SB2C Helldiver

A-25 Shrike	
	
The XSB2C on its maiden flight	
Type	Dive bomber
Manufacturer	Curtiss Fairchild (SBF) Canadian Car & Foundry (SBW)
Maiden flight	18 December 1940
Introduced	11 November 1943
Retired	1959 (Italian Air Force)
Primary users	United States Navy U.S. Army Air Force French Air Force Royal Thai Air Force
Produced	1940-1945
Number built	7,140
Developed from	SBC Helldiver

For the biplane, please see Curtiss Helldiver.

The **Curtiss SB2C Helldiver** was an American aircraft carrier-based dive bomber produced for the United States Navy during World War II. It replaced the Douglas SBD Dauntless in US Navy service. Despite its size, the SB2C was much faster than the SBD it replaced. Crew nicknames for the aircraft included the *Big-Tailed Beast* (or just the derogatory *Beast*), *Two-Cee* and *Son-of-a-Bitch 2nd Class* (after its designation and partly because of its reputation as a troublesome design)[1].

Although production problems persisted throughout its combat service, pilots soon changed their minds about the potency of the Helldiver.

Design and development


Curtiss SB2C Helldiver in tricolor scheme


SB2Cs in tricolor scheme (front) on the flight deck of USS *Yorktown* CV-10 in 1943


Curtiss SB2C Helldiver during take off


A pilot and his gunner pose with their late model SB2C Helldiver after October 1944


SB2C Helldiver fails to catch the wire on landing and hits the first barrier, nose-diving into the deck (USS Hornet, July 3, 1944)

The Helldiver was developed to replace the Douglas SBD Dauntless; it was a much larger aircraft able to operate from the latest aircraft carriers of the time and carry a considerable array of armament and featured an internal bomb bay that reduced drag when carrying heavy ordnance. Saddled with demanding requirements set forth by both the US Marines and United States Army Air Forces, the manufacturer incorporated features of a "multi-role" aircraft into the design.[2]

The Model XB2C-1 prototype initially suffered teething problems connected to its R-2600 engine and 3-bladed propeller; further concerns included structural weaknesses, poor handling, directional instability and bad stall characteristics. The first prototype flew in December 1940. After the prototype crashed in February 1941, Curtiss was asked to rebuild it with revised structures and shapes. This second prototype version was also lost when in December 1941 the Helldiver pulled out of a dive and the starboard wing and tailplane failed catastrophically.

Large-scale production had already been ordered on 29 November 1940, but a large number of modifications were specified for the production model. The size of the fin and rudder was enlarged, fuel capacity was increased and self-sealing added and the fixed armament was doubled to four 0.50 in guns in the wings, compared with the prototype's two cowling guns. The SB2C-2 was built with larger fuel tanks, improving its range considerably.

The program suffered so many delays that the Grumman TBF Avenger entered service before the Helldiver, even though the Avenger had began its development two years later. Nevertheless, production tempo accelerated with production at Columbus, Ohio and two Canadian factories: Fairchild Aircraft Ltd. (Canada) which produced a total of 300, designated XSBF-l, SBF-l, SBF-3 and SBF-4E, while Canadian Car and Foundry built 894 examples designated SBW-l, SBW-3, SBW-4, SBW-4E and SBW-5. These models being respectively equivalent to their Curtiss-built counterparts. 7140 SB2Cs were produced in World War II. [3]

Operational service

The large number (literally thousands) of modifications and changes on the production line meant that the Curtiss Helldiver did not enter combat until 11 November 1943 with VB-17 on the USS Bunker Hill, when they attacked the Japanese-held port of Rabaul in Papua New Guinea. Even though the Helldiver entered US Naval service, it still had such structural problems that the aircraft crews were forbidden to dive bomb in clean conditions (one of its main tasks). The SB2C-1 could deploy slats mechanically linked with undercarriage actuation extended from the outer third of the wing leading edge to aid lateral control at low speeds. The early prognosis of the "Beast" was unfavourable as it was strongly disliked by aircrews because it was much bigger and heavier than the SBD it replaced.[4]

The litany of faults that the Helldiver bore included the fact that it was underpowered, had a shorter range than the SBD, was equipped with an unreliable electrical system and was often poorly manufactured.

An oddity of the SB2Cs with 1942 to '43-style tricolor camouflage was that the undersides of the outer wing panels carried dark topside camouflage because the undersurfaces were visible from above when the wings were folded.

Non-naval service

Built at Curtiss' St. Louis plant, 900 aircraft were ordered by the USAAF under the designation **A-25A Shrike**[5]. The first ten aircraft had folding wings, while the remainder of the production order deleted this feature. Many other changes distinguished the A-25A including larger main wheels, a pneumatic tail wheel, ring and bead gunsight, longer exhaust stubs and other Army specified radio equipment. By later 1943 when the A-25A was being introduced, the USAAF no longer had a role for the dive bomber. After offering the Shrike to Australia, only ten were accepted before the Royal Australian Air Force rejected the remainder of the order, forcing the USAAF to send 410 to US Marines. The A-25As were converted to SB2C-1 standard but the **Marine SB2C-1** variant never saw combat, being

utilized primarily as trainers. The remaining A-25As were similarily employed as trainers and target tugs[5].

A comparable scenario accompanied the Helldiver's service with the British. A total of 26 aircraft (out of 450 ordered) were delivered to the Royal Navy's Fleet Air Arm, where they were known as the **Helldiver I.** After unsatisfactory tests that pinpointed "appalling handling", none of the British Helldivers were used operationally. [6] Postwar, surplus aircraft were sold to the navies of France, Italy, Greece, Portugal and Thailand.

Survivors

One SB2C Helldiver is still flying. Owned by the Commemorative Air Force, this late-production SB2C-5 (BuNo. *83589*) built in 1945 is based in Graham, Texas and makes frequent airshow appearances. In 1982, it experienced engine failure and a hard emergency landing that caused extensive damage; volunteers of the CAF put in thousands of man-hours and spent in excess of $200,000 to restore the aircraft to flying condition once more.

Other surviving airframes include SB2C-5, BuNo. *83479* from the National Air and Space Museum, displayed at Naval Air Station Pensacola, SB2C-3, BuNo. *19075* at the Yanks Air Museum, Chino, California, SB2C-5, BuNo. *83321* at the Hellenic Air Force Museum, Tatoi Air Base, Greece and SB2C-5, BuNo. *83410* at the Royal Thai Air Force Museum, Don Muang AB, Bangkok.

Operators

Australia

- Royal Australian Air Force

France

- Aviation Navale

Greece

- Hellenic Air Force

Italy

- Italian Air Force

Portugal

- Portuguese Navy (until 1952)
- Portuguese Air Force (after 1952)

Thailand

- Royal Thai Air Force

United Kingdom

- Fleet Air Arm

United States

- United States Navy
- United States Marine Corps
- United States Army Air Force

[edit] Specifications (SB2C Helldiver)

General characteristics

- **Crew:** Two, pilot and radio operator/gunner
- **Length:** 36 ft 9 in (11.2 m)
- **Wingspan:** 49 ft 9 in (15.2 m)
- **Height:** 14 ft 9 in (4.5 m)
- **Wing area:** 422 ft² (39.2 m²)
- **Empty weight:** 10,114 lb (4,588 kg)
- **Loaded weight:** 13,674 lb (6,202 kg)
- **Max takeoff weight:** 16,800 lb (7,600 kg)
- **Powerplant:** 1× Wright R-2600 Cyclone radial engine, 1,900 hp (1,400 kW)

Performance

- **Maximum speed:** 294 mph (473 km/h)
- **Range:** 1,200 miles (1,900 km)
- **Service ceiling:** 25,000 ft (7,600 m)
- **Rate of climb:** 1,750 ft/min (8.9 m/s)

Armament

- 2 x 20 mm cannon in the wings
- 2 x 0.30 in (7.62 mm) machineguns in the rear cockpit
- Internal bay: 2,000 lb (900 kg) of bombs or 1x Mark 13-2 torpedo
- Underwing hardpoints: 500 lb (225 kg) of bombs each

External links

- http://www.sb2chelldiver.org/ The Commemorative Air Force's flying SB2C Helldiver
- http://www.cv6.org/company/accounts/bbarnes/ ENS Bob Barnes: Helldivers of the Big E
- http://www.historynet.com/air_sea/aircraft/3038036.html Historynet: "The Last Dive Bomber"
- http://www.acig.org/artman/publish/article_294.shtml "The Greek Civil War, 1944-1949"

Related content

Comparable aircraft

- SBD Dauntless
- Fairey Barracuda

Designation sequence

- *Navy:* BFC - BF2C - SBC - **SB2C** - SB3C - BTC - BT2C
- *Army:* A-22 - A-23 - A-24 - **A-25** - A-26 - A-27 - A-28

Related lists

- List of military aircraft of the United States (naval)
- List of military aircraft of the United States