Stinson L-5 Sentinel

Stinson L-5 Sentinel en vol

Le Stinson L-5 Sentinel était un avion d'observation et de liaison de la seconde guerre mondiale, utilisé aussi bien par toutes les forces armées américaines que par la RAF. Il s'agit d'une version dérivée et militarisée du Stinson 105 Voyager. Il était doté d'un moteur Lycoming O-435 de 190 hp (plus puissant que le Continental O-170 de 80 hp d'origine), d'un cockpit en tandem (le pilote devant et l'observateur à l'arrière) et non plus côte-à-côte et une structure renforcée. Il conservait cependant l'aile haute et le train classique fixe. Il est construit en tubes métalliques recouverts de toile et les ailes sont en bois. L'aluminium fut strictement réservé au capot moteur et au train d'atterrissage. Le prototype, désigné V-62 (Stinson était alors absorbé par Vultee), fit son premier vol en 1942 et fit l'objet d'essais accélérés par l'USAAC. Il entra en service en décembre 1942 sous la désignation O-62. C'est en mars 1943 qu'il fut redésigné L-5, le L renvoyant à "Liaison & Light observation aircraft". Ses fonctions, outre l'observation et le réglage d'artillerie, étaient aussi l'évacuation sanitaire, le courrier et les communications, voire le transport de fret léger. Avec un fuselage redessiné et pourvu d'une porte de chargement, il pouvait emporter une civière ou 250 livres (plus de 100 kg) de fret. Il est cependant non armé. 3590 exemplaires furent produits de décembre 1942 à septembre 1945 pour les États-Unis, et au moins 3896 exemplaires furent produits en tout. Ce fut le deuxième appareil le plus utilisé après le L-4 Grasshopper dans cette catégorie par les forces armées américaines. Il pouvait opérer à partir de terrains improvisés, ce qui lui permit pendant la guerre d'emporter du personnel, des renseignements cruciaux, ou des fournitures aux troupes de première ligne. Au retour, il emportait des blessés ayant besoin de soins médicaux urgents, ce qui renforça le moral des troupes. Il servit également à la reconnaissance photographique, au contrôle de convois, au parachutage de nourriture, de munitions ou de médicaments, à larguer des tracts de propagande ou de l'insecticide, à transporter des prisonniers, à remorquer des planeurs ou même à désigner des cibles au sol aux chasseurs-bombardiers. Il se montra populaire auprès des hauts gradés pour ses performances sur courtes distances. Il fut utilisé aussi bien par l'USAAF que par l'US Navy et l'US Marine Corps, et ce aussi bien sur le théâtre européen que dans le Pacifique. C'est ainsi qu'il reçut son surnom de "Flying Jeep".

Il reprit également du service lors de la guerre de Corée et fut utilisé, du moins en première ligne, jusqu'en 1955. La RAF reçut 40 L-5 Sentinel I et 60 L-5B Sentinel II, qui furent utilisés en Inde et en Birmanie. L'Australie loua un exemplaire de 1944 à 1946. Après la guerre, les surplus furent revendus aux forces aériennes de Grèce, d'Inde (environ 200 exemplaires), d'Italie (environ 100 exemplaires utilisés de 1946 jusque dans les années 1950), du Japon (armée de terre), de Corée du Sud, des Philippines (armée de terre de 1945 à 1947, et force aérienne), du Pakistan (reçus en 1948, après la partition avec l'Inde), de Pologne (un seul exemplaire, désormais exposé), de Taïwan, de Chine et de Thaïlande. 300 exemplaires existent encore aujourd'hui, et moins de 200 sont encore en état de vol. La Sentinel Owners and Pilots Association, qui dispose de son propre site, est dédiée à la préservation de cet appareil.

Source : https://aviationsmilitaires.net/v3/kb/aircraft/show/2214/stinson-l-5-sentinel

Version anglaise Wikipédia

The **Stinson L-5 Sentinel** is a World War II-era liaison aircraft used by the United States Army Air Forces (USAAF), U.S. Army Ground Forces, U.S. Marine Corps and the British Royal Air Force. It was produced by the Stinson Division of the Vultee Aircraft Company (Consolidated-Vultee from mid-1943). Along with the Stinson L-1 Vigilant, the L-5 was the only other USAAF liaison aircraft that was exclusively built for military use and had no civilian counterpart.

Design and development

The origins of the **L-5** can be traced to the prewar civilian Stinson **HW-75**. This 75 horsepower civilian high-wing design was built by the Stinson Aircraft Company at Wayne, Michigan and first flew in 1939. It was marketed as the **Model 105** and was first introduced to the public at the New York World's Fair. The three-place HW-75 featured two side-by-side seats and a third "jumpseat" in back on which a small passenger could sit facing sideways. Stylish, economical, spin resistant and easy to fly, the plane became an instant success with aircraft owners and flight schools across the United States and by the end of 1939 Stinson was building three per day. In 1940 the Model 105 was upgraded to an 80-horsepower Continental engine and with other small improvements this was marketed as the **Model 10**.[1]

Stinson HW-75 (Model 105)

Stinson became a subsidiary of the Vultee Aircraft Corporation in August 1940. Under Vultee management, an improved version was fitted with a four-cylinder 90 hp Franklin engine for the 1941 model year and the type became known as the **Model 10A Voyager**. In the postwar era, the fuselage of the Model 10A was lengthened to accommodate four passengers and the four-cylinder powerplant was replaced with a Franklin 150 hp six-cylinder engine. This conversion became the **Stinson Model 108 Voyager** that was the only aircraft commercially produced by Stinson after WWII. During the summer of 1940, Stinson built an experimental tandem-seat version of the HW-75, equipping it with a 100 hp Lycoming engine. This was known as the **Model 75B**. Under Vultee management it was re-designated **V-75B**.

Soon increased to 125 horsepower for better performance, this became the Model **V-75C** that was demonstrated to the military in August and September 1940. The **V-75C** failed to meet military requirements, so the Stinson engineers went back to the drawing board and came up with a clean-sheet design that was similar in concept to the V-75C but was a far stronger, more powerful and completely new tandem-seat airplane that met rigorous Army-Navy engineering standards for the design of military aircraft. This was called the **Model 76** and was adopted as the **L-5**.[a] The experimental 175 hp **Model 76**, dubbed "the Flying Jeep" by factory personnel, was first flown at the Stinson factory airport on June 23, 1941, by chief pilot Al Schramm. Accepted by the military after accelerated service trials were completed in September, the first contract for 275 planes was issued in January 1942. Originally designated **O-62** ('O' for observation), this was changed to **L-5** ***Sentinel*** ('L' for liaison) in April 1942, seven months before the first production airplanes were delivered. With minor changes, the six-cylinder Lycoming O-435 engine was upped to 185 horsepower, becoming the O-435-1 that powered all production Sentinel models through the L-5E-1.[1] Adopted by the Army Air Forces as their standard liaison aircraft, replacing the larger and more costly L-1 Vigilant, the primary purpose of the L-5 was short range officer transport, courier work and artillery spotting. The fuselage was reconfigured in January 1944 and the modified aircraft, designated as the **L-5B**, could be used as an air ambulance or for light cargo transport. With a wider and deeper rear fuselage section and a large rear door that folded downward, a litter patient or 250 pounds of cargo could be quickly loaded. Later iterations of the cargo / ambulance version were the **L-5C** with provisions for mounting a K-20 aerial camera, the **L-5E** with drooping ailerons for better low-speed control, the **L-5E-1** with larger tires and heavy-duty brakes for better short and soft-field performance, and the final **L-5G** with a 24-volt electrical system and 190 hp version of the Lycoming engine.[1] In addition to the previously listed uses, L-5's were employed in many diverse roles such as reconnaissance, search & rescue, aerial photography, forward air control of fighter-bombers, laying communication wire, spraying pesticides, dropping para-cargo, dropping leaflets, and aerial broadcasting with loudspeakers. It also served as a test bed for radar tracking, firing aerial rockets, and airborne remote television. In uncommon instances, L-5 crews dropped grenades and fired wing-mounted bazookas at enemy targets.[1] The L-5 series was manufactured between November 1942 and September 1945, during which time 3,590 of the unarmed two-seaters were delivered for military service, making it the second most widely used light observation liaison aircraft of the war behind the Piper L-4 Cub.[1]

Construction

The fuselage was constructed using arc-welded chrome-moly steel tubing covered with doped cotton fabric and the wings and empennage were constructed of spruce and mahogany plywood box spars and plywood ribs and skins, also covered with fabric. The use of aluminum, which was in critically short supply and more urgently needed for other aircraft, was limited to the engine cowling, tail cone, framework for the ailerons, rudder and elevator and the landing gear fairings. The L-5 through L-5E were powered by a six-cylinder 185 horsepower (138 kW) Lycoming O-435-1 engine. The L-5G used a 190 hp Lycoming O-435-11.

Operational history

Capable of operating from short unimproved airstrips, the L-5 "Sentinel" delivered personnel, intelligence and supplies to the front line. On return flights, wounded soldiers were often evacuated to rear area field hospitals for medical treatment. L-5s were primarily flown by the Army Air Forces liaison squadrons consisting of 32 planes each. One of these squadrons was attached to field army headquarters deployed overseas and an additional squadron was assigned to each Army Group headquarters. They saw action in Western Europe, Italy, the Philippines, New Guinea, and the China-Burma-India theater. In the hands of the U.S. Marine Corps artillery observation squadrons they were widely used during the Pacific Island campaigns of 1944 and 1945. The L-5 was used by generals and other high-ranking officers for short-range transportation. An unusual use of the Sentinel was launch and recovery from a land-based overhead cable system designed by Lt. James Brodie that could be quickly set up in a large clearing that was otherwise unsuitable for a runway. The cable was strung between two tall masts and a braked carriage snagged an arresting hook attached to the top of the airplane. After successful tests of the "runway on a rope" in Oklahoma, it was demonstrated to the British in India who declined to adopt it. However, the unorthodox "Rube Goldberg" Brodie landing system was installed aboard the Naval vessel *City of Dalhart*.

Staff Sergeant R. A. Gregory made ten good successful launches and recoveries with a Stinson L-5.[2] During the Battle of Okinawa, L-5s operated from an LST equipped with the "Brodie System".[3]

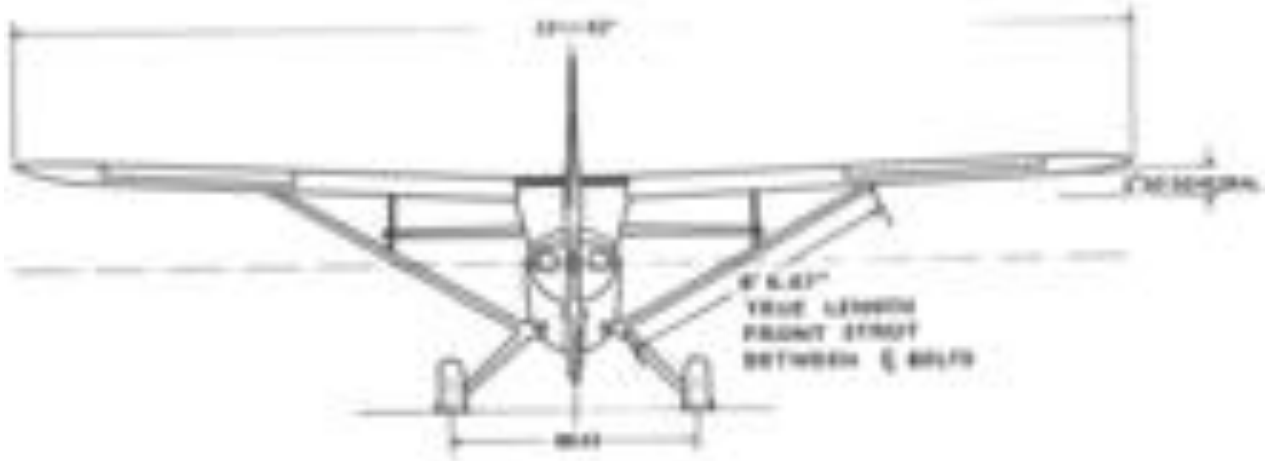
UN liaison service in Greece during the Greek Civil War

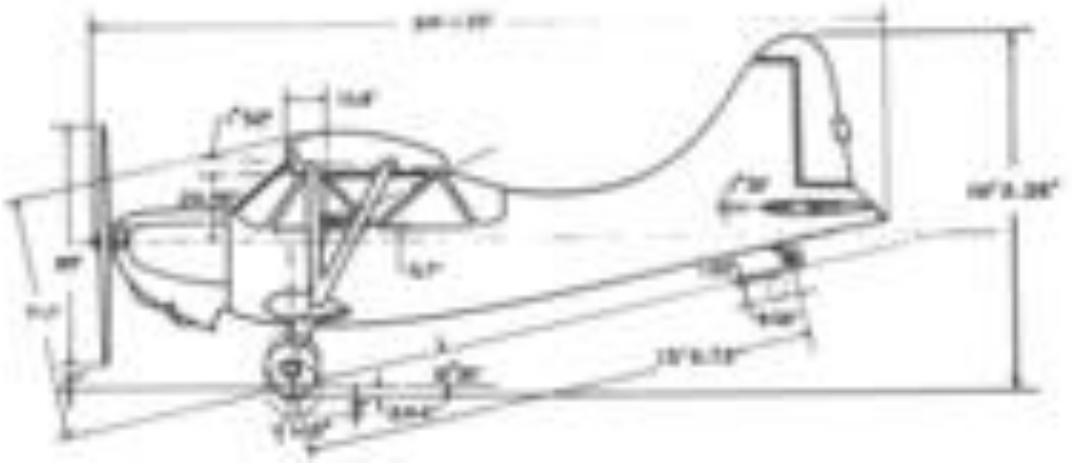
The Navy and Marine version of the L-5 through L-5E were designated **OY-1**, and all these aircraft had 12-volt electrical systems. The 24-volt L-5G became the **OY-2**. Neither the L-5G nor OY-2 saw combat during World War II because production did not begin until July 1945, just weeks before the war ended, but they were used extensively during the Korean War. A further two dozen or so OY-1's were converted to OY-2's in 1948 and 1949. The British Royal Air Force (RAF) procured 40 L-5s and 60 L-5Bs in 1944 and designated them Sentinel Is and Sentinel IIs respectively. These aircraft were used exclusively in the India-Burma theater of operations by SEAC communications and medical evacuation units. After World War II, the L-5 was used in the continental United States, Hawaii and Alaska by the Civil Air Patrol for search and rescue work. They were also employed by state law enforcement, forestry and Fish & Wildlife departments. Many other countries also received L-5s after the war. The largest quantities were sold to Italy, the Republic of the Philippines, and India. A few went to Pakistan after the partition of India in 1948, and a small number were used by the Japan Defense Force. Others were also sold to Korea, China, Thailand, Mexico, Venezuela, and Brazil.

Variants

Five versions of the Sentinel were produced for the U.S. Army Air Force (USAAF); the L-5, L-5B, L-5C, L-5E and L-5G. There was no official L-5A variant as is often reported because the designation was intended for a version of the aircraft that was never built. Nonetheless, many people in and out of the military still refer to the standard "observer" version of the L-5 as an L-5A. Like the L-5A, the L-5D was a planned version that was not adopted. A single L-5F was an L-5B equipped with an experimental low-noise "stealth" propeller and exhaust system for research purposes. The L-5B through L-5G models were modified to carry a litter patient or light cargo, or a rear seat passenger sitting in the normal position.

Specifications (L-5)





General characteristics

- **Crew:** 2 (pilot and observer)
- **Length:** 24 ft 1 in (7.34 m)
- **Wingspan:** 34 ft 0 in (10.36 m)
- **Height:** 7 ft 11 in (2.41 m)
- **Wing area:** 155 sq ft (14.4 m^2)
- **Airfoil:** NACA 4412[49]
- **Empty weight:** 1,550 lb (703 kg) approx
- **Gross weight:** 2,250 lb (1,021 kg) civilian limit
- **Max takeoff weight:** 2,250 lb (1,021 kg) civilian limit
- **Fuel capacity:** 36 US gal (140 L; 30 imp gal)
- **Powerplant:** 1 × Lycoming O-435 6-cylinder air-cooled horizontally-opposed piston engine, 185 hp (138 kW) (O-435-1) 190 (O-435-11)
- **Propellers:** 2-bladed fixed-pitch propeller

Performance

- **Maximum speed:** 130 mph (210 km/h, 110 kn) level flight
- **Cruise speed:** 100 mph (160 km/h, 87 kn) to 110 mph
- **Stall speed:** 42 mph (68 km/h, 36 kn) power off, 38 mph power on
- **Never exceed speed:** 200 mph (320 km/h, 170 kn) military limit, 163 mph civilian limit
- **Range:** 375 mi (604 km, 326 nmi) no reserve
- **Endurance:** 3.5 hours
- **Service ceiling:** 15,800 ft (4,800 m)
- **Rate of climb:** 900 ft/min (4.6 m/s) at sea level

Source : https://en.wikipedia.org/wiki/Stinson_L-5_Sentinel