

Model Number : F6U-1

Model Name : Pirate

Model Type: Fighter

The F6U-1 was equipped with an afterburner and wing tip tanks. The vertical-tail and horizontal-tail leading edges had dorsal-type extensions. The horizontal stabilizer had fins. The dorsal extensions and the fins were added to make directional stability acceptable



Unique Features

- First production afterburner installation in the U.S.
- Four 20-mm M-3 (T-31) cannons with 150 rounds of ammunition in each of four boxes
- Constant-Mach-number, hydraulically-actuated speed brakes which limited the maximum Mach number of the airplane in a dive.
- Kneeling nose gear in lieu of wing fold for carrier deck spotting.
- Elevator spring and balance tabs to lighten longitudinal stick force.
- Pilot ejection seat.
- AN/ APX-1 IFF (Identification friend or foe system)
- Metalite panels used to cover wing, fuselage, and tail surfaces.
- Dorsal-type extensions on vertical-tail and horizontal-tail leading edges.
- Fins attached to horizontal stabilizer.

Engine



The basic engine for the F6U-1 was the Westinghouse J34-WE-30A rated at a 3200-pound static thrust less 12% for installation loss. The afterburner (Solar Model A-103B) produced approximately 30% boost by adding fuel to burn residual oxygen. The powerplant consisted of an 11-stage axial flow compressor, a double annular engine combustion chamber, and a two-stage turbine, plus the afterburner combustion chamber, two-position nozzle, cooling shroud and controls. Engine-driven accessories consisted of an all-speed governor, main and emergency (automatic) fuel pumps, lubricating system pump,

hydraulic pump and generator. The engine compartment was cooled by air taken in by boundary layer ducts at the wing roots and exhausted at a gill forward of a firewall on the bottom centerline. The afterburner compartment was cooled by air entering through two flush scoops on the lower fuselage aft of the firewall and out by nozzle shroud ejector action.

Speed Brakes

The hydraulically-actuated speed brakes limited the maximum Mach number of the airplane in a dive so that during normal fighter operations, the transonic region of high buffet and/or trim change would not be reached. Mild buffet was encountered at a Mach number of 0.79 in level flight. At approximately 0.80 Mach number, a nose down trim change (also known as tuck-under) occurred on some F6U-1's. This tuck-under could be delayed to a higher Mach number or made into a tuck-up condition by making a very small change to the stabilizer incidence by the addition of one or two

washers at the forward or aft attach points. This compressibility problem was common to high subsonic aircraft of the 1940's which used a fixed stabilizer for longitudinal stability and an elevator for longitudinal control. In the 1950's, the fix was to go to all-moving (unit) horizontal tails with irreversible power controls.

Metalite Panels

Metalite panels covered the wing, fuselage, and tail surfaces. The panel material was a low-density balsa wood core bonded on both sides to aluminum skin. The panels were formed in molds, cured in a large autoclave and joined to the support structure with rivets. The inherent stiffness in the material maximized surface smoothness thus reducing drag.

Production

The first three F6U-1 Pirates were manufactured in Stratford, Connecticut and then partially disassembled and shipped by truck to the new plant in Dallas, Texas. After the 1700-mile trip, each airplane was reassembled. Production was begun in Texas on the remaining 27.



When the first F6U was ready to fly, the runway at adjacent Hensley Field at Dallas had not yet been lengthened to permit flight testing of the Vought airplanes. Arrangements had to be made for another test site. The Pirate program resumed at Ardmore Oklahoma until Hensley Field was finished. By that time, the 1944 F6U design was outdated and all F6U airplanes, save one, were relegated to various Navy sponsored research units. One of the thirty F6U-1's was later modified by Langley Field to carry cameras and designated F6U-1P.

Dimensions	
Wingspan	33.84 ft
Overall Length	37.68 ft
Height	12.95 ft
Weights and Capacities	
Empty Weight	7320 lb
Gross Weight	* 13100 lb
Useful Load	
Fuel Capacity	420 gal
Oil Capacity	
Powerplant Characteristics	
Type: Westinghouse J-34-WE-3A	
Rating Thrust	3200 hp
Displacement	

Weight	
Size (length X diameter)	
Performance	
Maximum Speed, Sea Level with afterburner	596 mph
Landing Speed, Sea Level	
Stall Speed, Sea Level	98 mph
Initial Rate-of-Climb with afterburner	8060 ft/min
Cruise Speed, Sea Level	
Range at Cruise Speed	1170 miles
Service Ceiling	31000 ft
Absolute Ceiling	
Crew: 1	
Armament: Four 20-mm M-3 (T-31) cannons w/150 ammunition rounds.	

NOTES:

- * Includes pilot, ammunition, internal fuel, oil, and two full 140 -gal wing tip fuel tanks

F6U-1 Pirate - Production Flight Test Incident

Written by H. J. (Hank) Merbler

Hank joined the Vought Engineering Department in 1941 and started work in the wing design group. At the time of this incident in 1950 he was assigned to Production Flight Test Operations for the F6U-1 at Ardmore Oklahoma. Hank tells the following story:

In preparing a pilot for a test flight one of the procedures that I always did was to strap the pilot into the seat and review the objectives of the test flight. Chan Chandler was the Navy Flight Test Pilot on this particular check flight. Chandler and I had worked together for some time and were good friends. He had been test flying many different types of airplanes including the heavy Temco modified military aircraft. While strapping him in I ask him if he had read the Pilot's Handbook for the F6U. Chandler assured me that he had read the Hand Book and that he knew the objectives of the check flight.

Chandler began to taxi out to the end of the runway. I went into the radio shack where another pilot and I established radio contact with him. The radio shack was located to the side and about half way down the runway. From that point we could look across the runway to some trees. Past experience had shown that the wheels should be off the ground at the point that lined up with the trees in order to clear the mountain located just off the end of the runway. At that time there were three of us on the field, the pilot in the shed with me and Chandler in the airplane. Chandler began his take off run. He

kept coming along the runway at full power and raced by the point that lined up with the trees and on toward the mountain side. Suddenly the airplane went vertical in a very sharp 90 degree change in direction!

We were screaming into the mike, Chandler, Chandler, is everything ok? He did not answer for a long time. Finally he said "Whew!!". Chandler said that when he realized that something was wrong he looked down at the stick and saw that his glove between his thumb and his index finger had gotten caught in the trim tab wheel and had fed in nose down trim. He reached down with his other hand and jerked his glove out of the wheel and immediately the aircraft went vertical! The action of removing his glove from being caught in the trim tab fed in enough nose up trim to cause the sudden 90 degree pitch up. It is fortunate that he did not break his neck or damage the aircraft. He immediately came back and landed and when he got out of the airplane his flying suit was sopping wet. All three of us were shaking from the experience. Fortunately no one was hurt, nothing was damaged and the aircraft was in good shape