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**Vought VE-7 observation airplane built in 1918 for U. S. Army in experimental department of Springfield Aircraft Corporation.**

**Photograph made from negative owned by Norman Rooke of Pratt & Whitney Aircraft, Engineering III, who was a blueprint file clerk in the department when the plane was**



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**Damaged, collapsed right gear, broken propeller**





VE-7 Bluebird Astoria, N.Y. U.S. Army 1917 0001-0001-02-0031-1917

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**New York, Vought's Starting Point, 1917 - 1919**