

Martin B-26 Marauder

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A US Army Air Forces B-26B with D-Day invasion stripes

Role	Medium bomber
National origin	United States
Manufacturer	Glenn L. Martin Company
First flight	25 November 1940
Introduction	1941
Status	Retired
Primary users	United States Army Air Forces United States Army Air Corps Royal Air Force South African Air Force
Produced	1941–1945
Number built	5,288
Unit cost	\$102,659.33/B-26A
Developed into	XB-33 Super Marauder (Unbuilt)

The **Martin B-26 Marauder** was a World War II twin-engine medium bomber built by the Glenn L. Martin Company. First used in the Pacific Theater in early 1942, it was also used in the Mediterranean Theater and in Western Europe.

After entering service with the U.S. Army, the aircraft received the reputation of a "Widowmaker" due to the early models' high rate of accidents during takeoff and landings. The Marauder had to be flown by exact airspeeds, particularly on final approach and when one engine was out. The 150 mph (241 km/h) speed on short final was intimidating to pilots who were used too much slower speeds, and whenever they

slowed down below what the manual stated, the aircraft would stall and crash.

The B-26 became a safer aircraft once crews were re-trained and after aerodynamics modifications (increase of wing span and incidence, to give better take off performance, and a larger fin and rudder). After aerodynamic and design changes, the aircraft distinguished itself as "the chief bombardment weapon on the Western Front" according to a United States Army Air Forces dispatch from 1946. The Marauder ended World War II with the lowest loss rate of any USAAF bomber. A total of 5,288 were produced between February 1941 and March 1945; 522 of these were flown by the Royal Air Force and the South African Air Force. By the time the United States Air Force was created as an independent service separate from the Army in 1947, all Martin B-26s had been retired from US service. The Douglas A-26 Invader then assumed the B-26 designation.

Design and development

In March 1939, the United States Army Air Corps issued Circular Proposal 39-640, a specification for a twin-engine medium bomber, demanding a maximum speed of 350 mph (560 km/h), a range of 3,000 mi (4,800 km) and a bomb load of 2,000 lb (910 kg). On 5 July 1939, the Glenn L. Martin Company submitted its design, produced by a team led by Peyton M. Magruder, to meet the requirement, the Martin Model 179. Martin's design was evaluated as superior to the other proposals and was awarded a contract for 201 aircraft, to be designated B-26. The B-26 went from paper concept to an operational bomber in approximately two years. Additional orders for a further 930 B-26s followed in September 1940, still prior to the first flight of the type.



Close-up view of a Martin B-26C in flight.

The B-26 was a shoulder-winged monoplane of all metal construction, fitted with a tricycle undercarriage. It had a streamlined, circular section fuselage, housing the crew, consisting of a bombardier in the nose, which was armed with a .30 in (7.62 mm) machine gun, a pilot and co-pilot sitting side by side, with positions for radio operator and navigator behind the pilots. A gunner manned a dorsal turret armed with two .50 in (12.7 mm) machine guns (the first powered dorsal turret to be fitted to a US bomber); while an additional .30 in (7.62 mm) machine gun was fitted in the tail.

Two bomb bays were fitted mid-fuselage, capable of carrying 5,800 lb (2,600 kg) of bombs, although in practice such a bomb load reduced range too much, and the aft bomb bay was usually fitted with additional fuel tanks instead of bombs. It was powered by two Pratt & Whitney R-2800 Double Wasp radial engines in nacelles slung under the wing, driving four-bladed propellers. The wings were of low aspect ratio and relatively small area for an aircraft of its weight, giving the required high performance, but also resulting in a wing loading of 53 lb/sq ft (259 kg/m²) for the initial versions, which at the time was the highest of any aircraft accepted for service by the Army Air Force.

The first B-26, with Martin test pilot William K. "Ken" Ebel at the controls, flew on 25 November 1940 and was effectively the prototype. Deliveries to the U.S. Army Air Corps began in February 1941 with the second aircraft, *40-1362*. In March 1941, the Army Air Corps started Accelerated Service Testing of the B-26 at Patterson Field, Ohio.

While the B-26 was a fast aircraft with better performance than the contemporary North American B-25 Mitchell, its relatively small wing area and resulting high wing loading (the highest of any aircraft used at that time) required an unprecedented landing speed of 120 to 135 mph (190 to 217 km/h) indicated airspeed depending on load. At least two of the earliest B-26s suffered hard landings and damage to the main landing gear, engine mounts, propellers and fuselage. The type was grounded briefly in April 1941 to investigate the landing difficulties. Two causes were found: insufficient landing speed (producing a stall) and improper weight distribution. The latter was due to the lack of a dorsal turret; the Martin power turret was not ready yet.

Some of the very earliest B-26s suffered collapses of the nose landing gear. It is said that they were caused by improper weight distribution but that is probably not the only reason. They occurred during low-speed taxiing, takeoffs and landings, and occasionally the strut unlocked. Later the Martin electric turret was retrofitted to some of the first B-26s. Martin also began testing a taller vertical stabilizer and revised tail gunner's position in 1941. The Pratt & Whitney R-2800 engines were reliable but the Curtiss electric pitch change mechanism in the propellers required impeccable maintenance. Human error and some failures of the mechanism occasionally placed the propeller blades in flat pitch and resulted in an over speeding propeller, sometimes known as a "runaway prop". Due to its sound and the possibility that the propeller blades could disintegrate, this situation was particularly frightening for aircrews. More challenging was a loss of power in one engine during takeoff. These and other malfunctions, as well as human error, claimed a number of aircraft and the commanding officer of the 22nd Bombardment Group, Col. Mark Lewis.

The B-26 was not an aircraft for novices. Unfortunately, due to the need of training many pilots quickly for the war, a number of relatively inexperienced pilots got into the cockpit and the accident rate increased accordingly. This occurred at the same time as more experienced B-26 pilots of the 22nd, 38th and 42d Bombardment Groups were proving the merits of the bomber.

For a time in 1942, pilots in training believed that the B-26 could not be flown on one engine. This was disproved by a number of experienced pilots, including Jimmy Doolittle.

In 1942, Glenn Martin was called before the Senate Special Committee to Investigate the National Defense Program, which was investigating defense contracting abuses. Senator Harry Truman, chair of the so-called Truman Committee, asked Martin why the B-26 had troubles. Martin responded that the wings were too short. Truman asked why the wings weren't changed. When Martin said the plans were too far along and besides, his company already had the contract, Truman's response was quick and to the point: In that case, the contract would be canceled. Martin said corrections to the wings would be made. (By February 1943, the newest model, the B-26B-10, had an additional 6 feet (1.8 m) of wingspan, plus uprated engines, more armor and larger guns.)

Indeed, the regularity of crashes by pilots training at MacDill Field—up to 15 in one 30-day period—led to the exaggerated catchphrase, "One a day in Tampa Bay." Apart from accidents occurring over land, 13 Marauders ditched in Tampa Bay in the 14 months between the first one on 5 August 1942 to the final one on 8 October 1943.

B-26 crews gave the plane the nickname "Widowmaker". Other colorful nicknames included "Martin Murderer", "Flying Coffin", "B-Dash-Crash", "Flying Prostitute" (so-named because it was so fast and had "no visible means of support," referring to its small wings) and "Baltimore Whore" (a reference to the city where Martin was based).

According to an article in the April 2009 edition of *AOPA Pilot* on Kermit Weeks' "Fantasy of Flight", the Marauder had a tendency to "hunt" in yaw. This instability is similar to "Dutch roll". This would make for a very uncomfortable ride, especially for the tail gunner.

The B-26 is said, by the 9th Air Force, to have had the lowest combat loss rate of any U.S. aircraft used during the war. Nevertheless, it remained a challenging aircraft to fly and continued to be unpopular with some pilots throughout its military career. In 1944 in answer to a lot of pilots complaining to the press and their relatives back home, the USAAF and Martin took the unusual step during a war, and commissioned large articles to be placed in various popular publications "educating" and defending the so called flying/accident record of the B-26 against "slanders". One of the largest of these articles was in the May 1944 issue of *Popular Mechanics*.

Operational history

The B-26 Marauder was used mostly in Europe but also saw action in the Mediterranean and the Pacific. In early combat the aircraft took heavy losses but was still one of the most successful medium-range bombers used by the U.S. Army Air Forces. The B-26 was initially deployed on combat missions in the South West Pacific in the spring of 1942, but most of the B-26s subsequently assigned to operational theaters were sent to England and the Mediterranean area.

By the end of World War II, it had flown more than 110,000 sorties and had dropped 150,000 tons (136,078 tonnes) of bombs, and had been

used in combat by British, Free French and South African forces in addition to U.S. units. In 1945, when B-26 production was halted, 5,266 had been built.

The B-26 began to equip the 22d Bombardment Group at Langley Field, Virginia in February 1941, replacing the B-18 Bolo, with a further two Bombardment groups equipping with the B-26 by December. Immediately following the Japanese Attack on Pearl Harbor, the 22d was deployed to the South West Pacific, being sent by ship to Hawaii and then flown to Australia. The 22d flew its first combat mission, an attack on Rabaul which required an intermediate stop at Port Moresby, New Guinea, on 5 April 1942.

A second Group, the 38th Bombardment Group, received B-26s in November 1941. Immediately after the entry of the United States into World War II, plans to send the 38th BG to the South West Pacific, to be equipped with B-26Bs fitted with more auxiliary fuel tanks and provisions for carrying aerial torpedoes, were tentatively developed. Four of these aircraft were deployed to Midway Island in the build-up to the Battle of Midway, and carried out torpedo attacks against the Japanese Fleet on 4 June 1942. Two B-26s were shot down with the remaining two badly damaged, while their torpedoes failed to hit any Japanese ships, although they did shoot down one A6M Zero fighter, and killed two seamen aboard the aircraft carrier *Akagi* with machine gun fire.

Two squadrons were detached from the 38th BG (which was converting to the B-25) in May 1942 and deployed to Australia to join the 22d, but it was decided to standardize on the B-25 Mitchell in the South West Pacific theatre. The B-26 flew its last combat missions in the theatre on 9 January 1944. Two more squadrons of torpedo armed Marauders were used for anti-shipping operations in the Aleutian Islands Campaign, but there are no records of any successful torpedo attack by a USAAF B-26.

Three Bombardment Groups were allocated to support the Allied invasion of French North Africa in November 1942. They were initially used to carry out low-level attacks against heavily defended targets, receiving heavy losses with poor results, before switching to medium level attacks. By the end of the North Africa campaign, the three B-26 groups had flown 1,587 sorties, losing 80 aircraft. This was

double the loss rate of the B-25, which also flew 70% more sorties with fewer aircraft. Despite this, the B-26 continued in service with the Twelfth Air Force, supporting the Allied advance through Sicily, Italy and Southern France. Air Marshall Slessor considered the 42nd Bombardment Group (Marauders) to be the "best day-bomber unit in the world."

The B-26 entered service with the Eighth Air Force in England in early 1943, with the 322d Bombardment Group flying its first missions in May 1943. Missions were similar to those flown in North Africa with B-26s flying at low level and were unsuccessful. The second mission, an unescorted attack on a power station at Ijmuiden, Netherlands resulted in the loss of the entire attacking force of 11 B-26s to anti-aircraft fire and *Luftwaffe* Focke-Wulf (FW) 190 fighters. Following this disaster, the UK-based B-26 force was switched to medium altitude operations, and transferred to the Ninth Air Force, set up to support the planned Invasion of France.

Bombing from medium altitudes of 10,000 to 15,000 feet (3,000 to 4,600 m) and with appropriate fighter escort, the Marauder proved far more successful, striking against a variety of targets, including bridges and V-1 launching sites in the build-up to D-Day, and moving to bases in France as they became available. The Marauder operating from medium altitude proved to be a highly accurate bomber, with the 9th Air Force rating it the most accurate bomber available in the final month of the war in Europe. Loss rates were far lower than in the early, low-level days, with the B-26 stated by the 9th Air Force as having the lowest loss rate in the European Theatre of Operations at less than 0.5 %.

The B-26 flew its last combat missions against the German garrison at the Île d'Oléron on 1 May 1945, with the last units disbanding in early 1946.

In 1942, a batch of 52 B-26A Marauders (designated Marauder I by the RAF) were offered to the United Kingdom under Lend-Lease. Like the earlier Martin Maryland and Baltimore bombers, these were sent to the Mediterranean, replacing the Bristol Blenheims of No. 14 Squadron in Egypt. No. 14 Squadron flew its first operational mission on 6 November 1942, being used for long range reconnaissance, mine-laying and anti-shipping strikes. Unlike the USAAF, 14 Squadron

made productive use of the option for carrying torpedoes, sinking several merchant ships with this weapon. The Marauder also proved useful in disrupting enemy air transport, shooting down considerable numbers of German and Italian transport aircraft flying between Italy and North Africa.

In 1943, deliveries of 100 long wingspan B-26C-30s (Marauder II), allowed two squadrons of the South African Air Force, 12 and 24 Squadron, these being used for bombing missions over the Aegean, Crete and Italy. A further 350 B-26F and Gs were supplied in 1944, with two more South African Squadrons (24 and 30) joining No 12 and 24 in Italy to form an all Marauder wing, while one further SAAF squadron (25) and a new RAF Squadron (39 Squadron) re-equipped with Marauders as part of the Balkan Air Force supporting Tito's Partisans in Yugoslavia. A Marauder of 25 Squadron SAAF, lost on the unit's last mission of the Second World War on 4 May 1945, was the last Marauder to be lost in combat by any user. The British and South African aircraft were quickly scrapped following the end of the war, the United States not wanting the return of the Lend-Lease aircraft.

Following Operation Torch, a number of French bomber squadrons were re-equipped with the B-26, being used to support operations in Italy and the Allied invasion of southern France. Replaced in squadron service by 1947, two lingered on as test beds for the SNECMA Atar jet engine, one of these remaining in use until 1958.



MAPS B-26 –Serial Number 40-1459

The airframe on display in the MAPS air museum is a composite of two aircraft of a three aircraft flight of B-26's that took off from Edmonton, Alberta Canada on November 16, 1942. The final destination for this flight as Elmendorf Field in Alaska where the bombers would defend Alaska against an expected attack by the Japanese. The planes contained a full allotment of fuel but exhausted it after running into foul weather. The pilots agreed to a forced landing in a shallow valley near the Town of Smith River at the headwater of the Grayling River in northern British Columbia.

In April of 1942 the Army Air Force sent crews to salvage the planes, removing engines, landing gear, radio equipment and weapons.

In September of 1971, a group from the Military Aircraft Restoration Corporation of Chino, California, set out to recover the planes. Led by David Tallichet, Jr., the team traveled to Canada and disassembled the B-26s for shipment back to the States. Tallichet restored one of the airframes to airworthiness.

Parts of the other two airframes (primarily aircraft 40-1459) started arriving at the MAPS facility in August of 1994. The tail section arrived on August 6, 1994 and the nose and center sections arriving on August 27th.

Records show that the aircraft under restoration (40-1459), was the 99th unit off of the assembly line of the initial order of 201 short winged versions of the B-26 manufactured by the Martin factory in Baltimore and received by the USAAF on June 30, 1941. In October of 1941, it was sent to the Sacramento Air Depot to be winterized. In January 1942, the aircraft was assigned to the 4th Air Force with the notation "Wrecked 16 Jan 42. Crashed in Canada, damage unknown."

Variants

B-26

The first produced model of the B-26, ordered based upon design alone. The armament on this model consisted of two .30 caliber and two .50 caliber machine guns. (The last model was armed with nearly three times that number.) Approximate cost then: \$80,226.80/aircraft.

B-26A

Incorporated changes made on the production line to the B-26, including upgrading the two .30 caliber machine guns in the nose and tail to .50 caliber. A total of 52 B-26As were sent to the United Kingdom, which were used as the **Marauder Mk I**. Approximate cost then: \$102,659.33/aircraft (×139)

B-26B

Model with further improvements on the B-26A. Nineteen were sent to the United Kingdom, which were used as the

Marauder Mk.IA. Production blocks of the 1,883 aircraft built:

- **AT-23A or TB-26B**
208 B-26Bs converted into target tugs and gunnery trainers designated **JM-1** by the Navy.
- **B-26B**
Single tail gun replaced with twin gun; belly-mounted "tunnel gun" added. (×81)



U.S. Army Air Forces B-26B bomber in flight.

- **B-26B-1**
Improved B-26B. (×225)
- **B-26B-2**
Pratt & Whitney R-2800-41 radials. (×96)
- **B-26B-3**
Larger carburetor intakes; upgrade to R-2800-43 radials. (×28)
- **B-26B-4**
Improved B-26B-3. (×211)
- **B-26B-10 through B-26B-55**
Beginning with block 10, the wingspan was increased from 65 feet (20 m) to 71 feet (22 m), to improve handling problems during landing caused by a high wing load; flaps were added outboard of the engine nacelles for this purpose also. The vertical stabilizer height was increased from 19 feet 10 inches (6.05 m) to 21 feet 6 inches (6.55 m). The armament was increased from six

to twelve .50 caliber machine guns; this was done in the forward section so that the B-26 could perform strafing missions. The tail gun was upgraded from manual to power operated. Armor was added to protect the pilot and copilot. (×1,242)

○ **CB-26B**

12 B-26Bs were converted into transport aircraft (all were delivered to the US Marine Corps for use in the Philippines).

B-26C

Designation assigned to those B-26Bs built in Omaha, Nebraska instead of Baltimore, Maryland. Although nominally the B-26B-10 was the first variant to receive the longer wing, it was actually installed on B-26Cs before the B-26B-10, both being in production simultaneously. A total of 123 B-26Cs were used by the RAF as the **Marauder Mk II**. Approximate cost then: \$138,551.27/aircraft (×1,210)

TB-26C

Originally designated **AT-23B**. Trainer modification of B-26C. (×>300)

XB-26D

Modified B-26 used to test hot air de-icing equipment, in which heat exchangers transferred heat from engine exhaust to air circulated to the leading and trailing edges of the wing and empennage surfaces. This system, while promising, was not incorporated into any production aircraft made during World War II. (×1, converted)

B-26E

Modified B-26B constructed to test the effectiveness of moving the dorsal gun turret from the aft fuselage to just behind the cockpit. The offensive and defensive abilities of the B-26E was tested against in combat simulations against normal aircraft. Although test showed that gains were made with the new arrangement, the gain was insignificant. After a cost analysis, it was concluded that the effort needed to convert production lines to the B-26E arrangement was not worth the effort. (×1, converted)

B-26F

Angle of incidence of wings increased by 3.5°; fixed .50 caliber machine gun in nose removed; tail turret and associated armor improved. The first B-26F was produced in

February 1944. One hundred of these were B-26F-1-MAs. Starting with 42-96231, a revised oil cooler was added, along with wing bottom panels redesigned for easier removal. A total of 200 of the 300 aircraft were B-26F-2s and F-6s, all of which were used by the RAF as the **Marauder Mk III**. The Marauder III carried the RAF serials HD402 through HD601 (ex-USAAF serials 42-96329 through 96528). The F-2 had the Bell M-6 power turret replaced by an M-6A with a flexible canvas cover over the guns. The T-1 bombsight was installed instead of the M-series sight. British bomb fusing and radio equipment were provided. (×300)

B-26G

B-26F with standardized interior equipment. A total of 150 bombers were used by the RAF as the **Marauder Mk III**. (×893)



Martin B-26G-11-MA Marauder, 43-34581, at the National Museum of the United States Air Force, marked as B-26B-50-MA, 42-95857, written off in accident on 19 April 1945.

TB-26G

B-26G converted for crew training. Most, possibly all, were delivered to the United States Navy as the **JM-2**. (×57)

XB-26H

Test aircraft for tandem landing gear, and nicknamed the "Middle River Stump Jumper" from its "bicycle" gear configuration, to see if it could be used on the Martin XB-48. (×1, converted)



The lone XB-26H, used for testing "bicycle" landing gear.

JM-1P

A small number of JM-1s were converted into photo-reconnaissance aircraft.

With the exception of the B-26C, all models and variants of the B-26 were produced at Martin's Middle River, Maryland manufacturing plant. The B-26C was built at the Martin plant in Omaha, Nebraska

General characteristics (B-26)

- **Crew:** 7: (2 pilots, bombardier, navigator/radio operator, 3 gunners)
- **Length:** 58 ft 3 in (17.8 m)
- **Wingspan:** 71 ft 0 in (21.65 m)
- **Height:** 21 ft 6 in (6.55 m)
- **Wing area:** 658 ft² (61.1 m²)
- **Empty weight:** 24,000 lb (11,000 kg)
- **Loaded weight:** 37,000 lb (17,000 kg)
- **Power plant:** 2 × Pratt & Whitney R-2800-43 radial engines, 1,900 hp (1,400 kW) each

Performance

- **Maximum speed:** 287 mph (250 knots, 460 km/h) at 5,000 feet (1,500 m)
- **Cruise speed:** 216 mph (188 knots, 358 km/h)
- **Landing speed:** 114 mph (90 knots, 167 km/h)
- **Combat radius:** 1,150 mi (999 nmi, 1,850 km)
- **Ferry range:** 2,850 mi (2,480 nmi, 4,590 km)
- **Service ceiling:** 21,000 ft (6,400 m)

- **Wing loading:** 46.4 lb/ft² (228 kg/m²)
- **Power/mass:** 0.10 hp/lb (170 W/kg)

Armament

- **Guns:** 12 × .50 in (12.7 mm) Browning machine guns
- **Bombs:** 4,000 pounds (1,800 kg)