

## P-47 Thunderbolt



Thunderbolt for ruggedness and dependability. The pilots who flew it into combat called it "unbreakable," and "the plane that can do anything." They were not far from wrong.

P-47's often came back from combat shot full of holes, with their wings and control surfaces in tatters. On one occasion a Thunderbolt pilot, Lieutenant Chetwood, hit a steel pole after strafing a train over occupied France. The collision sliced four feet off one of his wings, yet he was able to fly back safely to his base in England.

The story of the P-47 began in the summer of 1940. At that time Republic was building the **P-43 Lancer** and had plans to produce a lightweight fighter, designated the **P-44 Rocket**. In view of combat experience in Europe, the Air Corps decided that if the United States became involved in the war, something larger and better than the **P-44** would be required.

Alexander Kartveli, Republic's chief engineer, quickly prepared a rough sketch of a new fighter. It was a daring concept. He planned to use the new 2,000 hp [Pratt & Whitney Double Wasp XR-2800-21](#), eighteen-cylinder two-row radial engine. It which was largest and most powerful aircraft engine ever developed in the United States. He also envisioned that his plane would have eight .50-caliber machine guns, and enough armor plating to protect the pilot from every direction. These features added up to an airplane weighing about 4,000 lbs. more than any existing single-engined fighter at the time.

Without such power of the new 2,000 hp [Pratt & Whitney Double Wasp](#), Kartveli could see no way of meeting the performance, and load carrying demands being made by the USAAF. From an engineering standpoint, the requirements presented some enormous problems, but far more problems were presented by the engine. The first of these was the need for an efficient supercharging duct system that would offer the least interrupted airflow. Kartveli therefore adopted the unorthodox method of designing this feature first, and then building up the fuselage around it; the large turbo-supercharger was stowed internally in the rear fuselage, with the large intake for the air duct mounted under the engine, together with the oil coolers. Exhaust gases were piped back separately to the turbine, expelled through a waste gate in the bottom of the fuselage, ducted air was

then fed to the centrifugal impeller, and returned, via an intercooler to the engine under pressure. Surprisingly, all this ducting of gases under temperature and pressure did not prove very vulnerable in combat, for the fighter was to become renowned for its ability to absorb battle damage, and return home.

The new design was approved, and Republic began work on the first test model. The XP-47B was ready in just eight months and was taken up for its first test flight on May 6, 1941. It proved to be an outstanding success, and was able to do everything Kartveli had hoped, plus more. Its speed of 412 miles per hour was even higher than expected.

The conventional three-bladed propeller could not efficiently utilize the power of the new engine, and a four-bladed propeller was adopted. Although this propeller was an admirable solution to the power gearing of the engine, there remained the problem of providing sufficient ground clearance for its 12-foot diameter. If a conventional undercarriage were to be employed, its suspension would have been too far outboard to permit the wing installation of the guns, and ammunition requested by the USAAF. Therefore, Republic had to design a telescopic landing gear which was nine inches shorter retracted, than when extended. Numerous other problems were to be faced in absorbing the loads and stresses which would be imposed when a battery of eight 0.5-in. guns, (a phenomenal heavy armament for that time) were fired simultaneously, and in providing the necessary tankage for the quantities of fuel stipulated to make the machine the first true single-engined strategic fighter. Thus, it was only to be expected that when the first prototype, the XP-47B Thunderbolt, made its first flight, on May 6, 1941, it dwarfed not only its pilots but all previous fighters. With a loaded weight of 12,086 lbs., it turned the scales at more than twice the weight of most of its contemporaries.

Production began with the P-47B, which entered USAAF service in November 1942, first becoming operational with the Eighth Air Force stationed in the UK on April 8, 1943. However, the P-47B's range was not really good enough for escort duties, and its maneuverability was poor, but at least it offered a measure of real protection to the Allied bombers, which had previously suffered very heavy losses.

To increase the tempo of flight development of the XP-47B, leading test pilots, such as Colonel Ira C. Eaker, were employed, and at one time it was hoped that the design could benefit from combat testing with the RAF in the Middle East. Production difficulties caused General "Hap" Arnold to notify the British Air Ministry, in September 1941, that it was considered inadvisable to do this until various teething troubles were eradicated, and an optimistic estimate of May 1942 was established as a target date for the Thunderbolt to be combat ready. This was eventually to prove almost a year out. Numerous problems soon presented themselves as the XP-47B test program advanced. At altitudes above 30,000 feet ailerons "snatched and froze," the cockpit canopy could not be opened, and control loads became excessive. 773 production versions were finally ordered, but this was only the beginning. Before the war was over, a total of 15,579 Thunderbolts were built, about two-thirds of which reached operational squadrons overseas.

When, in January 1943, the USAAF's 56th Fighter Group arrived in the United Kingdom with its massive Republic P-47 Thunderbolts, RAF [Spitfire](#) fighter pilots banteringly suggested that their American colleagues would be able to take evasive action, when attacked, by undoing their harnesses and dodging about the fuselages of their huge mounts. Although the Thunderbolt was certainly big, making it the largest and heaviest WWII single engined single-seat fighter ever built, its sheer size was not to prove detrimental to the Thunderbolt's subsequent operational career.

The first tasks of the Thunderbolt, which began on April 8, 1943, were high-altitude escort duties and fighter sweeps, in which the new aircraft acquitted itself well, despite the inexperience of its pilots. It was soon discovered that the heavy Thunderbolt could out-dive any Luftwaffe, or for that matter, any

Allied fighter, providing a decisive method of breaking off combat when necessary, but at low and medium altitudes it could not match the rate of climb or maneuverability of German fighters. One shortcoming, which was even more marked in other Allied fighters was that of insufficient range to permit deep penetration into Germany, but means were already being sought to add to the P-47B's 307 US gallons of internal fuel.

At the time of the Thunderbolt's European debut, radial-engined single-seat fighters were a rarity, the only other such fighter operational in Europe being the [Fw 190A](#). To prevent confusion between the two fighters of the opposing sides, the engine cowlings of the Thunderbolts were painted white, and white bands were painted around the vertical and horizontal tail surfaces--an appropriate comment on recognition standards appertaining at that time, as it would seem impossible to mistake the sleek and beautifully-contoured German fighter for the portly Thunderbolt.

By mid-1943 improved P-47Cs were becoming available, with external fuel tanks to increase range and a longer fuselage to improve maneuverability. Next came the major production version, the P-47D, and then P-47Gs, and P-47Ms with more powerful engines, giving a maximum speed of 470 mph (756 km/h). These versions were used for anti **V1 Flying Bomb** duties.

The final version, the P-47N, was built primarily for use against the Japanese. The fastest model was the XP-47J, which did not go into production. On August 4, 1944, this plane reached a speed of 504 miles per hour. Production plans were shelved in favor of another P-47 development, the **Republic XP-72**.

P-47's flew more than 546,000 combat sorties between March 1943 and August 1945, destroying 11,874 enemy aircraft, some 9,000 locomotives, and about 6,000 armored vehicles and tanks. Only 0.7 per cent of the fighters of this type dispatched against the enemy were lost in combat.

One day in January 1943 General Hunter, the Commander of the 8th Fighter Command, came to visit us at Debden. He said he had a 'surprise' for us. We were soon to re-equip with the very latest American fighter, the P-47 Thunderbolt. As he spoke we heard an unusual engine noise outside and one of the new fighters landed and taxied up beside one of our [Spitfires](#). We went outside to look it over. It was huge: the wing tip of the P-47 came higher than the cockpit of the [Spitfire](#). When we strapped into a [Spitfire](#) we felt snug and part of the aircraft; the Thunderbolt cockpit, on the other hand, was so large that we felt if we slipped off the Goddamned seat we would break a leg! We were horrified at the thought of going to war in such a machine: we had enough trouble with the [Focke Wulf 190's](#) in our nimble [Spitfire Vs](#); now this lumbering seven-ton monster seemed infinitely worse, a true 'air inferiority fighter'. Initial mock dog-fights between Thunderbolts and [Spitfires](#) seemed to confirm these feelings; we lost four Thunderbolt pilots in rapid succession, spinning in from low level, while trying to match [Spitfires](#) in turns. In the end our headquarters issued an order banning mock dog fighting in Thunderbolts below 8,000 feet.

Gradually however, we learnt how to fight in the Thunderbolt. At high altitude, she was a 'hot ship' and very fast in the dive; the technique was not to 'mix it' with the enemy, but to pounce on him from above, make one quick pass and get back up to altitude; if anyone tried to escape from a Thunderbolt by diving, we had him cold. Even more important, at last we had a fighter with the range to penetrate deeply into enemy territory--where the action was. So, reluctantly, we had to give up our beautiful little [Spitfires](#) and convert to the new juggernauts. The war was moving on, and we had to move with it.

The change to the Thunderbolt might have been necessary militarily, but my heart remained with the [Spitfire](#). Even now, thirty years after I flew them on operations, the mere sound or sight of a [Spitfire](#) brings me a deep feeling of nostalgia, and many pleasant memories. She was such a gentle little

airplane, without a trace of viciousness. She was a dream to handle in the air. I feel genuinely sorry for the modern fighter pilot, who has never had the chance to get his hands on a [Spitfire](#); he will never know what real flying was like.

<b>Specifications:</b>	
<b>Republic P-47D-25-RE Thunderbolt</b>	
<b>Dimensions:</b>	
<b>Wing span:</b>	40 ft. 9.25 in (12.43 m)
<b>Length:</b>	36 ft. 1.25 in. (11.01 m)
<b>Height:</b>	14 ft 2 in (4.32 m)
<b>Wing Area:</b>	300 sq ft (91 sq m)
<b>Weights:</b>	
<b>Empty:</b>	10,700 lb. (4,858 kg)
<b>Operational:</b>	19,400 lb (8,807 kg)
<b>Performance:</b>	
<b>Maximum Speed:</b>	428 mph (689 km/h)
<b>Service Ceiling:</b>	42,000 ft. (12,810 m)
<b>Range:</b>	925 miles (1,488 km)
<b>Powerplant:</b>	
One Pratt & Whitney <a href="#">Double Wasp XR-2800-21</a> , eighteen-cylinder two-row radial engine developing 2,000 hp for take-off and 2,300 hp at 31,000 ft. with turbo-supercharging.	
<b>Armament:</b>	
Six or eight 0.5-in. wing-mounted Browning machine-guns with 267 or 425 rounds per gun and up to 2,500 lbs. of bombs or ten 5-in. HVAR missiles	



