

Mitsubishi A6M Zero



The Mitsubishi A6M Zero-Sen legendary status mirrored the fortunes of the rising sun, in which four years, the sun would finally set. For the Japanese and its former enemies, the A6M was the symbol of Japanese air power. The A6M fighter marked the beginning of a new epoch in naval aviation and was the first shipboard fighter capable of surpassing land-based aircraft.¹ With its tight turning radius, it was an extremely deadly weapon in a dogfight, and was famous for its ability to outmaneuver, [Brewster F2A Buffaloes](#), [Curtiss P-40s](#) and [Grumman F4F Wildcats](#). As early as 1937, Claire Chennault, the author of *'The Role of Defensive Pursuit,'* warned the USAAF about the dangers of Japanese air power. Apparently his warnings were ignored, as the superiority of the A6M was a complete surprise to the American forces.² As leader of the Flying Tigers, Chennault constantly stressed to his pilots, 'Never try to turn with a Zero. Always get above the enemy and try to hit him with the first pass.'³ Because of the A6Ms exceptional range and performance, it was to bear the brunt of the action, of almost every military engagement in the Pacific, until the end of the war.⁴

The Navy submitted specifications for a new Navy Fighter on 19 May, 1937, to supersede the Mitsubishi A5M, Navy Type 96 Carrier Fighter, which had just become operational. The requirements called for were:

1. Maximum speed of 270 kt @ 4,000 m.
2. Climbing speed of 3,000 m in 9 min 30 sec.
3. Endurance of 1.5 to 2 hours at normal rated power.
4. Endurance of 6 to 8 hours at economical speed with drop tanks.
5. Armament of two 20 mm cannon and two 7.7 mm machine guns.
6. Provisions for two 60 kg bombs.
7. Provision for full radio and direction finder.
8. Takeoff run less than 70 m with a 27 knot headwind.
9. Maneuverability at least equal to the A5M.

The Navy ordered two prototypes and plans were submitted by Nakajima and Mitsubishi. Nakajima elected to drop their proposal for a fighter design and Mitsubishi submitted their design led by designer Jiro Horikoshi. The Mitsubishi prototype was the A6M1, retractable gear, all metal, low-wing monoplane, powered with a 780 hp **Mitsubishi Zuisei 13** engine. During flight testing, the two-bladed prop variable-pitch propeller was replaced with a three-bladed variable pitch propeller. Apart from maximum speed, all requirements were met or exceeded.⁵ The Navy had authorized the production of an initial batch of A6M2s and military trials progressed rapidly. While flight testing the A6M1, a new power plant passed its Navy acceptance tests, and the 925 hp **Nakajima NK1C Sakae 12**, which was slightly larger than the **Zuisei**, was installed in the third A6M2 prototype. The initial trials were completed in July 1940 and the navy assigned fifteen A6M2s to combat trials in China. In China the A6M2s, reinforced with a number of production aircraft, destroyed 99 Chinese aircraft with a loss of only two of their own. The aircraft was accepted for production on July 1940 as Navy Type 0 Carrier Fighter Model 11 and in September 1941 were prepared for the impending war with the Allies.⁶ Modifications were introduced during production and A6M2 rear spar was reinforced and manually folding wingtips were incorporated to allow clearance on the carriers deck elevators. The modified aircraft was designated Navy Type 0 Carrier Fighter Model 21.⁷ The A6M2 Model 21 was the version utilized at Pearl Harbor and throughout the Pacific, during the early stages of the war. With its maximum speed of 288 kt @ 4,550 m and ability to climb to 6,000 m in 7 minutes 27 seconds, it possessed an ascendancy over any other fighter type in the Pacific. When the war began on December 7, 1941, the Japanese Navy had 328 A6M2s in first line units.⁸

The A6M possessed many shortcomings, which were only to be revealed six months later when a virtually intact specimen was obtained. On June 3, 1942, Flight Petty Officer Tadayoshi Koga left the flight deck of the carrier *Ryujo* in his Mitsubishi A6M2 Model 21 fighter as part of a task force assigned to attack Dutch Harbor in the Aleutian Islands. His A6M2, which had been built in February, was on its first operational mission. On his way back to the *Ryujo*, Koga found that two bullets had punctured his fuel supply and he informed his flight commander that he intended to land on Akutan Island, designated as an emergency landing field. Koga did not make the landing field and instead made a forced landing in a marsh where the aircraft flipped over, in which he was killed, from a broken neck. Five weeks later, a US Navy **PBY Catalina**, making a routine patrol, discovered the Japanese fighter upside down in the marsh. This single fighter was probably one of the greatest prizes of the Pacific war. Hardly damaged, it was shipped back to the USA where it was exhaustively tested. Information gathered during testing of the A6M2 prompted the American aircraft manufacturer Grumman, to lighten the [Grumman F4F Hellcat](#),⁹ and install a larger engine on the [Grumman F6F Hellcat](#).¹⁰

Some Zeros were the first aircraft used intentionally as suicide attack planes. Modified Zeros assigned to Air Group 201 in the Philippines became the first Japanese aircraft

used on planned suicide missions against American surface vessels. Air Group 201, assisted by volunteer pilots from Air Group 601 and other Navy units in the area, became the first Kamikaze (Divine Wind) suicide squadron in the Japanese Naval Air Force. The outstanding successes gained by this form of attack led to the formation of other Kamikaze units, and the bomb-carrying Zeros became the prime suicide attack bombers of the Navy.

More Zero-Sens were produced than any other wartime Japanese aircraft. Mitsubishi alone produced 3,879 aircraft of this type, Nakajima built 6,215 which, together with the 844 trainer and floatplane variants produced by Sasebo, Hitachi and Nakajima, brought the grand total of A6M series aircraft to 10,938. The Zero-Sen possessed complete mastery in the air over the Pacific until the Battle of Midway in June 1942, the actual turning point of the Pacific War although recognized by only a few at the time. The value of the fighter steadily declined and its lowest point was reached when it was selected to lead the Navy's Air Force in mass suicide, and the Japanese nation followed. The installation of the Kinsei engine brought Zero-Sen closer to Allied standards attained at that stage in the war, but the moment for decision had passed and, with it, victory for the Allies had become a foregone conclusion. The fighter that started the Pacific war was no longer able to fight it--nor was the nation that conceived it.

| Specifications: | | |
|------------------------------------|---|---|
| | A6M2 - Model 21 | A6M5 - Model 52 |
| Dimensions: | | |
| Wing span: | 39 ft 4 7/16 in (12 m) | 46 ft 1 1/16 in (11 m) |
| Length: | 29 ft 8 11/16 in (9.06 m) | 29 ft 11 3/32 in (9.121 m) |
| Height: | 10 ft 0 1/16 in (3.05 m) | 11 ft 6 5/32 in (3.509 m) |
| Weights: | | |
| Empty: | 3,704 lb. (1,680 kg) | 4,136 lb. (1,876 kg) |
| Loaded: | 5,313 lb (2,410 kg) | 6,025 lb (2,733 kg) |
| Performance: | | |
| Maximum Speed: | 331.5 mph (288 kt) @ 14,930 ft (4,550 m) | 351 mph (305 kt) @ 19,685 ft (6,000 m) |
| Service Ceiling: | 32,810 ft. (10,000 m) | 38,520 ft. (11,740 m) |
| Maximum Range: | 1,930 miles (3,107 km) | 1,194 miles (1,922 km) |
| Powerplant A6M2: | | Powerplant A6M5: |
| One Nakajima NK1C Sakae 12, | | One Nakajima NK1F Sakae 21, |

fourteen cyl., air-cooled, radial engine
rated at 940 hp for takeoff and 950 hp @ 13,780 ft (4,200 m), driving a three-blade metal propeller.

fourteen cyl., air-cooled, radial engine
rated at 1,130 hp for takeoff and 980 hp @ 19,685 ft (6,000 m), driving a three-blade metal propeller.

Armament:

Two forward-firing 7.7 mm Type 97 machine-guns in the upper fuselage and two wing-mounted 20 mm Type 99 cannon with two external 132 lb (60 kg) bombs.



